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DEFINITY® Communications System G3R Implementation

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About This Document

This document is solely concerned with the completion of paper records and forms that are later used to initialize and administer the DEFINITY® Communications System Generic 3r (referred to as the ''System'' throughout this manual). The completed hard-copy forms are used later along with instructions contained in *Generic 1 and Generic 3—System Management*, 555-230-500, to implement the System. This manual describes each form required to implement the various System and voice terminal features. Instructions on how to complete each form are also provided. This manual describes how to use the completed forms (paper records) to initialize and administer the System.

To implement a System, obtain all associated information drafted in the planning process, where the System requirements were identified by the AT&T Account Team and the customer. Those requirements were converted into orderable System hardware when the Account Team configured the System.

To complete this manual, you must:

- Have hardware and feature knowledge (consult *Generic 1 and Generic 3—System Description and Specifications*, 555-230-200, and *Generic 1 and Generic 3—Feature Description*, 555-230-201.)
- Know what System and terminal hardware has been ordered [refer to the Delivery Operations Support System (DOSS) order].

Refer to ''References'' in Appendix C of this manual for a listing of other documents you may need.

How This Document is Organized

The other chapters of this manual are as follows:

- **Information in this chapter will be updated at a later date to reflect recent changes in the complex provisioning process.**

  Chapter 1. Communications Survey—describes the Communications Survey that consists of gathering information about the System, its users, their job functions, and their communication needs. This information is essential before beginning System implementation.

- Chapter 2. Administration Commands and Error Messages—describes the various types of commands that can be used when administering the system's features, functions, and services. The use of an abbreviated command structure is discussed and a table of all administration-type commands is provided. In addition, a detailed listing of administration related error messages is provided along with a brief explanation of what might have caused the error.

- Chapter 3. System Features, Functions, and Services—provides instructions required to implement the System and voice terminal features. A complete alphabetical coverage of each System feature or service is included in this chapter. Descriptions of each feature or service and associated tables listing the forms or fields on forms that must be completed or considered when implementing the feature are also provided. The table lists the chapter/page numbers where form instructions and associated blank forms can be found.

- Chapter 4. Forms for Network Features and Services—lists the network-type forms and associated instructions required to implement Automatic Route Selection, Automatic Alternate Routing, Centralized Attendant Service, Distributed Communications System, DS1 Tie Trunk Service, Integrated Services Digital Network-Primary Rate Interface, and System trunk groups and associated trunks.

- Chatper 5. Forms for System Features and Services—contains an alphabetical listing of the System forms and associated instructions for completing each field on the forms. The forms in this chapter provide an accurate representation of the screen forms that are displayed on the System's administration terminal (such as, DEFINITY Manager terminal) during System initialization and on-going administration.

- Appendix A. SPID Installation—provides general instructions for installing the Service Profile Identifier (SPID) number.

- Appendix B. References—contains a listing of all referenced documentation. A brief description of each document is given.

- Appendix C. Abbreviations and Acronyms—contains a listing and definition of abbreviations and acronyms used in this and other related documentation.

- Glossary—contains a description of terms used in this and other related documents.
- Index—contains a permuted index.

The information in Chapters 3, 4, and 5 of this manual may be used after the System has been initialized as a reference source when adding and changing features. This manual is the only source of detailed descriptions of the screen forms and the forms required to be completed or considered when implementing a System feature.

The following items should be considered:

1. Certain data entered on paper forms (such as group numbers) is used as part of the administrative input command when entering form data into the System. The group number is then displayed on the form as associated data from the paper record is being entered. Typically, in this manual, these types of fields are called display-only fields although the data is required to be entered on the paper form when first making assignments. For example, assume a paper record for Hunt Group 4 is established during implementation. The *add hunt-group 4* command is then used to access the appropriate screen form for adding the hunt group. The ''4'' is then stored in translations for that hunt group. Subsequent updates to the hunt group require that the *change hunt-group 4* administrative command be used to make changes. (A complete list of administrative commands is provided in Chapter 2 and the commands associated with each screen form are provided with each form's coverage in Chapters 4 and 5.)
2. Some of the forms listed in Chapter 5 should not be changed on a routine basis. Specifically, the Dial Plan Record, Feature Related System Parameters, and Feature Access Codes forms do not normally require changes after initialization. When making additions or changes to the System, verify that the required forms and/or fields on the forms have been completed. Specify the additional data needed to add or change a feature.

Many of the System forms that are displayed on the administration terminal contain dynamic fields. Dynamic fields are either displayed or not displayed, depending on how another field on the form or the System's optional features are administered. In this manual, dynamic fields are identified by Implementation Notes shown below the form.

How to Use This Document

The procedural checklist in the following steps should be followed to complete the forms in this manual.

1. Become familiar with the contents of this manual.
2. Conduct a Communications Survey. Instructions for completing a Communications Survey are in Chapter 1.
3. Review the various administration commands that are available for implementation purposes as shown in Chapter 2.
4. Use Chapter 3 of this manual to identify each form or fields on forms that require completion or consideration when implementing System features and services. Complete the associated forms as shown in Chapters 4 and 5. Blank forms are provided in the accompanying Blank Forms Package and are to be used for reproduction of working copies of the forms. After these forms are completed, they should be used with administration commands in Chapter 2 and the information in *Generic 1 and Generic 3—System Management*, 555-230-500, to administer the features in the System. After initialization, all completed forms should be maintained as a hard-copy record of the initialization.

How to Make Comments About This Document

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Communications Survey

1

CAUTION:
Information in this chapter will be updated at a later date to reflect changes in AT&T's provisioning process.

The Communications Survey consists of gathering information about the System, its users, their job functions, and their communications needs. After this information is identified, it is then matched with available features and hardware to design a System that fulfills customer requirements.

Basically, the survey:

- Identifies the appropriate features and calling privileges for each user
- Assigns appropriate data on hard-copy forms that subsequently become part of the System's software database.

Survey Steps

Complete each of the survey steps in the order given. Some steps are best performed by a cooperative effort between the account team and the customer or customer's representative. Where applicable, these steps are so indicated.

Before actually beginning the survey, review the information provided in Chapters 4, 5, and 6. Chapter 3 contains a brief description of each System feature, function, or service. The associated forms and the fields to be completed on each form are given. Hardware and software requirements are noted where applicable. You will be required to complete various forms based on the features to be provided. Chapters 5 and 6 contain forms and instructions for completing each field on a form. Blank forms suitable for reproduction are provided in the ''Blank Forms Package''.

Review Chapters 4, 5, and 6 several times until you become familiar with the features, the forms required, and the data to be entered on the forms. The following documents provide additional information:

- *Generic 1 and Generic 3—System Description and Specifications*, 555-230-200
- *Generic 1 and Generic 3—Feature Description*, 555-230-201
- *Generic 1 and Generic 3—Planning and Configuration*, 555-230-600.

Step 1

Obtain a list of equipment (including number and type) that has been ordered for the System. Identify the System cabinets ordered.

Find out what features and services are to be provided.

Step 2—Trunk Groups

A complete list of all trunk groups supported by the System is provided below. For each trunk group to be provided, review the associated trunk group description contained in ''Forms for Network Features and Services'' in Chapter 4, identify the associated trunk group forms required and the fields on the form(s) to be completed, and determine the number of forms required. Complete the appropriate fields on all forms as required.

- Access
- Advanced Private Line Termination (APLT)
- Central Office (CO)
- Customer-Provided Equipment (CPE)
- Digital Multiplexed Interface (DMI)
- Direct Inward Dialing (DID)
- Foreign Exchange (FX)
- Integrated Services Digital Network—Primary Rate Interface (ISDN-PRI)
- Personal Central Office Line Groups (PCOLG)
- Release Link
- Tandem
- Tie
- Wide Area Telecommunications Service (WATS)

Step 3—Optional Feature Software

Each of the following features and forms are optional and may or may not be provided with the System. For each feature to be provided, review the associated feature description contained in '' System Features, Functions, and Services'' in Chapter 3, identify the associated System forms and the fields on the forms to be completed, and determine the number of forms required. (The forms and associated instructions are included in ''Forms for System Features and Services'' in Chapter 5.) Complete the appropriate fields on the duplicated forms as required. The following features are activated on the System-Parameters Customer-Options form. This form is implemented during the installation of the System and is not administrable by a customer. Information associated with the implementation of the form is contained in *Generic 1 and Generic 3—Installation and Test*, 555-230-104.

- Abbreviated Dialing Enhanced List
- Adjunct-Switch Applications Interface (ASAI)
- ASAI Capability Groups
  - — Adjunct Call Control Group
  - — Adjunct Routing Group
  - — Domain Control Group
  - — Event Notification Group
  - — Request Feature Group
  - — Set Value Group
- Authorization Codes
- Automatic Call Distribution (ACD)
- Automatic Route Selection (ARS)
- ARS/AAR Digit Conversion
- ARS/AAR Partitioning
- ATMS
- Basic Call Management System
- Call Work Codes
- Centralized Attendant Service (CAS) Branch
- CAS Main
- CPN/BN Adjunct
- Distributed Communications System (DCS)
- Emergency Access to the Attendant
- Forced Entry of Account Codes
- Hospitality

- Hospitality Parameter Reduction
- ISDN-PRI
- Lookahead Interflow
- PNC Duplication
- Private Networking (Automatic Alternate Routing)
- Service Observing
- Terminal Translation Initialization (TTI)
- Time of Day Routing
- Uniform Dial Plan
- Vectoring (Basic)
- Vectoring (Prompting).

NOTE:
You cannot implement forms or fields on forms associated with an optional feature that is not provided (activated).

Step 4—Remaining System Features and Services

For each feature to be assigned, review the associated feature description in ''System Features, Functions, and Services'' in Chapter 3. Identify the associated System forms and the fields on the forms to be completed, and determine the number of forms required (also refer to Step 5 for a listing of group-related forms). Complete the fields on the duplicated forms as required. Refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of each feature, when required.

Step 5—End User Survey

Establish contact with a representative from each department, section, or work group that will be using the System. Each person selected must have the authority to make some decisions about the new communications System. You will need to interview these contacts as you go about the process of completing the System forms.

Identify each System user name, terminal type, and extension number to be assigned.

If required, enter each user name, terminal type, and extension number on a floor plan, or equivalent drawing. The floor plan will help you visualize various work groups and make later group assignments such as call answering groups or call pickup groups easier. This drawing, or an equivalent, can then be used by the installation technicians when installing voice terminals and associated equipment.

For all terminal types and quantities of each type identified, remove the applicable blank station forms from the Blank Forms Package and duplicate as many times as necessary.

On each duplicated station form, enter the applicable terminal type, user name, extension number, and port number.

Step 6—Group Forms

For each of the following features to be provided, review the associated description contained in Chapter 3, identify the associated forms and the fields on the forms to be completed, and determine the number of forms required. (The forms and associated instructions are included in ''Forms for System Features and Services'' in Chapter 5.) Remove the applicable blank forms from the Blank Forms Package and duplicate as many times as necessary. Complete each field on the duplicated form as required.

- Abbreviated Dialing—System List
- Abbreviated Dialing—Group List
- Abbreviated Dialing—Personal List
- Call Coverage
- Hunt Groups (see Hunting feature description)
- Intercom Groups—Automatic and Dial
- Malicious Call Trace
- Pickup Groups
- Terminating Extension Group.

Step 7—Voice Terminals/BCTs

Complete the various fields on the previously obtained station forms. Before actually assigning features on the forms, review the features that can be assigned to each terminal type, the recommended button nomenclature, and the abbreviated feature name that must be entered on the form. The maximum number of buttons that can be assigned to a feature or function must also be considered. Information on each voice terminal type is provided in ''Forms for System Features and Services'' in Chapter 5. The maximum number of buttons that can be assigned features (administrable buttons) is shown for each terminal type. You must not exceed this number when assigning feature buttons to the terminal. Voice terminal figures in Chapter 5 show each terminal that can be assigned, their associated button positions, and a suggested standard button arrangement.

The recommended button nomenclature is also used in the System's *Generic 1 and Generic 3—Console Operation*, 555-230-700, *Generic 1 and Generic 3—Voice Terminal Operation*, 555-230-701, and related User Instructions. If

different nomenclature is used than that recommended, the related documentation for the System should be marked to reflect the changes, and that nomenclature then used in all System assignments. When the terminal is installed, the button nomenclature is then entered on a label and inserted next to the button that is assigned the feature. A set of preprinted labels comes with each voice terminal.

Step 8—Review

Review all features and services listed in ''System Features, Functions, and Services'' in Chapter 3 and ensure that a form has been completed for all features and services to be provided.

Retain all completed forms for use during System initialization. The method used for determining circuit pack locations is the same method used at the factory.

Administration Commands and Error Messages

2

The following provides a description of the System's Command Line feature and a summary of the *administration* commands and associated error messages that support the feature. A user, via entry of a single command line on the DEFINITY® Communications System Generic 3 Management Terminal (G3-MT) (previously known as Manager I), can easily communicate with the system to perform various tasks associated with the administration and implementation of the System.

The Command Line feature is divided into the following four categories:

- Administration—Used to administer data associated with terminals, facilities, and system parameters.
- Maintenance—Used to perform maintenance on objects such as trunks, terminals, ports, and system control modules. Also used to obtain displays of error and alarm logs. Refer to *Generic 3r—Maintenance*, 555-230-105, for information associated with maintenance commands.
- Measurements—Used to obtain displays of measurement reports for trunk groups, hunt groups, attendants, etc. Refer to *Generic 3r—System Reports*, 555-230-510, for information associated with measurement commands.
- System—Used to change passwords and administer the command authorization structure. Refer to *Generic 1 and Generic 3—System Management*, 555-230-500, for information associated with system commands.

You must be logged on the system via the G3-MT before an administration command can be entered. Procedures on how to log on to and log off the system and descriptions of the various management tasks that can be performed are provided in *Generic 1 and Generic 3—System Management*, 555-230-500.

Command Structure

An administrative command is made up of multiple words that instruct the System to do a specific task. The command is made up of Action, Object, and, depending on the command type, Qualifier words.

The Action word is the first word entered on the command line and specifies the operation to be performed (such as, ''add'', ''change'', ''delete''). The Object word is the second phrase entered on the command line and specifies the specific object to be operated on, for example, a station, trunk group, or hunt group. Finally, the qualifier can be one or more key words or digits used to further identify or complete the object. The qualifier can be mandatory or optional, depending on the command or system configuration.

Only one command line can be entered at a time. For example, the command required to add a station with extension number 1212 is shown below:

add station 1212

In the above example, *add* is the Action word, *station* is the Object word, and *1212* is the Qualifier word.

Spaces must be used to separate the Action, Object, and Qualifier words on the command line.

The System provides an on-line Help function (by pressing the Help key) which can be used to obtain a list of commands or to provide information for completing commands. As stated earlier, maintenance, measurement, and system commands and their associated add/object/qualifier words are not covered here. Refer to the appropriate manual for that information.

Action Commands

Action commands are used to administer the System's features, functions, and services. The following provides a summary of the action words and their associated object words.

Add—The associated object being added, such as ''attendant'', must not exist in the System for the *add* command to be accepted. The following object words are available for use with the *add* command. They can be displayed by pressing the Help key after entering the action word ''add''.

- abbreviated-dialing
- access-endpoint
- administered-connection
- attendant
- cabinet
- coverage
- data-module
- ds1
- fiber-link
- hunt-group
- intercom-group
- modem-pool
- personal-CO-line
- pgate
- pickup-group
- second-digit
- signaling-group
- station
- term-ext-group
- trunk-group
- vdn

Change—the associated object being changed, such as circuit packs, must be currently administered in the System before the *change* command can be accepted. The *change* command cannot be used to identify a new object or to remove an existing object. The following object words are available for use with the *change* command. They can be displayed by pressing the Help key after entering the action word ‘‘change’’.

- aar
- abbreviated-dialing
- access-endpoint
- adjunct-names
- administered-connection
- alias
- alphanumeric-dial-table
- alternate-frl
- announcements
- ars
- attendant
- authorization-code
- cabinet
- call-screening
- circuit-pack
- communication-interface
- console-parameters
- cor
- cos
- coverage
- data-module
- dial-plan
- digit-absorption
- ds1
- enp-number-plan
- feature-access-code
- fiber-link
- hunt-group
- intercom-group
- intra-switch-cdr
- isdn
- ixc-codes
- listed-directory-numbers
- mct-group-extensions
- meas-selection
- modem-pool
- mst
- node-routing
- paging
- password
- permissions
- personal-CO-line
- pgate
- pickup-group
- remote access
- report-scheduler
- rhnpa
- route-pattern
- second-digit
- signaling-group
- site-data
- station
- synchronization
- system-parameters
- term-ext-group
- toll
- trunk-group
- udp
- vdn
- vector

Display—allows viewing of parameters associated with a specific object/qualifier. If the command ''display station 4444'' is entered, for example, the voice terminal screen form currently administered for extension 4444 is displayed. If the ''print'' qualifier is entered, for example, ''display station 4444 print'', the form is printed on the printer associated with the G3-MT. The following object words are available for use with the *display* command. They can be displayed by pressing the Help key after entering the action word ''display''.

- aar
- abbreviated-dialing
- access-endpoint
- adjunct-names
- administered-connection
- alarms
- alias
- alphanumeric-dial-table
- alternate-frl
- announcements
- ars
- attendant
- authorization-code
- buttons-location-aca
- cabinet
- call-screening
- capacity
- circuit-packs
- communication-interface
- console-parameters
- cor
- cos
- coverage
- data-module
- dialplan
- digit-absorption
- disabled-tests
- ds1
- enp-number-plan
- errors
- feature-access-code
- fiber-link
- hunt-group
- initcauses
- intercom-group
- intra-switch-cdr
- isdn
- ixc-codes
- listed-directory-numbers
- mct-group-extensions
- meas-selection
- modem-pool
- mst
- node-routing
- paging
- permissions
- personal-CO-line
- pgate
- pickup-group
- port
- remote-access
- rhnpa
- route-pattern
- second-digit
- signaling-group
- site-data
- software
- station
- svn-button-location
- synchronization
- system-parameters
- term-ext-group
- time
- toll
- trunk-group
- udp
- vdn
- vector

Duplicate—allows duplication of existing objects and must be used with qualifiers ‘‘extension numbers’’ to automatically establish service for multiple voice terminals and data modules. Only one data module can be duplicated at a time. Up to 16 voice terminals can be duplicated at one time. The objects that can be duplicated are: access endpoint, administered connection, data modules, and stations.

List—displays parameters associated with groups of objects. This command is used to obtain a list of all, or a selected range of, voice terminals, trunks, and other features that have been administered. The list command and its associated qualifiers can be used to retrieve data for all the ports in the System, or for a specified subset of ports. The following object words are available for use with the *list* command. They can be displayed by pressing the Help key after entering the action word ''list''.

- aar
- abbreviated-dialing
- aca-parameters
- access-end point
- administered-connection
- ars
- authorization-code
- bcms
- bridged-extensions
- cabinet
- configuration
- coverage
- data-module
- do-not-disturb
- emergency
- extension-type
- fiber-link
- groups-of extension
- history
- hunt-group
- intercom-group
- mct-history
- modem-pool
- monitored-station
- mst
- node-routing
- partitioned-group
- performance
- personal-CO-line
- pgate
- pickup-group
- pms-down
- report scheduler
- route-pattern
- signaling-group
- station
- term-ext-group
- timing-source
- toll
- trunk-group
- trunk members trunk
- udp
- vdn
- vector
- wakeup incomplete
- wakeup requests
- wakeup station

Remove—displays the screen form for the associated object word. Pressing ENTER deletes the object from the System. Pressing CANCEL cancels the remove requested. The following object words are available for use with the *remove* command. They can be displayed by pressing the Help key after entering the action word ''remove''.

- abbreviated-dialing
- access-endpoint
- administered-connection
- attendant
- cabinet
- coverage
- data-module
- ds1
- fiber-link
- hunt-group
- intercom-group
- modem-pool
- personal-CO-line
- pgate
- pickup-group
- report-scheduler
- second-digit
- signaling-group
- station
- term-ext-group
- trunk-group
- vdn

Status—displays the operational status of the facility indicated by the object word. A complete description of all status commands is provided in *Generic 3r—Maintenance*, 555-230-105, The following object words are available for use with the *status* command. They can be displayed by pressing the Help key after entering the action word ‘‘status’’.

- attendant
- data-module
- interface
- journal-link
- link
- pms-link
- processor-channel
- cdr-link
- station
- synchronization
- trunk

Command Entry

Two or more keywords are needed to specify a complete command. Each keyword is delimited by a space character or a command line terminator (i.e., pressing the return key or the tab key). All the keywords for a specific command may be entered at the same time or each keyword may be entered separately followed by a command line terminator. If each keyword is entered separately, the Help key can be pressed to obtain help for the next part of the command. The user is prompted at each level of the command line entry with the original prompt and the command words already entered. At the command level following login, the user is prompted with the prompt *enter command:.*

A completed command line must be terminated by a command line terminator. If an error is encountered, the System provides a prompt at the level where the error occurred, the remainder of the command line will be ignored, and an error message will be displayed.

If just one keyword of the command is entered at a time followed with a command line terminator, the System provides a prompt for the next keyword of the command. The prompt is composed of the command line prompt and the previously accepted keywords appended to it. If an error is encountered, an error message will be displayed and and a prompt requesting reentry of the keyword.

If a complete command containing one or more invalid words is entered (for example: ''display dialplan 402''), the command will be accepted up to the first invalid word and the following message will be displayed:

''xxx'' is an invalid identifier; press RETURN to execute modified command The remainder of the command line will be rejected. If the CANCEL key is pressed, the command will be aborted. If the back tab key is pressed, the last word accepted from the command will be deleted.

Command Abbreviation and Keyword Entry

Command abbreviations are accepted by entering enough characters of a keyword to uniquely distinguish it from other legal keywords in the current command line. If the input is ambiguous, the message *xxxx is an ambiguous entry* is displayed and the list of keywords which partially matched the input is displayed. The unambiguous characters already entered are appended to the prompt and the cursor is positioned at the end of these characters. A user need only type enough characters to make this entry unambiguous. If the input does not partially match any of the legal keywords at the current level, the entry is ignored and the message *xxxx is an invalid entry -- Please Press HELP* is displayed.

Every character of the command does not have to be entered on the command line. The command words can be abbreviated, but the abbreviation must be unique to the command.

For example, for the command line *change station 3600,* a *ch* could be entered as the abbreviation for ''change'' as there is only one *action* command beginning with a *ch.* However, because there are several objects beginning with *s,* an *st* must be entered as the abbreviation for the word *station* as the System cannot determine by an *s* alone whether the *change* is to a station or to the System.

Help Facilities

At any point in the command hierarchy or on the command line, the Help key can be pressed to obtain help. The System responds with a message which depends on the current level of the command hierarchy. If the level requires a particular keyword (i.e., the level is an Action or Object level), a list of the valid keywords at that level is displayed. If the level is the Qualifier level, a message is displayed describing the format and the type of parameter required at that level. The use of brackets ([ ]) around keywords or qualifiers indicates that the

entry of the keyword, qualifier, or the part of the qualifier enclosed in the brackets is optional.

The System will only display the commands that a user has permission to use and which are needed for particular system configurations. (User permissions are controlled by login and password assignments.) If a user does not have permission to use a particular object word, that object is removed from the user's help display at that level. If a user does not have permission to use any of the object words under a given level, the objects will be removed from the user's help display at that level. Similarly, if the system configuration does not require specific commands or objects, they are removed from the user's help display at the appropriate level. A duplicated system is the system configuration that requires additional object words and associated commands.

Special Command Line Functions

The following special command line functions are available:

- **Logoff**—Typing ''logoff'' at any command level will log the user off the System.
- **Cancel**—Pressing the CANCEL function key at any level and after any character typed on the command line will; cancel the command, prompt for a new command at the login level, and clear the command path line.
- **Character Erase**—Pressing the Backspace key will erase the character to the left of the cursor and will position the cursor at that position. If the cursor is at the first position, the backspace will cause the terminal bell to ring.
- **Help**—Pressing the HELP function key displays a list of valid keywords for the current level or a message describing the format and the type of parameter expected at this level.
- **Word Delete**—Pressing the back tab key will erase the last word typed on the command line. If there are no words on the command line, word delete will backup one level along the hierarchical command structure. The command path line will be updated to reflect the word deletion. If the user is at the top level, the top level prompt will be redisplayed.
- **Command Line Terminator**—Pressing the return key or the tab key will enter the characters typed at the current prompt into the System.
- **Print**—Typing ''print'' as part of a ''display'' or ''list'' command permits printing of all or part of the translation data of the specified object. If the ''print'' option is entered as part of other commands, the System returns an error message and a prompt for a correct command.

When a special command line function is entered, information displayed on the screen that is not required is removed. For example, if help has been requested for a qualifier and then the CANCEL key is pressed, the display screen will be cleared.

Display Screen Format

For the command line interface, the display screen is made up of 27 lines of 80 characters each. The screen is partitioned as follows:

Line 1. Line 1 is the command path line and is used to display the command line history, the active processing element (i.e., control complex) in duplicated systems, and the page number.

Line 2 through Line 22. These lines are used to display command output and multi-line help messages.

Line 23. This line is the message line and is used to display single line help and error messages.

Line 24. This line is the command line and is used for command entry and form paging. All commands are entered on this line. The line is divided into two sections. The first 64 characters on the line are used to display the current command, and the last 16 characters are used to display either the page number for the current command and the active switch processing element (SPE - in duplicated systems), or the message *Please Wait* for commands which take longer than 2 seconds to respond.

When a command first executes, the command is displayed on the first section of the line. Also, for duplicated systems the active SPE is displayed on the second section of the line. This allows the user to associate the command context with the response of the command and to be aware of which SPE is presently active. The active SPE is either ''SPE A'' of ''SPE B'' for duplicated systems. The format for the command path line is:

action object [qualifier] *page x of x SPE A B*

where the action, object, and qualifier words have been defined earlier. The page information only appears when System forms are displayed. The command path line is highlighted using the terminal's reverse video enhancement feature.

Line 26 and Line 27. These lines are used to display the functions of the screen labeled programmable keys. Normally, these lines are blank.

Command Return Point

After a command has completed either successfully or unsuccessfully, the user is returned to the command level. The last command entered will remain on the command path line, until the next command line terminator is entered. When a command line terminator has been entered, the last command will be erased before the command path line is updated for the next command.

Restrictions

A user will be restricted from executing a command if:

- The user does not have the permission to execute the command, OR
- The system configuration does not require a command, OR
- The command is a member of a set of commands which are being used by another user.

Administration Commands

Table 2-1 provides a summary of all administration commands. The summary is listed alphabetically by the system form or feature associated with the various commands. The complete command line is shown and consists of an action word, object word, and in several cases a qualifier word.

Table 2-1. Administration Commands

Form/Feature	Command Line (Note)		
	Action	Object	Qualifier
AAR	list	route-chosen	Enter dialed number, ['partition' (1–8)], ['print' or 'schedule']
AAR Analysis Table	change	aar analysis	Enter digits between 0–9, 'x' or 'X' (dialed string) ['part' 1–8]
	display	aar analysis	Enter digits between 0–9 'x' or 'X' (dialed string) ['part' 1–8] ['print' or 'schedule']
	list	aar analysis	[start dialed string] ['count' 1–2000] ['rp' 1–640 or r1–r32] ['part' 1–8] ['print' or 'schedule']
AAR Digit Conversion	change	aar digit-conversion	Enter digits between 0–9 'x' or 'X'
	display	aar digit-conversion	Enter digits between 0–9 'x' or 'X' ['print' or 'schedule']
	list	aar digit-conversion	Enter ['start' matching pattern] ['count' (1–300)] ['print' or 'schedule']
Abbreviated Dialing—7103A List	add	abbreviated-dialing 7103A-buttons	—
	change	abbreviated-dialing 7103A-buttons	—
	display	abbreviated-dialing 7103A-buttons	['print' or 'schedule']
	remove	abbreviated-dialing 7103A-buttons	—
Abbreviated Dialing—Group List	add	abbreviated-dialing group	1–100 (or 'next')
	change	abbreviated-dialing group	1–100
	display	abbreviated-dialing group	1–100 ['print' or 'schedule']
	list	abbreviated-dialing group	[xx] ('count' 1–100) ['print' or 'schedule']
	remove	abbreviated-dialing group	1–100
Abbreviated Dialing—Enhanced List	add	abbreviated-dialing enhanced	Enter form number between 0 and 9
	change	abbreviated-dialing enhanced	Enter form number between 0 and 9
	display	abbreviated-dialing enhanced	Enter form number between 0 and 9
	remove	abbreviated-dialing enhanced	Enter form number between 0 and 9
Abbreviated Dialing—Personal List	add	abbreviated-dialing personal	xxxx (extension number of assigned object with a personal list) and List 1–3 or 'next'
	change	abbreviated-dialing personal	xxxx (extension number of assigned personal list) and List 1–3
	display	abbreviated-dialing personal	xxxx (extension number of assigned personal list) and List 1–3 ['print' or 'schedule']
	list	abbreviated-dialing personal	xxxx(extension and 'count' 1–10000) ['print' or 'schedule']
Abbreviated Dialing—System List	add	abbreviated-dialing system	—
	change	abbreviated-dialing system	—
	display	abbreviated-dialing system	['print' or 'schedule']
	remove	abbreviated-dialing system	—
Access-Endpoint	add	access-endpoint	xxxx (ext. or 'next')
	change	access-endpoint	xxxx (ext. or 'next')
	display	access-endpoint	xxxx (ext. or 'next') ['print' or 'schedule']
	duplicate	access-endpoint	xxxx (ext. or 'next')
	remove	access-endpoint	xxxx (ext. or 'next')
	list	access-endpoint	xxxx ['count' 1–400] ['print' or 'schedule']

Note: Brackets [ ] indicate the qualifier is optional.
Single Quotes (' ') indicate the word inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Table 2-1. Administration Commands (continued)

Form/Feature	Command Line (Note)		
	Action	Object	Qualifier
Adjunct Controlled Agent Table	change	adjunct-controlled-agent-table	—
	display	adjunct-controlled-agent-table	['print' or 'schedule']
Adjunct-Switch Application Interface	add	station	xxxxx (extension number) or ('next')
	change	station	xxxxx (extension number)
	display	station	xxxxx (extension number)
	list	hunt-group	
	list	monitored-station	['start' extension] [count xxxxx] [print]
	list	station	[xxxxx] ('count' 1–10000) type ASAI ['print' or 'schedule']
	remove	station	xxxxx (extension number)
Adjunct Names	change	adjunct-names	
	display	adjunct-names	
Administered Connection	add	administered-connection	1–128 (or 'next')
	change	administered-connection	1–128 (or 'next')
	display	administered-connection	1–128 (or 'next') ['print' or 'schedule']
	duplicate	administered-connection	1–128 (or 'next')
	remove	administered-connection	1–128 (or 'next')
	list	administered-connection	1–128 ['count' 1–128] ['print' or 'schedule']
Alias Station	change	alias station	—
	display	alias station	['print' or 'schedule']
Alphanumeric Dialing Table	change	alphanumeric-dial-table	—
	display	alphanumeric-dial-table	[print]
Alternate Facility Restriction Level	change	alternate-frl	
Announcements	change	announcements	—
	display	announcements	['print' or 'schedule']
	restore	announcements	—
	save	announcements	—
ARS	list	route-chosen	Enter dialed number, ['partition' (1–8)], ['print' or 'schedule']
ARS Analysis Table	change	ars analysis	Enter digits between 0–9, 'x' or 'X' (dialed string) ['part' 1–8] ['min' 1–23]
	display	ars analysis	Enter digits between 0–9, 'x' or 'X' (dialed string) ['part' 1–8] ['min' 1–23] ['print' or 'schedule']
	list	ars analysis	[start dialed string] ['count' 1–2000] ['rp' 1–640 or r1–r32] ['part' 1–8] ['print' or 'schedule']
ARS Digit Conversion	change	ars digit-conversion	Enter digits between 0–9, 'x' or 'X'
	display	ars digit-conversion	Enter digits between 0–9, 'x' or 'X' ['print' or 'schedule']
	list	ars digit-conversion	Enter ['start' matching pattern] ['count' (1–300)] ['print' or 'schedule']
ARS Toll Table	change	ars toll	n:xxx (1–32:office code)
	display	ars toll	n:xxx (1–32:office code) ['print' or 'schedule']
Attendant Console	add	attendant	1–7
	change	attendant	1–7
	display	attendant	1–7 ['print' or 'schedule']
	remove	attendant	1–7
	status	attendant	1–7

Note: Brackets [ ] indicate the qualifier is optional.
Single Quotes (' ') indicate the word inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Table 2-1. Administration Commands (continued)

Form/Feature	Command Line (Note)		
	Action	Object	Qualifier
Authorization Codes	change	authorization-code	auth(4–7 digit number)
	display	authorization-code	auth(4–7 digit number)
	list	authorization-code	
Automatic Circuit Assurance	list	aca-parameters	['print' or 'schedule']
	list	measurements-aca	['print' or 'schedule']
	display	buttons-location-aca	
Basic Call Management System	list	bcms agent	extension [time] [start time] [stop time] ['print' or 'schedule']
		bcms agent	extension [day] [start day] [stop day] ['print' or 'schedule']
		bcms split	1–99 (split number) [time] [start time] [stop time] ['print' or 'schedule']
		bcms split	1–99 (split number) [day] [start day] [stop day] ['print' or 'schedule']
		bcms system	[time] [start time] ['print' or 'schedule']
		bcms system	[day] [start day] ['print' or 'schedule']
		bcms trunk	1–99 (group number) [time] [start time] [stop time] ['print' or 'schedule']
		bcms trunk	1–99 (group number) [day] [start day] [stop day] ['print' or 'schedule']
Bridged Extensions	list	bridged-extensions	(enter assigned extension) ['print' or 'schedule']
Cabinet	add	cabinet	
	change	cabinet	
	display	cabinet	
	list	cabinet	
	remove	cabinet	
Call Coverage Answer Group	add	coverage answer-group	1–200 (or 'next')
	change	coverage answer-group	1–200
	display	coverage answer-group	1–200 ['print' or 'schedule']
	list	coverage answer-group	['print' or 'schedule']
	remove	coverage answer-group	1–200
Call Coverage Path (without Hospitality Parameter Reduction Feature)	add	coverage path	1–600 (or 'next')
	change	coverage path	1–600
	display	coverage path	1–600 ['print' or 'schedule']
	list	coverage path	['print' or 'schedule']
	remove	coverage path	1–600
Call Coverage Path (with Hospitality Parameter Reduction Feature)	add	coverage path	1–5 (or 'next')
	change	coverage path	1–5
	display	coverage path	1–5 ['print' or 'schedule']
	list	coverage path	['print' or 'schedule']
	remove	coverage path	1–5
Call Screening	change	call-screening	
	display	call-screening	
Call Vector	change	vector	[1–256]
	display	vector	[1–256] ['print' or 'schedule']
	list	vector	[1–256] ['count' 1–256] ['print' or 'schedule']

Note: Brackets [ ] indicate the qualifier is optional.
Single Quotes (' ') indicate the word inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Table 2-1. Administration Commands (continued)

Form/Feature	Command Line (Note)		
	Action	Object	Qualifier
Circuit Pack	change	circuit-packs	['print' or 'schedule']
	display	circuit-packs	port network[1–3] ['print' or 'schedule']
Class of Restriction	change	cor	0–95
	display	cor	0–95 ['print' or 'schedule']
	list	partitioned group	['print' or 'schedule']
Class of Service	change	cos	—
	display	cos	['print' or 'schedule']
Configuration	list	configuration all	['print' or 'schedule']
		configuration board	4 character [network(1–3)carrier(A–E) slot 1–20 ['print' or 'schedule']
		configuration stations	['print' or 'schedule']
		configuration trunks	['print' or 'schedule']
		configuration control	['print' or 'schedule']
		configuration carrier	2 character cabinet (1–3) carrier (A–E)
		port network	1 character [1–3]
		configuration software-version	[long] ['print' or 'schedule']
Communication Interface	change	communication-interface	links
Links:	change	communication-interface	processor channels
Interface Links	change	communication-interface	hop-channels
Processor Channel Assignment	display	communication-interface	links ['print' or 'schedule']
Hop Channel Assignment	display	communication-interface	processor channels ['print' or 'schedule']
	display	communication-interface	hop-channels ['print' or 'schedule']
	status	interface	A1/A2/B1/B2
	status	link	1–8 (1–8 for multi-carrier cabinet or 1–4 for single-carrier cabinet) ['print']
	status	processor-channel	1–64 (processor channel)
Console Parameters	change	console-parameters	—
	display	console-parameters	['print' or 'schedule']
Data Modules	add	data-module	xxxx (extension or 'next')
	change	data-module	xxxx (extension number)
	display	data-module	xxxx (extension number) ['print' or 'schedule']
	duplicate	data-module	xxxx (extension number to be duplicated)
	list	data-module	(starting ext number)xxxx('count') ['print' or 'schedule']
	list	groups-of-extension	xxxx (extension number) ['print' or 'schedule']
	remove	data-module	xxxx (extension number)
	status	data-module	xxxx (extension number)

Note: Brackets [ ] indicate the qualifier is optional.
Single Quotes (' ') indicate the word inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Table 2-1. Administration Commands (continued)

Form/Feature	Command Line (Note)		
	Action	Object	Qualifier
Dial Plan Record	change	dialplan	—
	display	dialplan	['print' or 'schedule']
Digit Absorption	change	digit-absorption	0–4
	display	digit-absorption	0–4 ['print' or 'schedule']
DS1 Circuit Pack	add	ds1	[P]Css*
	change	ds1	[P]Css(board)
	display	ds1	[P]Css
	list	measurements ds1	location
	list	measurements ds1-log	location
	remove	ds1	[P]Css
Extension Number Portability Numbering Plan	change	enp-number-plan	
	display	enp-number-plan	
Feature Access Codes	change	feature-access-codes	—
	display	feature-access-codes	['print' or 'schedule']
Fiber Link Administration	add	fiber-link	fiber number
	change	fiber-link	fiber number
	display	fiber-link	fiber number ['print']
	list	fiber-link	['print']
	remove	fiber-link	fiber number
History	list	history	['print' or 'schedule']
Hospitality-Related System-Parameters	change	system-parameters hospitality	—
	display	system-parameters hospitality	['print' or 'schedule']
Hunt Groups (without Hospitality Parameter Reduction Feature)	add	hunt-group	1–255 (or 'next')
	change	hunt-group	1–255
	display	hunt-group	1–255 ['print' or 'schedule']
	list	hunt-group	['print' or 'schedule']
	remove	hunt-group	1–255
Hunt Groups (with Hospitality Parameter Reduction Feature)	add	hunt-group	1–5 (or 'next')
	change	hunt-group	1–5
	display	hunt-group	1–5 ['print' or 'schedule']
	list	hunt-group	['print' or 'schedule']
	remove	hunt-group	1–5
Intercom—Group	add	intercom-group	1–32 (or 'next')
	change	intercom-group	1–32
	display	intercom-group	1–32 ['print' or 'schedule']
	list	intercom-group	['print' or 'schedule']
	remove	intercom-group	1–32
Inter-Exchange Carrier Codes	change	ixc-codes	—
	display	ixc-codes	['print' or 'schedule']
Intra-switch CDR	change	intra-switch-cdr	
	display intra-switch-cdr		
Listed Directory Numbers	change	listed-directory-numbers	—
	display	listed-directory-numbers	['print' or 'schedule']

* [P] — part of qualifier representing pnn
C — part of qualifier representing carrier (A–F)
ss — part of qualifier representing slot number (01–20)

Note: Brackets [ ] indicate the qualifier is optional.
Single Quotes (' ') indicate the word inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Table 2-1. Administration Commands (continued)

Form/Feature	Command Line (Note)		
	Action	Object	Qualifier
Loudspeaker Paging and Code Calling Access	change	paging loudspeaker	—
	display	paging loudspeaker	['print' or 'schedule']
	change	paging code-calling-ids	—
	display	paging code-calling-ids	['print' or 'schedule']
Malicious Call Trace	change	mct-group-extensions	
	display	mct-group-extensions	
	list	mct-history	
Message Sequence Tracer	change	mst	
	display	mst	
	list	mst	
Modem Pool Group	add	modem-pool num	[1–5]
	change	modem-pool num	[1–5]
	display	modem-pool num	[1–5] ['print' or 'schedule']
	list	modem-pool num	['print' or 'schedule']
	remove	modem-pool num	[1–5]
Network Facilities	change	isdn network-facilities	
	display	isdn network-facilities	['print' or 'schedule']
Node Number Routing	change	node-routing	
	display	node-routing	
	list	node-routing	
Personal CO Line Group	add	personal-co-line	1–40 (or 'next')
	change	personal-co-line	1–40
	display	personal-co-line	1–40 ['print' or 'schedule']
	list	personal-co-line	['print' or 'schedule']
	remove	personal-co-line	1–40
PGATE Board	add	pgate	
	change	pgate	
	display	pgate	
	list	pgate	
	remove	pgate	
Pickup Groups (without Hospitality Parameter Reduction Feature)	add	pickup-group	1–5000 (or 'next')
	change	pickup-group	1–5000
	display	pickup-group	1–5000 ['print' or 'schedule']
	list	pickup-group	['print' or 'schedule']
	remove	pickup-group	1–5000
Pickup Groups (with Hospitality Parameter Reduction Feature)	add	pickup-group	1–5 (or 'next')
	change	pickup-group	1–5
	display	pickup-group	1–5 ['print' or 'schedule']
	list	pickup-group	['print' or 'schedule']
	remove	pickup-group	1–5
Ports	display	port	assigned port ['print' or 'schedule']
	list	port-network	1 or 2 (1 PPN, 2 EPN)
Property Management System	list	pms-down	['from' time 'to' time]

Note: Brackets [ ] indicate the qualifier is optional.
Single Quotes (' ') indicate the word inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Table 2-1. Administration Commands (continued)

	Command Line (Note)		
Form/Feature	**Action**	**Object**	**Qualifier**
Remote Home Numbering Plan Area	change	rhnpa	Enter RHNPA and code n:xyy n(1–32) x(0–9) y(0–9) y(0–9) (Table No. 1–32:office code = code 000–999)
	display	rhnpa	Enter RHNPA and code n:xyy n(1–32), x(0–9) y(0–9) (Table No. 1–32:office code = code 000–999) ['print' or 'schedule']
Report Scheduler	change	report scheduler	1–50 [job identification number]
	list	report scheduler	['print' or 'schedule']
	remove	report scheduler	1–50 [job identification number]
Remote Access To An Internal Station	change	remote access	—
	display	remote access	['print' or 'schedule']
Routing Pattern	change	route-pattern	1–640
	display	route-pattern	1–640 ['print']
	list	route-pattern	Enter ['trunk' (1–666)] ['service'/feature name string] ['print' or 'schedule']
Second Digit Table	add	second-digit	
	change	second-digit	
	display	second-digit	
	remove	second-digit	
Security Violation Notification	clear	measurements security-violations	
	list	measurements security-violations	[print] or [schedule]
	monitor	security-violations	[print]
Signaling Group	add	signaling-group	1–8 or 'next'
	change	signaling-group	1–8
	display	signaling-group	1–8 ['print' or 'schedule']
	list	signaling-group	1–8 ['print' or 'schedule']
	remove	signaling-group	1–8
Site Data User Definition	change	site-data	
	display	site-data	
Special Information Tones	change	sit-treatment	
	display	sit-treatment	['print' or 'schedule']
Stations	add	station	xxxx (extension number)(or 'next')
	change	station	xxxxx (extension number)
	display	station	xxxxx (extension number) ['print' or 'schedule']
	display	station	xxxxx 1–10000 ['print' or 'schedule']
	duplicate	station (extension) *	['count' 1–16][start extension] [board address] [one-ep]
	list	bridged-extension	xxxxx (extension number) ['print' or 'schedule']
	list	configuration stations	['print' or 'schedule']

* extension—voice terminal extension number to be duplicated.
start extension—starting extension used for finding unassigned extensions.
board addr—starting board address for finding unassigned ports.
'count' (1–16)—is the number of station forms to generate.

Note: Brackets [ ] indicate the qualifier is optional.
Single Quotes (' ') indicate the word inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.
Times should be entered in 24-hour time format.

Table 2-1. Administration Commands (continued)

Form/Feature	Command Line (Note)		
	Action	Object	Qualifier
Stations (Continued)	list	wakeup activity	[print]
	list	do-not-disturb group	['print' or 'schedule']
	list	do-not-disturb	start extension and 'count' ['print' or 'schedule']
	list	emergency	start and stop times ['print' or 'schedule']
	list	extension-type	[extension]['count' 1–10000]
	list	extension-type	[extension] 'count' [number] ['print']
	list	groups-of-extension	xxxx (extension number) ['print' or 'schedule']
	list	monitored-station	['start' extension] [count xxxxx] [print]
	list	station	[xxxxx]('count' 1–10000) ['print' or 'schedule']
	list	station	[xxxxx]('count' 1–10000) type ASAI ['print' or 'schedule']
	list	station	[xxxxx]('count' 1–10000) port ['print' or 'schedule']
	list	station	[extension] [type (station type)] [port 1–3 (port number)] ['count'(n)] ['print' or 'schedule']
	status	station	xxxxx (extension)
	list	wakeup incomplete	['from'<time>'to'<time>]
	list	wakeup requests	['from'<time>'to'<time>]
	list	wakeup summary	[print]
	list	wakeup station	extension
	list	wakeup sys-failure	[print]
	remove	station	xxxxx (extension number)
	status	synchronization	[print]
Synchronization Plan	change	synchronization	—
	display	synchronization	['print' or 'schedule']
	list	timing-source	
System-Parameters	change	system-parameters features	—
	display	system-parameters features	['print' or 'schedule']
	status	cdr-link	—
	status	journal-link	pms-log/wakeup-log
	status	pms-link	[print]
	status	sp-link	—
Terminating Extension Group	add	term-ext-group	1–32 (or 'next')
	change	term-ext-group	1–32
	display	term-ext-group	1–32 ['print' or 'schedule']
	list	term-ext-group	['print' or 'schedule']
	remove	term-ext-group	1–32
Time	display	time	[print]
	display	time-of-day	1–8(plan number) ['print' or 'schedule']
	change	time-of-day	1–8

Note: Brackets [ ] indicate the qualifier is optional.
Single Quotes (' ') indicate the word inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Table 2-1. Administration Commands (continued)

	Command Line (Note)		
Form/Feature	**Action**	**Object**	**Qualifier**
Toll Analysis	change	toll	Enter digits between 0–9, 'x', or 'X' ['min' 1–23]
	display	toll	Enter digits between 0–9, 'x' or 'X' [min 1–23] ['print' or 'schedule']
	list	toll all	['start' dialed-string] ['count' (1–1000)] [print]
	list	toll toll-list	['start' dialed-string] ['count' (1–1000)] [print]
	list	toll restricted-call	['start' dialed string] ['count' (1–1000)] [print]
	list	toll unrestricted-call	['start' dialed string] ['count' (1–1000)] [print]
Trunk Groups:	list	members trunk	
Access	add *	trunk-group	1–666 (or 'next')
Advanced Private Line	change	trunk-group	1–666 or TAC X...
Termination	display	trunk-group	1–666 or TAC X...['print' or 'schedule']
Central Office	change	isdn	network facilities
Customer-Provided	display	isdn	network facilities
Equipment	display	isdn	cpn-prefix
Digital Multiplexed	list	trunk-group	['print' or 'schedule']
Interface	list	configuration trunks	['print' or 'schedule']
Direct Inward Dialing	remove	trunk-group	1–666 or TAC X
Foreign Exchange	change	isdn	cpn-prefix
ISDN-PRI	change	isdn	network facilities
Release	change	trunk-group tacg	yyy (1–3 digit trunk access code)
Tandem	remove	trunk-group tac	yyy (1–3 digit trunk access code)
Tie	display	trunk-group tac	yyy (1–3 digit trunk access code)
WATS	status	trunk	1–666 [1–666] (group/member number)
Uniform	change	udp	
Dialing	display	udp	
Plan	list	udp	
Vector	change	vector	1–256
	display	vector	1–256
	list	vector	[xxx] ('count' 1–256) ['print' or 'schedule']
VDN	add	vdn	xxxxx (extension number of VDN to be added)
	change	vdn	xxxxx (extension number of VDN to be changed)
	display	vdn	xxxxx (extension number of VDN to be displayed) ['print' or 'schedule']
	remove	vdn	xxxxx (extension number of VDN to be removed)
	list	vdn	xxxxx (extension number of VDN to be listed) ('count' 1–500) ['print' or 'schedule']
Wakeup			
Incompletions	list	wakeup incomplete	
Requests	list	wakeup requests	
Station Audit	list	wakeup station	

* With the Hospitality Parameter Reduction Feature, only 50 trunk groups can be added.

Note: Brackets [ ] indicate the qualifier is optional.
Single Quotes (' ') indicate the word inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Error Messages

The following is an alphabetical listing and description of the error messages associated with administration. An error message may be displayed at any time during use of the G3-MT as the result of an improper input command, incorrect input data, exceeding a range, not specifying data in fields that require input, etc. In some cases, the HELP key can be pressed following an error message to obtain an on-screen help message associated with the current operation. The following descriptions provide an additional aid that can be used in the process of resolving error messages.

In many cases, when an error message is displayed, the data being entered as part of the input command is displayed at the beginning of the message. This data is not included in the following listings. For example, if the error message ''39 Invalid toll list reference number'' is displayed, locate the message ''Invalid toll list reference number'' for a description of the message.

If an error message is not clear or you require additional help to resolve the message, proceed as follows:

1. Press the HELP key to obtain an associated help message. Valid field entries, command line entries, etc., can be displayed.
2. Refer to the error message in the following listing for an additional description of the message.
3. Consult the form instructions provided elsewhere in this manual for a description of the form and each field on the form.
4. Consult your System Administrator.

Note that the following does not include error listings associated with System forms not covered in this manual. For example, the Maintenance-Related System-Parameters form. When administering forms of this type, consult the appropriate manual for associated form and field descriptions. The Maintenance-Related System-Parameters form is covered in *Generic 1 and Generic 3—Installation and Test*, 555-230-104.

NOTE:
Error message descriptions associated with features not currently covered in this manual such as Call Associated Temporary Signaling Connections (CA-TSCs) and Non-Call Associated TSCs (NCA-TSCs) are marked as ''Reserved for future use''. The features and associated error message descriptions will be provided in a future release of this manual.

Table 2-2. System Error Messages

Error Message	Description
# sign must be at the end of the digits	On the AAR/ARS Digit Conversion form—If the Replacement String field entry contains a # sign, it must be at the end of a digit string.
ARS Partitioning and either ARS or Private Networking must be activated	The ARS Partitioning and either the ARS or Private Networking features must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
ARS and either Private Networking or Uniform Dial Plan must be activated	The ARS feature and either the Private Networking or Uniform Dial Plan features must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
ARS/AAR Digit Conversion feature not assigned	The ARS/AAR Digit Conversion feature must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
ARS/AAR Partitioning feature not assigned	The ARS/AAR Partitioning feature must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
ASAI Interface feature not assigned	The ASAI Interface feature must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
ASAI Routing capability and/or Vectoring (Basic) feature not assigned	On the Call Vector form, the ASAI Routing or Basic fields must be enabled before the associated Call Vector command can be entered on the form.
	The ASAI and/or Vectoring (Basic) feature must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
Abbreviated Dialing Enhanced List feature not assigned	The Abbreviated Dialing—Enhanced List feature must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
Abbreviated dialing index invalid	Press the HELP key to obtain a list of valid entries or consult the Abbreviated Dialing form coverage in Chapter 5 for additional information.
Absorption list entries mixed; chose from Group I or Group II	On the Digit Absorption form—For the Absorption Treatment Assignment fields, all choices for the digits 0 through 9 must be taken from either Group I or Group II, but not both.
Access, dmi-mos, sddn, tandem, and tie are not valid for a CBC trunk group	On the ISDN-PRI Trunk Group form—the Service/Feature field entry (Page 2) cannot be ‘‘access’’, ‘‘dmi-mos’’, ‘‘sddn’’, ‘‘tandem’’, or ‘‘tie’’ for a Service Type field entry (Page 1) of ‘‘cbc’’.

Table 2-2. System Error Messages (continued)

Error Message	Description
Activation times within the same day must be unique	On the ISDN-PRI Trunk Group form—The Act Time field entry (Pages 4 through 11) must be unique for each entry associated with a given day of the week.
Add primary DS1 as NFAS trunk board or remove its ports from trunk groups	On the Signaling Group form—Changing the Associated Signaling field entry from ''y'' (FAS) to ''n'' (NFAS) requires that the Trunk Brd and associated Interface Id fields be completed. The Trunk Brd entries cannot be ports associated with a DS1 that is used in a FAS Signaling Group. In addition, the Trunk Brd entries must include the DS1 circuit pack assigned the Primary D-channel or trunk ports associated with the DS1 must be removed from trunk groups.
Adjunct Call Control Group feature not assigned	The Adjunct Call Control Group option must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
Adjunct Routing Group feature not assigned	The Adjunct Routing Group option must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
Adjunct controlled splits must be ''ucd''	On the Hunt Group form—When the Controlling Adjunct field entry is ''bx.25'', or ''asai'', the Group Type field entry must be ''ucd''.
Administered NCA-TSC duplicately assigned; please select another	On the gateway form, the signaling group and administered NCA-TSC pair have been duplicately assigned.
Administered NCA-TSC not assigned; please select another	On the gateway form, an attempt was made to use an NCA-TSC which has not been administered.
Administered NCA-TSC not used for gateway; please select another	On the gateway form, an attempt was made which is to use an NCA-TSC which is not used for gateway application.
Administered codes must be removed if length is decreased	On the Feature-Related System-Parameters form—The Authorization Code Length field entry cannot be reduced if there are AC codes of a greater length currently administered on the Authorization Codes form. You must remove or reduce the length of the AC codes first.
Administration of Called Number requires Called Len	On the ISDN-PRI Trunk Group form—If the Called Len field has an entry (Page 2), its associated Called Number field must have an entry.
Agents in group must be removed from adjunct controlled agent table	On the Hunt Group form—You cannot remove agent extensions from the hunt group until the extensions are logged into another hunt group or are removed from the Adjunct Controlled Agent Table.
All administered connection numbers used; cannot assign next number	Displayed when using the ''add administered-connection'' command. Indicates that the System maximum for administered connections (128) has been reached.

Table 2-2. System Error Messages (continued)

Error Message	Description
All ports are assigned	Assign a port on another circuit pack of the same type or function.
An assigned ASAI/BRI link extension must be specified	On the Call Vector form—For an ''adjunct'' command entered on the form, you must complete the routing link extension field.
An assigned announcement extension must be specified	Enter a valid announcement extension. Enter the ''display announcements'' command, if required, to display the administered announcement extensions.
An assigned data module extension must be specified	Enter an administered data module extension. Enter the ''list data-module'' command, if required, to list assigned extensions.
An assigned extension or attendant (0) must be specified	Enter a valid extension number or enter ''0'' for the attendant.
An assigned station or individual attendant extension must be specified	Enter an assigned station extension or enter ''0'' for the attendant. Enter the ''list station'' command, if required, to list assigned extensions.
Announcement Delay must be specified	On the Hunt Group form—If the First or Second Announcement field(s) has an entry, then their associated First or Second Announcement Delay fields must also have an entry.
Announcement data module already exists	The Recorded Announcement Data Module form (associated with the TN750 Announcement circuit pack) has already been administered.
Assignment of ISDN-BRI extensions on data extension buttons not allowed	Because one button transfer to data is not allowed for ISDN-BRI, data extension buttons are not allowed for ISDN-BRI data extensions.
At least 1 zone must be specified for all-zones data assignment	On the Loudspeaker Paging Access form—Assign at least 1 zone.
Attendant cannot be specified for this field	On the Dial Plan form—A First Digit Table entry of ''0'' is not a valid entry for this field. ''0'' is reserved as the first digit for the attendant.
AUDIX Extension cannot be blank if message is Remote AUDIX	On the Hunt Group form—If the Message Center field entry is ''rem-audix'', then the AUDIX Extension field must have an entry.
AUDIX application previously assigned in Processor Channel form	On the Processor Channel Assignments form—Only one link and associated channel can be assigned to AUDIX.
AUDIX application previously assigned in another Signal Group	(Reserved for future use)
Authorization Code cannot begin with a 1	On the Authorization Codes form—The AC field entry cannot begin with a ''1''.

Table 2-2. System Error Messages (continued)

Error Message	Description
Authorization Codes feature not assigned	The Authorization Codes feature must be enabled on the System-Parameters Customer Options form before associated forms and fields on forms can be administered.
Automatic Call Distribution (ACD) feature not assigned	The ACD feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
Automatic Route Selection (ARS) feature not assigned	The ARS feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
Available message sizes are 260, 256, 244, and 128	On the ISDN-PRI Trunk Group form—The Max Message Size to Send field must be set to either ‘‘260’’, ‘‘256’’, ‘‘244’’, or ‘‘128’’.
BCMS agents exceed maximum - remove excess before changing measured value	On the Hunt Group form—If the Measured field has an entry of ‘‘external’’, ‘‘internal’’, or ‘‘both’’, remove appropriate agents before changing the Measurement Interval field on the Feature-Related System Parameters form.
BRI: B channel data not allowed on multipoint port	ISDN-BRI supports 2 B channels. Because the system does not allow call blocking, only 2 objects (2 voice, 2 data, 1 voice and 1 data, and 1 integrated voice/data) may be administered per port. Because there is a user already assigned on this port, the endpoint being administered can only be a stand-alone voice or stand-alone data endpoint.
BRI: Default SPID not unique on port; please select another extension	This applies to the duplicate station command which allows entering of extensions. If a particular extension being assigned was not used in the system as an extension but the number has been assigned as a SPID of a ISDN-BRI endpoint, this extension may not be used.
BRI: Fixed TEI "partner"; please select another port.	Fixed TEI sets are not supported in multipoint configuration. Since there is a fixed TEI endpoint administered on this port, this port may not be used in multipoint configuration.
BRI: Fixed TEI not allowed on multipoint port	Fixed TEI sets are not supported in multipoint configuration. Because there is a user already assigned on this port, the endpoint being administered must be an automatic TEI endpoint.
BRI: No B channels available; please select another port.	ISDN-BRI supports 2 B channels. Because the system does not allow call blocking, only 2 objects (2 voice, 2 data, 1 voice and 1 data, and 1 integrated voice/data) may be administered per port. This message indicates that both B channels were already allocated on this port to 1 integrated voice/data endpoint, which uses one B channel for voice and one for data.

Table 2-2. System Error Messages (continued)

Error Message	Description
BRI: Non SPID "partner"; please select another port.	SPIDs are required so that endpoints configured in multipoint configuration can be identified. Since there is an endpoint without a SPID administered on this port, this port may not be used in multipoint configuration.
BRI: SPID must be assigned on multipoint port	SPIDs are required so that endpoints configured in multipoint configuration can be identified. Because there is a user already assigned on this port, the endpoint being administered must have SPID initialization capability.
BRI: SPID must be unique on a port.	SPIDs are required so that endpoints configured in multipoint configuration can be identified. Therefore, SPIDs must be different for all endpoints on the same port.
BRI: Service SPID and any other SPID on the system cannot be same.	All SPIDs assigned to the endpoints must be different from the Service SPID.
BRI: Two users already assigned to this port; please select another	ISDN-BRI supports up to two endpoints per port. This message indicates that either 2 voice endpoints, 2 data endpoints, or 1 voice and 1 data endpoint are already assigned on this port.
Band number out of range	On the Routing Pattern form—The Band field entry must be within the range of 0–255.
Barrier code must be ‘‘none’’ for blank barrier code length	On the Remote Access form—If the Barrier Code Length field has no entry, the first Barrier Code field must have an entry of ‘‘none’’.
Basic Call Management System (BCMS) feature not assigned	The BCMS Measurements feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
Board suffix associated with this port incompatible with Abandoned Call Search	The Abandoned Call Search feature requires trunk port assignments on a TN747B Central Office Trunk circuit pack.
Both Idle Appearance Preference and Auto Answer cannot be y(es)	On a Station form—The Auto Answer and Idle Appearance Preference fields cannot both be administered as ‘‘y’’.
Bridged appearances must be removed before changing from an analog station type	Remove ‘‘abrdg-appr’’ feature buttons from other voice terminals that point to this terminal before changing the Type field entry.
Bridged appearances must be removed before changing to an analog station type	Remove ‘‘brdg-appr’’ feature buttons from other voice terminals that point to this terminal before changing the Type field entry.
Bridged appearances must be removed before removal	Remove all bridged appearance feature buttons from other voice terminals that point to this terminal before removing the station.

Table 2-2. System Error Messages (continued)

Error Message	Description
Busyout MIS before adding/changing/removing measured object	The CMS must be ‘‘busied-out’’ before the associated object can be added, changed, or removed (use the command ‘‘busyout link _’’ if appropriate).
Busyout MIS before adding/removing a VDN	The CMS must be ‘‘busied-out’’ before the associated object can be added, changed, or removed (use the command ‘‘busyout link _’’ if appropriate).
Button type does not meet min or max requirements	On the Station/Attendant Console form—The feature button administration is not valid. Consult the Voice Terminal—General coverage in Chapter 5 for feature button characteristics and descriptions.
Button type invalid for a display module	On the Station/Attendant Console form—Assign only display-type feature buttons on display module forms. Consult the specific Voice Terminal coverage in Chapter 5 for a list of valid display-type feature buttons.
Button type invalid for station without a display module	On the Station form—Do not assign a display-type button on a station without a display. Consult the specific Voice Terminal coverage in Chapter 5 for a list of valid feature buttons.
Button type must be call appearance	On the Station Form—Only call appearance buttons can be administered in this field.
Button type not allowed on this station type or module	On the Station form—The feature button type is not valid for this station type. Consult the specific Voice Terminal coverage in Chapter 5 for a list of valid feature buttons.
COR must be specified	Enter an appropriate COR in the range of 0–95.
CPN prefix must be 10 digits for attendant extension	On the CPN Prefix form—The CPN Prefix administered for the attendant must be 10 digits in length.
Call Work Codes feature not assigned	The Call Work Codes feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
Call appearance button type not allowed	On the Station/Attendant Console form—A call appearance button cannot be administered in this field.
Called Len cannot be less than length of Called Number	On the ISDN-PRI Trunk Group form—The Called Len field entry (Page 2) cannot be less than the number of digits in the associated Called Number field.
Can only accept codeset 6 or 7	On the ISDN-PRI Trunk Group form—The Display, TCM, Lookahead Codeset field entry can only be a ‘‘6’’ or a ‘‘7’’.

Table 2-2. System Error Messages (continued)

Error Message	Description
Can only modify name when assigned to an active Administered Connection	On the Access Endpoints form—The Name field can only be modified if the Access Endpoint is involved in an active administered connection (the AE is assigned to an Originator or a Destination field on an Administered Connection form and the connection is active).
Cannot administer 64-k data if the DS1 has ZCS or RBS	On the Access Endpoints (AE) form—The Communications Type field entry cannot be ''64k-data'' unless the DS1 circuit pack assigned the Port field has its Zero Code Suppression field set to ''zcs'' or its Signaling Mode field set to ''robbed-bit''.
Cannot administer Announcement Delay without Announcement Extension	On the Hunt Group form—The First or Second Announcement Delay fields cannot be administered unless their associated First or Second Announcement Extension fields have an entry.
Cannot administer an ASAI station with a data module	On the Station form—You cannot administer a data module form when the Set Type field entry is ''asai''.
Cannot assign port 24; it is reserved for signaling channel	On the associated DSI Circuit Pack form—If the Signaling Mode field entry is ''isdn-pri'' or ''common-chan'', the circuit pack's 24th channel is reserved for the signaling channel (D-channel) and cannot be assigned as a port interface.
Cannot be entered if BRI/ASAI endpoints are administered	This is a Maintenance-Related System Parameters form error. Consult *Generic 1 and Generic 3—Installation and Test*, 555-230-104, for additional information.
Cannot be entered if packet-control is installed	This is a Maintenance-Related System Parameters form error. Consult *Generic 1 and Generic 3—Installation and Test*, 555-230-104, for additional information.
Cannot bridge onto an analog station	On the Station form—You cannot assign a ''brdg-appr'' feature button that points to an analog station. Either enter an appropriate extension number for the ''brdg-appr'' button or assign an ''abrdg-appr'' button that points to the analog station.
Cannot change Measured field while changing Controlling Adjunct field	On the Hunt Group form—After changing the Measured field entry, submit the form. Then, change the Controlling Adjunct field entry.
Cannot change group type if group is assigned	On the Modem Pool Group form—The Group Type field cannot be changed until other fields on the form associated with the current Group Type are also changed.
Cannot change permissions for the specified login	You cannot change the permissions associated with the specified login. Consult the System Administrator for assistance.

Table 2-2. System Error Messages (continued)

Error Message	Description
Cannot change the specified permission	You cannot change the permissions. Consult the System Administrator for assistance.
Cannot change while port installed	The field entry cannot be changed if any associated DS1 circuit pack ports are administered in the System.
Cannot change. Data module extension assumed for this field	The current field entry must be an assigned data module extension.
Cannot delete circuit pack that is physically inserted	Remove the circuit pack from the carrier. Then, using the ''change circuit-packs'' command, delete the circuit pack from the carrier slot.
Cannot display tone-clock board TDM bus port	You cannot display the non-administrable TN768 Tone Clock. Use the ''status'' command if required.
Cannot display tone-clock board tone generator port	You cannot display the non-administrable TN768 Tone Clock. Use the ''status'' command if required.
Cannot enable Recurring Second Announcement without Announcement Extension	On the Hunt Group form—Complete the Second Announcement Extension and Second Announcement Delay fields as appropriate.
Cannot enable both ASAI Interface and OCM-SID/ANI features	The System supports the use of one of these features at a time but not both.
Cannot enable both CAS and IAS	On the Console Parameters form—The CAS field entry must be ''none'' if the IAS (Branch) entry is ''y''. If the CAS field entry is ''main'' or ''branch'', the IAS (Branch) field entry must be ''n''.
Cannot go to same step	On the Call Vector form—Do not reference the current step number when using a ''goto step'' command.
Cannot go to same vector	On the Call Vector form—Do not reference the current vector number when using a ''goto vector'' command.
Cannot go to undefined step	On the Call Vector form—Do not reference an unassigned step (step that does not have an associated command) when using a ''goto step'' command.

Table 2-2. System Error Messages (continued)

Error Message	Description
Cannot have dial access for isdn-pri trunks with this service type	On the ISDN-PRI Trunk Group form—The Dial Access field entry can only be ''y'' if the Service Type field entry is ''access'', ''tandem'', ''tie'', ''dmi-mos'', or blank.
Cannot have more than one audix application	Signal Group form—(Reserved for future use)
Cannot hop a link to itself	On the Hop Channel Assignment form—A link number can only be hopped to a different link number. (A Link/Chan pair can only be hopped to a different Link/Chan pair.)
Cannot mix this FAC with longer dial code	The first digit and number of digits in the FAC must agree with the First Digit Table on the System's Dial plan form.
Cannot remove synchronization source	A DS1 circuit pack cannot be removed from a carrier slot that has been administered as a Primary or Secondary synchronization source on the Synchronization Plan form.
Cannot remove while port installed	You must remove all associated port assignments before the circuit pack can be removed.
Cannot remove/change - stations administered to alias set type	You cannot remove the station if the station type (such as, 7434D) is currently entered on the Enhanced Terminal Administration form and is associated with an Alias Set Type.
Cannot remove; ext assigned as trunk group incoming destination	On the Trunk Group form—Delete the extension from the Incoming Destination field if appropriate. Then remove the extension.
Cannot remove; ext assigned as trunk group night destination	On the Trunk Group form—Delete the extension from the Night Service and Night fields if appropriate. Then remove the extension.
Cannot remove; extension assigned on system parameters features form	Remove the extension from extension-type fields on the Feature-Related System Parameters form if appropriate. Then remove extension.
Cannot remove; extension assigned on system parameters hospitality form	Remove the extension from extension-type fields on the Hospitality-Related System Parameters form if appropriate, then remove extension.
Cannot remove; extension is part of an administered connection	Remove extension from the Administered Connection form if appropriate. Then remove the extension.
Cannot use same extension for PMS and printers	On the Hospitality-Related System Parameters form—The Extension of PMS field entry must be different than the Extension of PMS Log Printer or Extension of Journal/Schedule Printer field entries.

Table 2-2. System Error Messages (continued)

Error Message	Description
Cannot use the predefined name	On the Network Facilities Access form—The Name field entry cannot be the same or a subset of another Service/Feature entry already defined on the form.
Centralized Attendant Service (CAS) Branch feature not assigned	The CAS (Main) feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
Centralized Attendant Service (CAS) Main feature not assigned	The Centralized Attendant Service (Branch) feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
Change not allowed; must remove and add	Station/Attendant Console form—A Data Module extension cannot be changed once it has been submitted. The data module must be removed and then added back with the correct extension.
Character invalid for this button type	On the Station/Attendant Console form—Enter appropriate data for the feature button type. Refer to the ''Voice Terminal—General'' coverage provided in Chapter 5 for feature button description and characteristics.
Check links assignment form! Must assign ISDN to this link	On the Processor Channel Assignments form—Review all ISDN assignments and note associated link numbers.
Circuit Pack previously assigned; please select another	All ports on the circuit pack have been assigned. Administer ports on another circuit pack of the same type or the same functionality.
Circuit pack can only be administered in slot labeled EXPNSN INTRFC	On the Circuit Pack Administration form—The TN570 or TN776 Expansion Interface circuit pack can only be administered in certain carrier slots.
Circuit pack is wrong type	The port administered is not correct for the associated function. For example, when using an ''add ds1'' command, the Location field entry on the DS1 form must be a port that is associated with an administered DS1 circuit pack.
Circuit pack must be installed first	Either physically install the circuit pack in the appropriate carrier slot or administer the circuit pack on the Circuit Pack administration form.
Cleared alarm notification requires alarm origination	This is a Maintenance-Related System Parameters form error. Consult *Generic 1 and Generic 3—Installation and Test*, 555-230-104, for additional information.
Code length invalid	Input appropriate code length. Press the HELP key for a listing of valid entries or an associated help message.

Table 2-2. System Error Messages (continued)

Error Message	Description
Code/Suffix does not match physically inserted circuit pack	On the Circuit Pack Administration form—Ensure that the Code, Sfx, and Name field entries agree with the circuit packs installed in the associated carrier slots.
Combined # of Local & Remote TGS buttons on feature buttons exceeds maximum	On the Attendant Console form—The combined number of Local and Remote TGS buttons that are administered on Page 2 of the form must not exceed 12.
Communication type and port type inconsistent	On the Access Endpoints form—The Port field entry must be consistent with the Communication Type field entry. For example, if the Communication Type field entry is ‘‘56k-data’’ or ‘‘64k-data’’, the Port entry must be a DS1 circuit pack port.
Corresponding abbreviated dialing list not assigned	The Abbreviated Dialing List type entered (such as, personal, group, etc.) is not administered in the System.
Count cannot be blank, if ’Starting Extension’ specified	On the command line, if you specify a starting extension, you must specify a count number.
Coverage and display modules cannot be specified on the same station	On the 7405D or 7434D Station form—Either the Display field entry can be ‘‘y’’ or the Coverage Module field entry can be ‘‘y’’, but not both.
Coverage point extension must be a station	Enter a coverage point extension number that is assigned to a station.
Current password must be specified	Enter the appropriate password. Contact the System Administrator for assistance.
D-channel has to be on the 24th port	On the Signaling Group form—The port number associated with the Primary and Secondary D-channel field entries must be ‘‘24’’.
DCS requires Uniform Dialing Plan to be activated	The Uniform Dialing Plan feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
DMI-BOS requires common-chan signaling	On the DS1 Circuit Pack form—If the DMI-BOS field entry is ‘‘y’’, the Signaling Mode field entry must be ‘‘common-chan’’.
DS1/ISDN circuit is required	On the ISDN-PRI Trunk Group form—The Port field entries must be DS1 circuit pack ports.
DS1 signaling mode must be common-chan	On the DS1 Circuit Pack form—For alternate voice and data applications, the Signaling Mode field must be ‘‘common-chan’’.

Table 2-2. System Error Messages (continued)

Error Message	Description
DS1 signaling mode must be robbed-bit	On the DS1 Circuit Pack form—For voice tie trunk applications, the Signaling Mode field must be ‘‘robbed-bit’’.
Data extension buttons not allowed on BRI set types	Because one button transfer to data is not allowed for ISDN-BRI, data extension buttons are not allowed on ISDN-BRI set types.
Data extension group member(s) must be removed first	Remove all associated Data Extension buttons from Station/Attendant Console forms before the Data Module can be removed or the Data Module’s Type field can be changed.
Data Extension must be removed from hunt group(s) before removal.	Specific to data extensions. This error message is similar to the error message "Extension must be removed from hunt group(s) before removal."
Del cannot be greater than Called Len	On the ISDN-PRI form—The Del field entry (Page 2) cannot be greater than the associated Called Len field entry.
Del, Insert, SID/ANI, or Night Serv field must be specified	On the ISDN-PRI Trunk Group form—If a Service/Feature is specified (Page 2) an associated field (Del, Insert, Per Call CPN/BN, or Night Serv) must be specified.
Destination digits duplicately assigned	(Reserved for future use)
Destination must begin with a valid FAC, TAC, or extension	On the Administered Connection form—The Destination field entry must begin with a valid FAC, TAC, or extension number.
Dial code out of range	Enter a valid Abbreviated Dialing dial code. Press the HELP key for a list of valid entries or an associated help message.
Dial type invalid for length or first digit	On the Dial Plan form—The First Digit Table entry is incorrect. Consult the Dial Plan form coverage in Chapter 5 for a list of valid entries.
Dialed string not assigned to any list	On the Toll Analysis form—Assign at least one list to the Dialed Sting entry.
Digit Insertion and Deletion not allowed for auto/auto trunks	On the Trunk Group form—The Digit Treatment field must be blank for a Trunk Type field entry of ‘‘auto/auto’’.
Direction cannot be two-way for RLT trunk group	On the Release Link Trunk Group form—The Direction field entry cannot be ‘‘two-way’’.

Table 2-2. System Error Messages (continued)

Error Message	Description
Disable link for the primary D-channel board first	On the Interface Links form—For the appropriate link number, set the Enable field to ''n''. Then remove or change the Signaling Group as required.
Disable link for the secondary D-channel board first	On the Interface Links form—For the appropriate link number, set the Enable field to ''n''. Then remove or change the Signaling Group as required.
Disable the link for the previously used board first	On the Interace Links form—Disable the link (set Enable field to ''n'') associated with the previously used circuit pack. Then change the Signaling Group.
Disable the link for this board first	On the Interace Links form—Disable the link (set Enable field to ''n'') associated with this circuit pack. Then change the Signaling Group.
Disconnect time must be specified	Enter the appropriate time. Press the HELP key for a list of valid entries or an associated help message.
Display module and display cartridge cannot be specified on same station	On the 7406D Station form—Enter ''y'' in either the Display field or the Display Cartridge field, but not both.
Distributed Communication Service (DCS) feature not assigned	The DCS feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
Duplicate Alpha-name; please press HELP key	On the Alphanumeric Dialing Table form—Each Alpha name field must have a unique entry.
Duplicate IXC access numbers are not allowed	Enter a unique IXC access code, the current entry is already assigned.
Duplicate MACHINE ID for same application not allowed	On the Processor Channel Assignments form—The Machine-ID field entry cannot be entered more than once for the same Appl. field entry.
Duplicate Service/Feature name is not allowed	On the ISDN-PRI Trunk Group form—Duplicate Service/Feature field entries (Page 2) are not allowed.
Duplicate TAC	On the Loudspeaker Paging Access form—The TAC field entry must be unique for each TAC field entry on the form.

Table 2-2. System Error Messages (continued)

Error Message	Description
Duplicate abbreviated dialing list entry	Each Abbreviated Dialing list reference must be unique.
Duplicate board	On the Modem Pool Group form—Each Circuit Pack Location field entry for an integrated modem pool group must be unique.
Duplicate board destination not allowed	On the Processor Interface Data Module form(s)—The Physical Channel field entry must be unique (used only once) for all Processor Interface Data Module assignments.
Duplicate button	On the Station form—Enter a unique button type. The current attempted entry is already assigned this station.
Duplicate destination digits not allowed	Enter a unique destination number. Press the HELP key for a list of valid entries or an associated help message.
Duplicate entries on the screen	On the AAR/ARS Analysis and Toll Analysis forms—Each Dialed String and associated Min/Max field entry must be unique.
Duplicate entry is not allowed	Enter a unique value or assignment. The current attempted entry already exists. Press the HELP key for a list of valid entries or an associated help message.
Duplicate ext length and ext code	On the CPN Prefix Table form—Each pair of Ext Len and Ext Code field entries must be unique.
Duplicate extension	Enter a unique extension number. The current attempted entry is already assigned.
Duplicate facility type and facility coding are not allowed	On the Network Facilities form—Duplicate Facility Type and Coding field entries are not allowed. Make each Facility Type and associated Coding field entry unique.
Duplicate link for ISDN is not allowed	On the Processor Channel Assignment form—The Appl. field entry of ‘isdn’’ can only be associated with one link number.
Duplicate link/channel pair not allowed	On the Processor Channel Assignment form—The Interface Link/Chan pair entries cannot be duplicated. Each Link/Chan pair entry must be unique.
Duplicate members	Enter a non-assigned member. The current attempted entry is already assigned.
Duplicate of this application type not allowed	On the Processor Channel Assignments form—Certain applications (such as ‘‘audix’’) can only be entered once in the Appl. fields on the form.

Table 2-2. System Error Messages (continued)

Error Message	Description
Duplicate port	On the Modem Pool Group form—The Circuit Pack Location field entry must not be duplicated in the associated fields on the form.
EIA port previously assigned	On the Feature-Related System Parameters form—The EIA port has already been assigned to another function. Enter an appropriate data module extension instead. (Note that the data module must first be administered in the System before assigning its extension number.)
Emergency Access to the Attendant feature not assigned	The Emergency Access to Attendant feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
End time must be later than start time	Reenter an End Time that is later in time than the Start Time.
Entries for same first digit cannot follow a TAC or AAR/ARS FAC	On the Dial Plan form—A TAC is assigned the same first digit as the dial type you have just entered. The dial type can have the same first digit as the TAC as long as its length is not greater the the TAC's length.
Entry already exists in the table	Duplicate entries are not allowed. The current attempted entry already exists in the table (not displayed on the current screen).
Entry contains an Alpha-name argument that is too long	On the Alphanumeric Dialing Table—A Mapped String field entry contains an Alpha name like string that is greater than eight characters. Reduce the string to eight or less characters.
Entry contains an Alpha-name that is not administered	On the Alphanumeric Dialing Table form—An Alpha name has been specified in a Mapped String, and the Alpha name has not been entered on the form. Remove name or add Alpha name to the table.
Entry creates a cycle	On the Call Coverage Path form—The Next Path Number field entry cannot refer to another coverage path already in the coverage path string (Coverage Path 1 with Next Path Number of ''2'', then Coverage Path 2 with Next Path Number of ''1''. This creates a loop.)
Entry exceeds the limit of 4 linked paths	On the Call Coverage Path forms—You cannot have more than four coverage paths associated with a call.
Entry exists in another partition with different call type	On the AAR/ARS Analysis form—The entry must not be assigned on another AAR/ARS Analysis form associated with a different PGN.
Entry must be all digits.	Reenter the data as all digits in the range 0 through 9.

Table 2-2. System Error Messages (continued)

Error Message	Description
Entry must be all digits or ‘‘all’’	Reenter the data as all digits in the range 0 through 9 or enter ‘‘all’’.
Entry must be all digits, ‘‘user’’, or ‘‘none’’.	Reenter the data as all digits in the range 0 through 9 or enter ‘‘user’’ or ‘‘none’’.
Entry must be all digits, *, #, ˜p(pause), ˜w(wait), or ˜m(mark)	On the Administered Connection form—The Destination field entry must be all digits and can include the ‘‘*’’, ‘‘#’’, ‘‘˜p’’, ‘‘˜w’’, or ‘‘˜m’’ characters. No other entries are allowed.
Entry must be an even number	Reenter the data as an even number.
Entry must be blank for gateway application	(Reserved for future use)
Entry must be blank if application is not DCS, AUDIX, or OCM	On the Process Channel Assignments form—The field must be blank for APL field entries of other than ‘‘dcs’’, ‘‘audix’’, or ‘‘ocm’’.
Entry must be digits, #, or blank	Reenter the data as either all digits, ‘‘#’’, or leave blank.
Entry must be in range 1–8 if application is AUDIX	Reenter the data in the range 1 through 8 for AUDIX applications.
Entry must be multiple of 5	Reenter the data as a multiple of five (such as, 5, 10, 15, etc.).
Entry must contain only alphanumeric characters	Reenter the data as alphanumeric characters only (for example, space character not allowed).
Entry must start with an alphabetic character	Reenter the data with the first character an alpha character in the range A through Z.
Entry too long	Reenter the data. Press the HELP key for a listing of valid field entries or an associated help message.
Event Notification Group feature not assigned	The Event Notification Group option must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
Exceeds level of Alpha-name referencing	On the Alphanumeric Dialing Table form—An Alpha name is specified in a Mapped string, and the specified Alpha name’s Mapped string contains a reference to the Alpha name. Delete one of the Alpha name references.
Expected number of digits must be greater than number of digits absorbed	On a DID Trunk Group form—With a Digit Treatment field entry of ‘‘absorption’’, the Expected Digits field entry must be greater than the number of digits absorbed.

Table 2-2. System Error Messages (continued)

Error Message	Description
Ext code inconsistent with First Digit table	On the CPN Prefix Table form—The Ext Code field entry must be in agreement with the System's Dial Plan form. Enter an Ext Code that agrees with the Dial Plan.
Ext length inconsistent with First Digit table	On the CPN Prefix Table form—The Ext Len field entry must agree with the length of extension numbers assigned on the System's Dial Plan form.
Ext length must be '1' for the attendant extension	On the CPN Prefix Table form—The Ext Len field entry must be ''1'' when the associated Ext Code field entry is ''0''.
Ext length plus number of CPN Prefix digits must be 10 or greater	On the CPN Prefix Table form—The Ext Len field entry plus the number of digits entered in the associated CPN Prefix field must be 10 or greater.
Extension assigned but wrong type for the group	Enter the appropriate extension number that is associated with the group or field (such as, announcement extension, night service extension, hunt group extension, etc.). Prefixed extensions are not allowed.
Extension assigned to an object other than a station	Enter a valid station extension number.
Extension assigned to invalid data module type	On the Administered Connection form—The Originator and Destination fields cannot be assigned an extension number that is assigned a Processor Interface or Recorded Announcement Data Module.
Extension assigned to object other than access endpoint or data module	On the Administered Connection form—The Originator and Destination field entries must be extension numbers assigned to access endpoints or MPTM/MTDM data modules only.
Extension does not have personal list assigned	An Abbreviated Dialing Personal List cannot be referenced in an Abbreviated Dialing List 1, 2, or 3 field if the Personal List is not assigned in the System. Administer the Personal List first, then enter the reference.
Extension must be an off switch (UDP) extension	On the Hunt Group form—If the Message Center field entry is ''rem-audix'', the AUDIX Extension field entry must be a Uniform Dial Plan (UDP) extension number.
Extension must be different from this station extension	Reenter the extension number. Do not use the number assigned this station.
Extension must be removed from hunt group(s) before removal	On an associated Hunt Group form(s)—Remove the extension from all hunt groups where it is assigned as a group member. Then remove the extension.

Table 2-2. System Error Messages (continued)

Error Message	Description
Extension must be removed from vector(s) before removal	On an associated Call Vector form(s)—Remove all references to the extension from all call vector commands. Then remove the extension.
Extension not assigned	Enter an extension number that agrees with the System's Dial Plan form.
Extension not assigned for intercom dial code	Enter an extension number assigned the appropriate Intercom Group. Assigned extensions can be displayed using the command ''display intercom-group (1–32)''.
Extension previously assigned; please select another	Enter a valid extension that agrees with the System's Dial Plan form and that is not already assigned an object.
Extensions defined only as ''pextension'' in dialplan cannot be specified	On the CPN Prefix Table form—The CPN Prefix field entry cannot be an extension defined only as a ''pextension'' (prefixed extension) on the System's Dial Plan form.
FAC invalid; please check dialplan	Enter a FAC that agrees with the System's Dial Plan form. The FAC's first digit and length must agree with the Dial Plan's First Digit Table assignments for FACs.
FRL invalid	Enter a FRL number in the range of 0 through 7.
FRL must not be blank	Enter an appropriate FRL number in the range of 1 through 7.
FRLs must not decrease going down the list	Enter an appropriate FRL number that is larger numerically than the previous entry.
Fas D-channel may not be on an nfas signaled board	On the Signaling Group form—Reassign the Primary D-channel port assignment to the same DS1 circuit pack associated with the B-channels (data channels).
Fas signaled board may not be in nfas signaling group	On the Signaling Group form—Reassign the Primary D-channel port assignment to a DS1 circuit pack not already assigned to a Non-Facility Associated Signaling Group (Associated Signaling field entry = ''n'').
Feature and Data modules cannot be specified on the same station	On the 7405D Station form—The Data Module field entry and the Feature Module field entry cannot both be ''y''. If ''y'' is entered in one of the fields, then ''n'' must be entered in the other.
Feature not activated in the system	The associated feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.

Table 2-2. System Error Messages (continued)

Error Message	Description
Field cannot be blank	Enter appropriate data in the field. Press the HELP key for a list of valid entries or an associated help message.
Field must be blank for normal PMS Protocol Mode	The associated field entry must be blank when the PMS Protocol Mode field entry on the Hospitality-Related System Parameters form is ''normal''.
Field must be blank for BX25 application	The associated field entry must be blank for bx.25 applications (OCM-CPN/BN applications for example).
Field must be blank for ISDN application	On the Processor Channel Assignments form—The Remote Proc Chan field entry must be blank when the associated Appl. field entry is ''isdn''.
Field must be blank on systems with this control carrier type	Remove all data from the associated field.
Field must be enabled since port type is DS1	Enter ''y'' in the associated field for DS1 circuit pack applications.
Field must be set to yes for ISDN protocol	Enter ''y'' in the associated field for ISDN applications.
Fifteen Digit Account Codes not assigned	On the Feature-Related System Parameters form—Complete the CDR Account Code Length field entry to define the length of all account codes.
First Digit Table is inconsistent with the Plan Length	On the Dial Plan form—The length of the extension assigned in the First Digit Table for the first digit of any PBX code in the Uniform Dial Plan (Pages 2–6) or the length of any ''pextension'' does not match the Plan Length field entry.
First digit has assignment; remove objects with this first digit	On the Dial Plan form—The first digit field cannot be changed until all references to this digit have been removed. For example, if digit 7 is assigned to a TAC and you want to change the digit assignment to something else, all items using a TAC of 7 must be removed before the digit assignment can be changed.
Fixed tei must be set to 'y' for ASAI stations	On an ASAI Interface form (Station form with Type field = ''asai'')—The Fixed TEI field entry must be ''y''.
For call type 'ars', 'haar', or 'hatd', routing pattern should be blank	On the AAR Analysis form—The Route Pat field entry must be blank for associated Call Type field entries of ''ars'', ''haar'', or ''hatd''.
Forced Entry of Account Codes not assigned	The Forced Entry of Account Codes feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.

Table 2-2. System Error Messages (continued)

Error Message	Description
Format invalid	On the Intercom Group form—The DC field entry cannot be a ‘‘0’’ or begin with a ‘‘0’’. The entry must be all digits in the range 1 through 9.
	On the Station form—When assigning an ‘‘auto-icom’’ (Automatic Intercom) feature button, the DC (dial code) entry must be in agreement with the dial codes assigned to the associated Intercom Group.
Group COR must be specified	Enter an appropriate COR in the range of 0 through 95.
Group direction invalid	On a Release Link Trunk Group form—The Direction field entry must be either ‘‘outgoing’’ for a CAS branch location or ‘‘incoming’’ for a CAS main location.
	On a WATS Trunk Group form—The Direction field entry must be either ‘‘incoming’’ or ‘‘outgoing’’.
Group extension must be specified	Enter an extension number associated with the group.
Group full; cannot add new members	Either remove members from the group before adding new members or create a new group.
Group members must be deleted before removing group	Remove all members from the group, then remove the group.
Group members must be removed before changing to adjunct controlled	Assign hunt group members to the Adjunct Controlled Agent Table if appropriate and/or remove members from the hunt group, then change the ACD field to ‘‘y’’ (if not already ‘‘y’’) and set the Controlling Adjunct field to ‘‘bx.25’’ or ‘‘asai’’ as required.
Group not assigned	Enter an appropriate assigned group number or assign a new group and then reference the new group number.
Group number for this button invalid	Enter an appropriate group number. If required, use the ‘‘list’’ or ‘‘display’’ command to display group assignments.
Group number invalid	Enter an appropriate group number. If required, use the ‘‘list’’ or ‘‘display’’ command to display group assignments.
Group number must be all digits	Reenter the group number (must be within the range of valid group numbers for the group type).
Group number out of range	Reenter the group number (must be within the range of valid group numbers for the group type).

Table 2-2. System Error Messages (continued)

Error Message	Description
Group type for this button invalid	On the Station form—For a UCD/DDD ''in-call-id'' (Incoming Call ID) feature button, the Type field entry must be ''c'' for coverage or ''h'' for a UCD/DDC group.
Group type invalid	Reenter the appropriate Group Type data. Press the HELP key for a list of valid entries or an associated help message.
Hold button required	On the Attendant Console form—A Hold button is required. The form cannot be submitted unless a Hold button is assigned on the form.
Hospitality Parameter Reduction requires Hospitality to be activated	The Hospitality feature must be enabled on the System Parameters Customer Options form before the Hospitality Parameter Reduction and associated forms and fields on forms can be administered.
Hospitality feature not assigned	The Hospitality feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
Hot line feature requires KYBD dialing capability	The Data Hot Line feature requires the user to press the <BREAK> key. This requires a data terminal and associated keyboard.
Hunt group cannot be an ACD split if message is Remote AUDIX	On the Hunt Group form—Enter ''msa'' or ''audix'' in the Message Center field.
Hunt group cannot have a Queue if message is Remote AUDIX	On the Hunt Group form—Enter ''n'' in the Queue field when the Message Center field entry is ''rem-audix''.
Hunt group or split not administered	Reenter the hunt group number. Do not enter a hunt group or split number that is not administered.
Hunt group or split not designated for messaging	On the Call Vector form—When using a Messaging command to designate a hunt group or split for leaving messages, the Message Center field on the Hunt Group form must be administered as ''msa'', ''rem-audix'', or ''audix''.
Hunt group or split not vector controlled	On the Call Vector form—When a Check or Queue command is used, enter a hunt group or split number whose Vector field is set to ''y''.
Hunt night service buttons must be removed before removal	All ''hunt-ns'' feature buttons assigned to stations and attendant consoles must be removed from the station and attendant console forms before the associated hunt group can be removed.
ID and Local PBX ID must match	On the Dial Plan form—When the LCL field entry (Page 2–6) is ''y'', the associated ID and the Local PBX ID (Page 1) entries must be the same.

Table 2-2. System Error Messages (continued)

Error Message	Description
ISDN-PRI and Vectoring (Basic) must be assigned	The ISDN-PRI and Vectoring (Basic) features must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
ISDN-PRI feature not assigned	The ISDN-PRI feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.
IXC for non-ISDN trunk groups should be entered in Inserted Digits field	On the Routing Pattern form—The IXC value for non-ISDN-PRI trunk groups must be entered in the Inserted Digits field.
IXC number must be three digits	On the Routing Pattern form—The IXC field entry must be the last three digits of a 5-digit Inter-Exchange Carrier code (10XXX).
Identifier invalid	Reenter the data. Press the HELP key for a list of valid entries or an associated help message.
Identifier not assigned	Reenter an assigned number. The extension, hunt group, PCOL Group, trunk group, etc, number does not exist.
Identifier previously assigned; please select another	Enter an unassigned number. The number just entered is already assigned an object.
Idle Appearance Preference must be n(o) for 7401D	On the 7410D Station form—The Idle Appearance Preference field entry must be ‘‘n’’.
If ’active’ is yes, ’busy’ must be yes	Enter ‘‘y’’ in the associated busy field when the active field entry is ‘‘y’’.
Intercom dial code not assigned for extension	On the Station form—The DC (dial code) entered for an ‘‘auto-icom’’ feature button is not assigned on the associated Intercom Group form.
Interface IDs are duplicately assigned	On the Signaling Group form—An Interface ID field entry cannot be entered in another Interface ID field.
Invalid Authorization Code	On the Authorization Codes form—The AC field entry must be a 4- to 7-digit code and agree with the Authorization Code Length field entry on the Feature-Related System Parameters form.

Table 2-2. System Error Messages (continued)

Error Message	Description
Invalid Group	Reenter the group number. Press the HELP key for a list of valid entries or an associated help message.
Invalid IXC access number - must be 10XXX, 9501XXX or NXXXXXX	On the Inter-Exchange Carrier Codes form—The IXC Access Number field entry must be in the form 10XXX, 9501XXX, or NXXXXXX.
Invalid area code	Enter a valid area code in the form NXX where N is any digit 2–9 and X is any digit 0–9.
254 Invalid class of restriction	Enter the appropriate COR in the range of 0 through 95.
Invalid count	The count number entered on the command line is incorrect, reenter the command. Refer to the administration commands coverage in Chapter 2 for additional information.
Invalid destination	Reenter the data. Consult the appropriate form instructions in Chapters 5 or 6 for additional information.
Invalid digit insertion string	On the Routing Pattern form—In the Inserted Digits field, enter up to 36 digits to be inserted. Press the HELP key for an associated help message.
Invalid Entry	Reenter the data. Press the HELP key for an associated help message.
Invalid Entry - - please press the HELP key	Reenter the data. Press the HELP key for a list of valid entries or an associated help message.
Invalid facility restriction level	Enter a valid FRL in the range 0–7.
Invalid number of digits deleted	On the Routing Pattern form—The No. Del Digits field entry can be from 0–18 or blank.
Invalid partitioned group number	The Partitioned Group Number (PGN) must be in the range 1–8. Each PGN is defined using appropriate Class of Restriction forms.
Invalid: please check the Dial Plan	Reenter the number. Ensure that your entry is in agreement with the System's Dial Plan.
Invalid prefix mark	On the Routing Pattern form—The Prefix Mark field entry must be in the range 0–3.
Invalid routing pattern	Enter a valid routing pattern number in the range 1–640.
Invalid toll list reference number	Enter a valid toll list number in the range 1–32.

Table 2-2. System Error Messages (continued)

Error Message	Description
Invalid trunk group number	Enter a valid trunk group number in the range 1–666.
Is not an isdn-pri trunk group; please select another	On the Signaling Group form—(Reserved for future use)
Length of dialed string cannot exceed total minimum	The length of the Dialed String entry must be less than or equal to the associated Min field entry.
Length of ext code greater than ext length	On the CPN Prefix Table form—The Ext Code field entry cannot be greater than the associated Ext Len field entry.
Link must be assigned to a processor or hop channel first	Assign the interface link on the Processor Channel Assignments or Hop Channel Assignments form before completing current entry.
Link/channel pair assigned to hop-channel	Enter an appropriate link/channel pair not currently assigned to a hop channel.
Link/channel pair assigned to processor channel	On the Hop Channel Assignments form—Do not assign Link/Channel pairs if already assigned on the Processor Channel Assignments form.
List number out of range	On the Station/Attendant Console form—When administering an Abbreviated Dialing feature button, the associated list number entry must be in the range of 1–3.
Local PBX ID not specified; please check dialplan	On the Administered Connection form—The Auto Restoration field entry cannot be ‘‘y’’ unless the Local PBX ID field entry on the System’s Dial Plan form has an entry in the range of 1–63.
Local PBX Id Multiply Assigned	On the Dial Plan form—Two identical PBX IDs (Pages 2–6) are entered and associated entries in the LCL fields are different.
	On the Dial Plan form—Entry in two LCL fields (Pages 2–6) is ‘‘y’’ and the associated PBX IDs field entries are different.
Local extension duplicately assigned; please select another	Reenter an unassigned extension number.
Long Holding Time must be 0 for SDDN service type	On the ISDN-PRI Trunk Group form—If the Service Type field entry is ‘‘sddn’’, then the Long Holding Time field entry must be ‘‘0’’.
Lookahead Interflow feature not assigned	The Lookahead Interflow feature must be enabled on the System Parameters Customer Options form before associated forms and fields on forms can be administered.

Table 2-2. System Error Messages (continued)

Error Message	Description
MIM support must be set to 'n' for ASAI stations	On the ASAI Interface form (station form with Type field = ''asai'')—The MIN Support field entry must be ''n''.
Maintenance extension must be administered from active netcon/procr-intf form	The Maintenance Extension field must be administered on the appropriate Processor Interface Data Module form.
Max# Chan cannot exceed total number of trunk members	On the ISDN-PRI Trunk Group form—The Max# Chan field entry (Page 3) cannot be greater than the total number of trunk members (Pages 5–11).
Max# Chan minus Min# Chan exceeds total members minus sum of Min# Chan	On the ISDN-PRI Trunk Group form—The Max# Chan field entry (Page 3) minus the associated Min# Chan field entry must not exceed the total number of trunk members minus the sum of the Min# Chan entries.
Maximum number of attendants with this type has already been assigned	On the Attendant Console forms—Only one form can have a Console Type field entry of ''principal''. Also, only one as ''night-only'' or ''day/night''.
Maximum number of bridged appearances for principal already assigned	On the Station/Attendant Console form—The bridged appearance feature button cannot be assigned the extension number just entered. The extension is currently assigned the maximum number of bridged appearances.
Maximum number of groups previously entered; cannot add new groups	The maximum number of this type of group have already been assigned. You cannot enter a group of the same type unless you remove a current group.
Maximum number of reports scheduled; cannot schedule new report	When using the report scheduler command, the maximum number of reports to be scheduled cannot exceed 50.
Message waiting button can only be last button	When administering a 7302H station, the Message waiting lamp must be administered to Button Assignments button number 5.
Message(s) waiting; please delete message(s) first	A LWC Message Waiting feature button or associated station cannot be removed if the station has a message waiting. Delete all messages that are waiting, then remove the button and/or station.
Min# Chan cannot be greater than Max# Chan	On the ISDN-PRI Trunk Group form— The Min# Chan field entry cannot be greater than its associated Max# Chan field entry.
Min/Max ranges overlap - Duplicate entries on the screen	Two Dialed String field entries are the same but their associated Min/Max field entries overlap other entries on the current display screen.
Min/Max ranges overlap - Entry already exists in the table	Two Dialed String field entries are the same but their associated Min/Max field entries overlap other entries in the table (not on the current display screen).

Table 2-2. System Error Messages (continued)

Error Message	Description
Minimum value exceeds maximum value	The Min field entry must be equal to or less than its associated Max field entry.
Missing port pair member	On the Modem Pool Group form—For each combined modem pool group to be assigned, enter one analog port assignment in an Analog field and one digital port assignment in the associated Digital field.
Modem-pool option(s) must be specified	On the Modem Pool Group form—Complete all appropriate fields for the type of modem pool being administered. Refer to the ‘‘Modem Pool Group’’ form instructions in Chapter 5 for additional information.
Modules must be removed before station type can be changed	On the Station form—Remove all modules and associated administration data from the station, then change the Type field entry.
Must add this trunk board to a Sig Grp before assigning this ISDN-PRI port	On the ISDN-PRI Trunk Group form—A DS1 trunk port cannot be assigned if the DS1 is associated with a Non-Facility Associated Signaling Group but not yet administered in a Trunk Brd field on the form. Enter the DS1 port assignment on the Signaling Group Trunk Brd field first, then enter port assignments on the trunk group.
Must administer CAS Branch on console-parameters form	On the Release Link Trunk Group form—The Direction field entry can only be "outgoing" if the CAS field entry on the Console Parameters form in "branch".
Must administer CAS Main on console-parameters form	On the Release Link Trunk Group form—The Direction field entry can only be ‘‘incoming’’ if the CAS field entry on the Console Parameters form is ‘‘main’’.
Must administer DS1 circuit pack first	A DS1 port cannot be assigned until the DS1 circuit pack is physically installed or administered using the Circuit Pack Administration form.
Must administer a station DM through its related station	A Data Module to be associated with a station must be administered on a page provided with the station form.
Must administer an adjunct controlled split before accessing agents	After an Adjunct Controlled Agent Table has been administered in the System, at least one Hunt Group form must have its Controlling Adjunct field entry set to ‘‘bx.25’’.
Must assign interface ID for each trunk board	On the Signaling Group form—When the Associated Signaling field entry is ‘‘n’’ (Non-Facility Associated Signaling), an Interface ID field entry is required with each completed Trunk Brd field entry on the form.

Table 2-2. System Error Messages (continued)

Error Message	Description
Must assign queue (at least 1) for RLT trunk group	On the Release Link Trunk Group form—The Queue Length field entry must be at least ‘‘1’’ or greater.
Must assign signaling group number for this port since no default value found	On the ISDN-PRI Trunk Group form—the Sig Group field entry (Pages 5–11) for each port assigned must contain an entry. If a DS1 interface appears in one and only one Signaling Group, then the signaling group number will appear as a default in the Sig Group field for any trunk port on that interface. This value cannot be changed until another DS1 circuit pack is added for another Signaling Group. If a DSI circuit pack is assigned to more than one Signaling Group, then no defaults will appear in the Sig Group field.
Must bridge onto an analog station	On a Station/Attendant Console form—When administering an ‘‘abrdg-appr’’ feature button, the associated Ext field entry must be the extension number assigned the analog station to be bridged.
Must busyout PMS before changing or removing extension	The PMS must not be active when changing or removing the extension. Busy out PMS first, then change or remove the extension.
Must disable administered NCA-TSC before changing parameters	On the signaling group forms, set the enable field for NCA-TSCs to "n" before changing NCA-TSC parameters.
Must disable administered NCA-TSC before removing	On the signaling group forms, set the enable field for NCA-TSCs to "n" before removing NCA-TSC.
Must disable all administered NCA-TSCs before changing Service/Feature	On the signaling group forms, set the enable field for NCA-TSCs to "n" before changing Service/Feature.
Must disable associated communication link before change/removal	The Interface Link must be busied out before a ‘‘change communications-interface link’’ command can be issued. On the Interface Links form, set the appropriate Enable field entry to ‘‘n’’ to busy out the link.
Must disable communication link associated with this DS1 board first	The Interface Link must be busied out before the associated object or DS1 port can be changed or removed. On the Interface Links form, set the appropriate Enable field entry to ‘‘n’’ to busy out the link.
Must have at least one entry for each day	On the Time of Day Routing form—There must be at least one Act Time and associated PGN field entry for each day on the form. The System defaults are ‘‘00:00’’ and ‘‘1’’, respectively, for each day.

Table 2-2. System Error Messages (continued)

Error Message	Description
Must have normal button for display module	On the Station form—A ''normal'' display-type feature button must be assigned if the station is administered with a display module.
Must install TN780 circuit pack for stratum 3 synchronization	On the Synchronization Plan form—If the Stratum field entry is ''3'', a TN780 Tone/Clock circuit must be installed in the System.
Must install circuit pack before installing equipment	The associated circuit pack must be physically installed and/or administered using the Circuit Pack administration form.
Must not reference its own Alpha-name	On the Alphanumeric Dialing Table—A Mapped String field entry contains a reference to its associated Alpha-name field entry. Change the Alpha-name reference in the Mapped String.
Must remove 7103A abbreviated dialing list before changing the set type	On the 7103A Station form—Remove ''7103A'' from the Abbreviated Dialing List 1, 2, or 3 fields before changing the Type field entry.
Must remove DS1 parameters	On the DS1 Circuit Pack form—Remove appropriate entries from associated fields on the form before removing the circuit pack.
Must remove Secondary D-channel field before changing fas-nfas type	On the Signaling Group form—If the Associated Signaling field entry is to be changed from ''n'' (NFAS) to ''y'' (FAS), the secondary D-channel field entry must be deleted first.
Must remove administered NCA-TSCs before removing signaling group	Remove any administered NCA-TSCs from the signalling group before removing the signaling group.
Must remove all members before changing trunk group type to/from ISDN-PRI	On the Trunk Group form—Remove all trunk port assignments before changing the Group Type field entry on Page 1 of the form.
Must remove associated Sig Grp entry on Trunk Group form first	On the ISDN-PRI Trunk Group form—The Signaling Group number (1–8) must be removed from the Sig Grp fields on Pages 5–11 of the form before the Signaling Group can be removed.
Must remove associated ports from trunk group first	On the Trunk Group form—Before a Signaling Group can be removed, all DS1 port assignments associated with the Signaling Group's Primary and Secondary D-channel must first be removed from the trunk group.

Table 2-2. System Error Messages (continued)

Error Message	Description
Must remove button 31 or set data module to "n".	Similar to the above error message except that it refers to button 31 of the 7507D set. Applies to ISDN-BRI 7507D set when attempting to change to this set type from other sets when button 31 is assigned and data module is optioned "y". Button 31 on 7507D set is reserved as a fixed data button if data module is optioned as "y". Button 31 of the 7507D set normally appears as feature button "21:" of 7405D set. However on 7407D set it appears as button "31."
Must remove button 7 or set data module to "n".	Applies to ISDN-BRI 7505D and 7506D sets when attempting to change to these sets from other sets when button 7 is assigned and data module is optioned "y". Button 7 on 7505D and 7506D sets is reserved as a fixed data button if data module is optioned as "y".
Must remove entry from ISDN TSC Gateway form first	Before removing a gateway entry from processor channel form, remove associated entry from ISDN TSC gateway form first. Also, before removing NCS-TSC entry with application "gateway" from the signaling group form, remove associated entry from ISDN TSC gateway form first.
Must remove entry from Signaling Group form first	A DS1 circuit pack cannot be removed if the 24th channel is administered as a D-channel on a Signaling Group form.
	A DS1 circuit pack cannot be removed if an associated port is administered in a Trunk Brd field on an NFAS Signaling Group form.
Must remove extensions dependent on this ‘‘pextension’’ first	On the Dial Plan form—The extensions assigned as ‘‘pextensions’’ must be removed from all object (such as, stations, hunt groups, etc.) before the associated entry on the First Digit Table can be changed.
Must remove installed equipment before changing circuit pack type	Remove circuit pack and associated interface hardware and wiring from the associated port slot before changing the circuit pack type for that slot.
Must remove the 24th port from trunk group first	On the Signaling Group form—If a DS1 circuit pack is to be assigned a D-channel and the 24th port is currently assigned on a trunk group form, the port must be removed from the trunk group or another DS1 must be assigned as the D-channel.
Must remove this DS1 board from communication links form first	On the Interface Links form—Remove the DS1 from the appropriate Destination Brd field before the circuit pack can be removed.

Table 2-2. System Error Messages (continued)

Error Message	Description
Must remove trunk boards before removing signaling group	On the Signaling Group form—The Trunk Brd and associated Interface ID field entries must be removed before removing the Signaling Group.
Must select an ISDN-PRI trunk group to establish TSC	When allowing TSCs on the Routing Pattern form for a preference, the specified trunk group must be of the isdn-pri trunk type.
Must set IXC to blank on Routing Pattern form first	On the Routing Pattern form—The IXC field entries must be blank before the Grp. No. field can be changed to a non-ISDN trunk group number.
Must set TSC request to none on Routing Pattern form first	When removing an ISDN trunk group or changing from ISDN trunk group type to non-ISDN type, set TSC request to "none" on associated routing pattern preference.
Must set to high for ISDN application	On the Processor Channel Assignments form—An Appl. field entry of ‘‘isdn’’ requires that the associated Priority field entry be ‘‘h’’.
Must specify at least one speed between LOW and 19200	On the Modem Pool Group form—When the Group Type field entry is ‘‘combined’’, the Speed field must have one speed specified.
Must use administered DS1 circuit pack	A DS1 port cannot be assigned until the DS1 circuit pack is physically installed and/or administered using the Circuit Pack Administration form.
Name format must be: [Last, First M] or [First M Last] */	On the Station form—The Name field entry must be in the format indicated. This format is required for use by the Integrated Directory feature.
Neither Service Observing nor ACD features assigned	The Service Observing and ACD features must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.
New and reentered passwords do not match	The changed password has been entered incorrectly. Reenter the new password.
New password must be specified	A new password is required when changing passwords. Enter your new password. For additional assistance, contact your System Administrator.

Table 2-2. System Error Messages (continued)

Error Message	Description
Night Service must be blank for SDDN service type	On the ISDN-PRI Trunk Group form—The Night Service field entry must be blank when the associated Service/Feature field entry is ''sddn''.
Night-serv button required	On the Attendant Console form—At least one Night Service feature button must be administered.
No TSC assigned	A TSC index that was not administered has been specified in a maintenance command.
No Night Destination has been administered for this hunt group	On the Station from—A ''hunt-ns'' (Night Service) feature button has been assigned a hunt group that does not have its respective Night Service Destination field completed.
No Night Destination has been administered for this trunk group	On the Station from—A ''trunk-ns'' (Night Service) feature button has been assigned a trunk group that does not have its Night Service field completed.
No adjunct controlled split similarly measured to move members to	On the Hunt Group form—You cannot remove the last Adjunct Controlled split if there are entries on the Adjunct Controlled Agents Table form.
No available extensions in the system	All available extension numbers have been assigned. The System maximum is 21,875 all of which can be phantom extensions. Also check the System Dial Plan form for complete assignment of all possible extension numbers.
No call appearance buttons have been assigned	On the Station form—Assign at least two call appearance feature buttons to multi-appearance voice terminals.
No data in the system to list	Indicates that the object in a list command (such as, hunt group, coverage group, etc.) is not assigned in the System.
No space available to add data	The entry has exceeded System limitations for the associated object. Either enter new data or condense or remove current data to make room for the addition.
Number of BCMS measured agents exceeds maximum	The number of measured agents entered exceeds the System maximum of 200.

Table 2-2. System Error Messages (continued)

Error Message	Description
Measured agents per split exceeds maximum	The number of measured agents entered in a split exceeds the maximum of 30.
Measured hunt groups exceeds maximum	The number of measured hunt groups entered exceed the maximum of 99.
Number of BCMS measured trunk groups exceeds maximum	The number of measured trunk groups entered exceed the maximum of 32.
Number of local-tgs buttons on feature buttons exceeds maximum	On the Attendant Console form—The maximum number of ''local-tgs'' buttons that can be assigned on Page 2 of the form is 12. The combination of ''local-tgs'' and ''remote-tgs'' buttons assigned on Page 2 cannot exceed 12.
Number of playing cycles must be specified	On the Loudspeaker Paging Access form—The Code Calling Playing Cycles field (Page 1) must be completed if the associated Code Calling fields on the form have been completed.
Number of remote-tgs buttons on feature buttons exceeds maximum	On the Attendant Console form—The maximum number of ''remote-tgs'' buttons that can be assigned on Page 2 of the form is 12. The combination of ''local-tgs'' and ''remote-tgs'' buttons assigned on Page 2 cannot exceed 12.
Number string may not run into an Alpha-name string	On the Alphanumeric Dialing Table form—A Mapped String field entry contains a Number String that includes an Alpha-name type string. Remove the Alpha-name type string.
OCM-SID/ANI feature not assigned	The OCM-CPN/BN feature must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.
Object in use; please try later	The associated object must be busied-out or be idle before it can be changed or removed.
Object type and port type inconsistent	Administer the appropriate circuit pack type and port for the object being interfaced. For example, do not administer an Analog circuit pack port where a DS1 Circuit pack is required. Or, do not administer port number 12 if the associated circuit pack has just eight ports.

Table 2-2. System Error Messages (continued)

Error Message	Description
One or more ports already assigned; please select another board	Administer another unused circuit pack of the same type or functionality.
Only one 'audix' or 'rem-audix' message allowed in system	On the Hunt Group form—Administer the appropriate entry in the Message Center field.
Only one abbreviated dialing list entry may be 7103A	On the Station form—Only one Abbreviated Dialing List (1, 2, or 3) can have an entry of ''7103A''.
Only one day may be specified for deferred reports	When using a schedule qualifier on a command line, the deferred print interval may only be printed once at some later time.
Only one personal list may be specified	Only one Abbreviated Dial List (1, 2, 3) on the form being administered can have an entry of ''p''.
Originator and destination cannot be the same	On the Administered Connection form—The Originator and Destination field entries cannot both be the same.
PBX Code Multiply Assigned	On the Dial Plan form—On Pages 2 through 6 of the form (Uniform Dial Plan), the Code field entry and associated Node Number field entry must be different than any other Code/Node Number entry on the form. Do not assign two or more Node Numbers to the same Code field entry.
PBX Code inconsistent with First Digit Table	On the Dial Plan form—An extension must be assigned on the First Digit Table for the first digit of all PBX Codes entered on the Uniform Dialing Plan (Pages 2–6).
PBX ID defined as local on dialplan form	On the Feature-Related System Parameters form—If the ACA Enabled field is ''y'' and the ACA Referral calls field is set to ''remote'', the ACA Remote PBX Identification field must not contain the local PBX ID (defined on the System's Dial Plan form).
PBX ID duplicately assigned; please select another	On the Signaling Group form—The Interface ID field entry must not be entered more than once on the form.
PBX ID must be blank if service type is not access, dmi-mos, tandem, or tie	On the ISDN-PRI Trunk Group form—The PBX ID field entry (Page 2) must be blank if the Service Type field entry (Page 1) is not ''access'', ''dmi-mos'', ''tandem'', or ''tie''.

Table 2-2. System Error Messages (continued)

Error Message	Description
PBX ID must be unique for DCS across Dial Plan, Sig Grp, and Proc Chan forms	The far-end PBX-ID entered on the Uniform Dial Plan (Dial Plan ID field on Pages 2–6) must be used on associated Processor Channel Assignment forms (Machine ID field) and NFAS Signaling Group forms (Interface ID field) when in a DCS configuration and referring to the same far-end PBX.
Packet bus is not activated, check system-parameters maintenance form	The Packet Bus option must be enabled on the Maintenance-Related System Parameters form before associated forms and fields on forms can be administered. Information concerning this form is provided in *Generic 1 and Generic 3—Installation and Test*, 555-230-104.
Password incorrect	Reenter the correct password. Contact the System Administrator if required.
Path does not exist.	On the form being administered, the Call Coverage Path Group number being referenced has not been administered in the System.
Pattern number invalid	Enter a valid routing pattern number in the range 1–640.
Permission to change password denied	Your login does not allow you to change the password. Contact the System Administrator if required.
Personal List is not assigned	The referenced Abbreviated Dialing Personal List is not administered in the System.
Personal List previously assigned	The referenced Abbreviated Dialing Personal List has already been administered in the System.
Personal list must be removed before removal	Remove the Abbreviated Dialing Personal List reference from all Station, Attendant Console, Data Module, etc., forms, then remove the station.
Personal list requires one digit dial code	Enter Abbreviated Dialing Personal List number 1, 2, or 3.
Pextension with other definitions for same first digit not allowed	On the Dial Plan form—When a pextension (prefixed extension) is administered on the First Digit Table, no other dial type (such as, extension, tac, fac, etc.) or ‘‘pextension’’ can be entered on the same row on the table.

Table 2-2. System Error Messages (continued)

Error Message	Description
Physical channel previously assigned; please select another	The physical channel (Processor Interface port) has already been assigned. Enter an interface port not currently assigned.
Points must be specified consecutively, starting with Point1	On the Call Coverage Paths form—The Point 1, 2, and 3 field entries must be assigned sequentially beginning with Point 1.
Port Circuit must be 01–04 for installed circuit-pack type	Assign ports 01 through 04 only for the circuit pack type installed in the referenced location.
Port Circuit must be 01–08 for installed circuit-pack type	Assign ports 01 through 08 only for the circuit pack type installed in the referenced location.
Port Circuit must be 01–12 for installed circuit-pack type	Assign ports 01 through 12 only for the circuit pack type installed in the referenced location.
Port Circuit must be 01–16 for installed circuit-pack type	Assign ports 01 through 16 only for the circuit pack type installed in the referenced location.
Port Circuit must be 01–24 for installed circuit-pack type	Assign ports 01 through 24 only for the circuit pack type installed in the referenced location.
Port has been marked bad; please select another	Assign another unused port on the circuit pack or assign a port on another circuit pack of the same type or functionality.
Port must be specified	On the Loudspeaker Paging Access form—A port must be assigned to each Loudspeaker Paging zone to be used.
Port previously assigned; please select another	Assign another unused port on the circuit pack or assign a port on another circuit pack of the same type or functionality.
Pos-busy button required	On the Attendant Console form—A ‘‘pos-busy’’ (Position Busy) feature button must be administered on the form.
Primary & Secondary D-channels have different DS1 parameters	On the Signaling Group form—Certain level 1 and level 2 DS1 circuit pack parameters must be the same when used for Primary and Secondary D-channels in the same Signaling Group.
Primary D-channel can not be empty	On the Signaling Group form—The Primary D-channel field must have an entry.

Table 2-2. System Error Messages (continued)

Error Message	Description
Primary/Secondary Output Layout must be either unformatted or expanded	On the Feature-Related System Parameters form—Assign ''unformatted'' or ''expanded'' to the Primary and Secondary Output Layout fields as appropriate to obtain CDR records for NCA-TSCs and CA-TSCs.
Principal's extension must be specified.	On station forms, specify the principal's extension during bridged appearance button administration.
Principal's call appearance button must be specified.	On station forms, specify the principal's call appearance button number during bridged appearance button administration.
Private Networking feature not assigned	The Private Networking feature must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.
Processor channel duplicately assigned	Enter an unused processor channel number.
Processor channel not assigned; please select another	The referenced processor channel number has not been administered on the Processor Channel Assignments form.
Processor channel not used for gateway; please select another	On the ISDN TSC gateway form, the specified processor channel is not a gateway application.
Product ID must be all digits	On the Maintenance-Related System Parameters form—The Product ID field entry must be all digits. Information concerning this form is provided in *Generic 1 and Generic 3—Installation and Test*, 555-230-104.
Product ID must start with a 1	On the Maintenance-Related System Parameters form—The Product ID field entry must start with a ''1''. Information concerning this form is provided in *Generic 1 and Generic 3—Installation and Test*, 555-230-104.
Queue Length must be 0 for SDDN service type	On the ISDN-PRI Trunk Group form—The Queue Length field entry must be ''0'' if the Service Type field entry is ''sddn''.
Queue Warning Port must be specified since Queue Warning Threshold specified	On the Hunt Group form—If the Calls Warning Threshold field has an entry, the Calls Warning Port field must have an entry.

Table 2-2. System Error Messages (continued)

Error Message	Description
Queue length total exceeds limit	Enter a Queue Length that is within the range specified for the field. Press the HELP key for a listing of valid inputs or an associated help message.
Node Number assigned incorrectly	On the Dial Plan form—The Node Number field entries on Pages 2 through 6 must be in the form; R = 2–9, N = 2–9, X = 0–9.
	Two identical Node Numbers on the Uniform Dial Plan are the same length and the first digits of the associated PBX codes are different.
	Two identical Node Numbers with values entered in the associated LCL fields that are different.
	Two identical Node Numbers with associated ID field entries (non-blank) and associated PBX ID field entries that are different.
Receive Answer Supervision must be no for incoming trunk groups	On the Trunk Group form—If the Direction field entry is ''incoming'', enter ''n'' in the Receive Answer Supervision field.
Reentered password must be specified	Reenter your new password a second time, otherwise, it will not be changed.
Remote PBX ID assigned to ACA on system-parameters features form	On the Feature-Related System Parameters form—The ACA Remote PBX Identification field entry must not be the same as the Local PBX ID field entry on the Dial Plan form.
Remove associated D-channels from signaling group first	Before changing fields on a DS1 circuit pack form or removing the circuit pack, all associated D-channel assignments on Signaling Group forms must be removed.
Remove associated trunk boards from signaling group first	Before removing a DS1 circuit pack or changing the Signaling Mode field entry on a DS1 Circuit Pack form to ''robbed-bit'' or ''common-chan'', associated DS1 assignments must be removed from NFAS Signaling Group forms.
Remove codes starting with ''1'' before setting cancellation symbol to ''1''	On the Feature-Related System Parameters form—The Authorization Code Cancellation Symbol field cannot be set to a ''1'' until AC field entries on the Authorization Codes form that begin with a ''1'' are removed.

Table 2-2. System Error Messages (continued)

Error Message	Description
Remove trunk boards not containing Primary D-channel before changing to fas	On the Signaling Group form—The Associated Signaling field entry cannot be changed from ''n'' (NFAS) to ''y'' (FAS) until all Trunk Brd field entries are removed.
Request Feature Group feature not assigned	The Request Feature Group option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.
Required abbreviated dialing list not assigned	On a Station's Data Module form—Any attempt to administer the Abbreviated Dialing Dial Code field requires that the Abbreviated Dialing List 1 field must have an entry.
Required data not specified	Reenter valid data. Press the HELP key for a listing of valid entries or an associated help message.
Required data not specified; or clear respective Alpha-name	On the Alphanumeric Dialing Table form—An Alpha name has been assigned and its associated Mapped String field is blank. Complete the Mapped String field or remove the Alpha name field entry.
Required data not specified; or clear respective Mapped String	On the Alphanumeric Dialing Table form—A Mapped String has been assigned and its associated Alpha name field is blank. Complete the Alpha name field entry or remove the Mapped String.
Requires TN722B or TN767 circuit pack	On the DS1 Circuit Pack form—The DMI-BOS field entry cannot be ''y'' unless a TN722B or TN767 circuit pack is installed and/or administered.
Requires TN767 circuit pack	On the DS1 Circuit Pack form—The Signaling Mode field entry cannot be ''isdn-pri'' unless a TN767 circuit pack is installed and/or administered.
SAI/PROTOCOL data module must be assigned before enabling link	Add a Processor Interface Data Module (form instructions in Chapter 5), then enable the associated link on the Interface Links form.
CDR ext cannot be same as PMS or Journal/Log Printer ext	On the Feature-Related System Parameters form—The CDR Primary and Secondary Output Destination field entries cannot be the same as the Extension of PMS Log Printer and Extension of Journal/Schedule Printer field entries on the Hospitality-Related System Parameters form.

Table 2-2. System Error Messages (continued)

Error Message	Description
Scheduling table must be administered when scheduled method is selected	On the ISDN-PRI Trunk Group form—If the Scheduled field entry (Page 4) is ''y'', the scheduling table fields (Act Time and Plan #) must have at least one entry.
Secondary source requires primary synchronization source	On the Synchronization Plan form—The Primary field must be administered before the Secondary field.
Security code invalid	Enter a valid 4-digit security code (used to support the Demand Print Messages function and the retrieval of messages via speech synthesis).
Select one scheduling method	On the ISDN-PRI Trunk Group form—When the Service Type field entry is ''cbc'' (Page 1) and the Usage Allocation field entry is ''y'' (Page 4), the Fixed field entry must be ''y''.
Service Observing feature not assigned	The Service Observing feature must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.
Service Point Identifier previously assigned	On the system maintenance form, the specified Service Point Identifier value has already been assigned.
Service type does not match on first page	On the ISDN-PRI Trunk Group form—When the Service Type field entry on Page 1 is not ''cbc'', the Service/Feature field entries on Page 2 must match the Service Type entry on Page 1.
Service/Feature must be removed from NSF form before removal/change	The Network Facilities form is a display-only type form. Administration must be performed by the Customer Services Support Organization.
Service/Feature must be removed from Routing Pattern form before removal/change	On the Routing Pattern form—The Service/Feature field entries associated with an ISDN-PRI trunk group must be removed from all Routing Pattern forms before the trunk group's Group Type field can be changed or the trunk group removed.
Service/Feature must be removed from TRUNK GROUP form before removal/change	On the ISDN-PRI Trunk Group form—The Service/Feature field entries must be removed before the trunk group's Group Type field can be changed or the trunk group removed.

Table 2-2. System Error Messages (continued)

Error Message	Description
Service/Feature only valid for CBC trunk groups	On the Routing Pattern form—If the Service/Feature field is assigned an entry, the associated ISDN-PRI Trunk Group form must have its Service Type field entry set to ‘‘cbc’’.
Set Value Group feature not assigned	The Set Value Group option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.
Signaling Group not assigned. Please select another.	The Signaling Group is not administered in the System. Either add the Signaling Group or enter an administered Signaling Group number.
Signaling field on DS1 form must have ISDN-PRI type	On the DS1 Circuit Pack form—The Signaling Mode field entry must be ‘‘isdn-pri’’.
Signaling mode of this board has to be ISDN-PRI	On the Signaling Group form—The DS1 Interface assigned to the Primary and Secondary D-channel field must have its Signaling Mode field on the DS1 circuit pack form set to ‘‘isdn-pri’’. Administer the DS1 accordingly.
Signaling mode of this board has to be ISDN-PRI or ISDN-EXT	On the Signaling Group form—When the Associated Signaling field entry is ‘‘n’’ (NFAS), the DS1 circuit pack assigned Trunk Brd fields on the form must have its Signaling Mode field set to ‘‘isdn-pri’’. Administer the DS1 Circuit Pack form accordingly.
Specified service must be removed from routing patterns using this trunk group	On the ISDN-PRI Trunk Group form—When the Service Type field entry is not ‘‘cbc’’, associated Routing Patterns using the trunk group cannot have their Service/Feature field administered [(field(s) must be blank)].
Specify the BCC for at least one class to y(es)	On the Routing Pattern form—For each ISDN-PRI trunk group assigned, at least one associated BCC field entry (Page 2) must be set to ‘‘y’’.
Speed invalid with default mode set to "async"; please press help	This only applies to the 7500B Data Module. When the default mode is set to "sync", valid speeds include 56k and 64k. These are not valid when the default mode is set back to "async".

Table 2-2. System Error Messages (continued)

Error Message	Description
Station can only be assigned to 1 pickup group	Do not assign the station's extension to more than one Call Pickup Group.
Station must be removed before hunt group can be removed	Remove the station using the ''remove station XXXXX'' command. Then, re-add the station and administer the Type field as required.
Station must be removed from ICOM group(s) before removal	On the Intercom Group form—Remove the station's extension number from the appropriate form and then remove the station.
Station must be removed from all groups before removal	Remove the station's extension number from all groups (such as, Intercom, Hunt, TEG, Call Coverage, etc.), then remove the station.
Station must be removed from code calling list before removal	On the Loudspeaker Paging Access form—Remove the station's extension number from the Code Calling IDs Ext field, then remove the station.
Station must be removed from cov-ans group(s) before removal	On the Call Coverage Answer Group form(s)—Remove the station's extension number from the Ext field, then remove the station.
Station must be removed from coverage path before removal	On the Coverage Paths form—Remove the station's extension number from a Coverage Point (Point 1, 2, 3) field, then remove the station.
Station must be removed from pickup group before removal	On the Pickup Groups form—Remove the station's extension number from the Ext field, then remove the station.
Station must be removed from term-ext group(s) before removal	On the Terminating Extension Group form—Remove the station's extension number from the Ext field, then remove the station.
Station must have a 7103A abbreviated dialing list	On the 7103A Station form—Enter ''7103A'' in the Abbreviated Dialing List 1, 2, or 3 field.
Suffix must be B-Z or blank	On the Circuit Pack Administration form—Enter a suffix code (B-Z) in the Sfx field. The code should match the code on the installed circuit pack.

Table 2-2. System Error Messages (continued)

Error Message	Description
Sum of Min# Chan exceeds total number of trunk members	On the ISDN-PRI trunk Group form—The Min# Chan field entry (Page 3) must be less than the total number of channels (trunk members) in the trunk group.
Synchronization sources must be in same port network	On the Synchronization Plan form—The Primary and Secondary field references must be located in the same Port Network (1–3).
System Printer ext cannot be same as PMS or Journal/Log Printer ext	On the Feature-Related System Parameters form—The Printer Extension field entry (Page 4) must be different than the Extension of the PMS Log Printer and Extension of Journal/Schedule Printer field entries on the Hospitality-Related System Parameters form.
System limit of 10 CBC trunk groups has been reached	On the ISDN-PRI Trunk Group form—The Service Type field entry cannot be ''cbc'' because the System's maximum of 10 CBC trunk groups have already been assigned.
System limit of 1000 entries has been reached	The combined entries in the System's HNPA and RHNPA Tables is set at 1000 entries.
System limit of 288 Incoming Call Handling entries has been reached	On the ISDN-PRI Trunk Group form—The Incoming Call Handling Table (Page 2) cannot have more than 288 entries.
System must be taken out of night service before removal/change	The System must be taken out of Night Service before associated fields on forms can be changed or an object removed.
System or group list requires two digit dial code	Enter an appropriate Abbreviated Dialing 2-digt dial code. A 2-digit code is required when referencing System and Group lists.
System resource limit has been reached	The System's allocated memory space that is shared between AAR/ARS Analysis Tables, AAR/ARS Digit Conversion Tables, and the Toll Analysis Table has been filled. New assignments cannot be made unless current assignments are removed.
TAC assigned	Enter a new Trunk Access Code that agrees with the System's Dial Plan.
TAC invalid; please check dialplan	The Trunk Access Code (TAC) first digit does not agree with the first digit assigned TACs on the Systems Dial Plan form.

Table 2-2. System Error Messages (continued)

Error Message	Description
TAC must be specified	On the Loudspeaker Paging Access form—A TAC must be specified for each Voice Paging or Code Calling port assigned.
TN Code of a circuit pack can not be blank	On the Circuit Pack Administration form—Enter the complete circuit pack code when administering a circuit pack. Enter ''TN'' plus three digits to complete the entry.
The maximum number of ASAI endpoints is already administered	Up to eight ASAI Link Interfaces may be administered in the System.
The maximum number of ISDN-BRI endpoints is already administered	The maximum number of 1000 ISDN-BRI endpoints has already been administered. This includes both voice, integrated voice/data, data endpoints, and ASAI endpoints.
The maximum number of data modules is already administered	The maximum number of data modules that can be administered has been reached.
The maximum number of stations is already administered	Up to 10,000 stations can be administered. In addition, up to 10,000 phantom extensions can be administered (Administration Without Hardware feature).
This command cannot be canceled	The following messages cannot be canceled: Cancel in progress, No next page, No previous page, and No more pages. The following requests for a cancel cannot be honored: Any command which involves disk or tape access, or Waiting more than 1 second to cancel the request for a valid form.
This D-channel is duplicately assigned. Please select another.	On the Signaling Group form—A D-channel port cannot be assigned to more than one Signaling Group, no matter if it is assigned as a Primary or Secondary D-channel port.
This Trunk Board does not belong to this Signaling Group	On the ISDN-PRI Trunk Group form—The Sig Grp field entry (Pages 5–11) is not associated with the Port entry (the Port field entry is not associated with the referenced Signaling Group on the respective Signaling Group form).
This field cannot be assigned to this port and board; please enter blank	On the Trunk Group form—The Mode, Type, and Answer Delay fields on the trunk member assignments pages require that associated Port assignments be a TN722, TN760B, or TN767 circuit pack type.

Table 2-2. System Error Messages (continued)

Error Message	Description
This field cannot be blank for RLT applications	On the Release Link Trunk Group form—When the Group Type field entry is ''rlt'', the Incoming Destination field must have an entry.
This set type has a fixed normal button.	This applies to the 8510D and 8520D ISDN-BRI sets. These sets have a fixed normal button which is automatically administered.
This station extension must be specified	On the Station form—The Extension field associated with this form must be completed. The extension number entered must agree with the System's Dial Plan form.
Time of Day Routing Feature not assigned	The Time of Day Routing feature must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.
Timeout must be specified	On the Loudspeaker Paging Access form—The Voice Paging Timeout field must have an entry.
Toll Restriction not allowed with automatic trunks	On the Trunk Group form—The Toll Restricted field entry must be ''n'' for automatic trunks.
Total Min minus length of dialed string must be greater than or equal to 3	On the AAR/ARS Analysis form—For those entries associated with a Route Pat (Routing Pattern) field entry of ''r1–r32'' (RHNPA translations required), the total Min field entry minus length of the Dialed String entry must be greater than or equal to 3.
Total number of CA-TSCs over the system limit	On the signaling group form, the specified number of CA-TSCs exceeded the system limit.
Total number of NCA-TSCs over the system limit	On the signaling group form, the specified number of NCS-TSCs exceeded the system limit.
Total number of administered NCA-TSCs over the system limit	On the signaling group form, an attempt was made to administer a greater number of NCA-TSCs then is supported by the system.
Total number of entries has reached the limit	The maximum allowable entries for this field has been reached. You must remove a current entry before a new entry can be assigned.

Table 2-2. System Error Messages (continued)

Error Message	Description
Total number of permanent NCA-TSCs must be <= to Max Num of NCA-TSCs	On the signaling group form, total number of administered permanent NCA-TSCs must be less than or equal to the maximum number of NCA-TSCs specified on Page 1.
Total number of permanent TSCs must be less than this value	(Reserved for future use)
Total number of permanent TSCs must be less than the maximum number of NCA-TSCs to allow for as-needed TSCs	On the signaling group form, to allow for as needed TSCs, the total number of permanent TSCs must be less than the maximum number of NCA-TSCs.
Trunk Type must be ground-start to enable Abandoned Call Search	On the Trunk Group form—The Abandoned Call Search field entry cannot be ‘‘y’’ if the Trunk Type field entry is other than ‘‘ground-start’’.
Trunk board is duplicately assigned	The circuit pack port has already been assigned. Assign another circuit pack port of the same type or functionality.
Trunk group in a routing pattern - cannot change to incoming	On the Trunk Group form—You cannot change the Direction field entry to ‘‘incoming’’ if the trunk group is assigned on a Routing Pattern form. Remove the trunk group from the routing pattern, then change the Direction field.
Trunk group must be removed from all routing patterns before removal	Remove the trunk group from all routing patterns, then remove the trunk group.
Trunk night service buttons must be removed before removal	On the Station form—Remove all Trunk Night Service feature buttons that point to this trunk group. Then, remove the trunk group.
Trunk type must be specified first	On the Trunk Group form—Complete the Group Type field entry.
UDP extension must be local	Enter a local UDP extension that agrees with the System’s Dial Plan form.
UDP inconsistent with AUDIX Extension in remote AUDIX hunt group	On the Hunt Group form—The AUDIX Extension field entry (field only displayed if the Message Center field entry on the form is ‘‘rem-audix’’), is not in agreement with UDP extensions entered on the System’s Dial Plan form.
Uniform Dialing Plan feature is not assigned	The Uniform Dialing Plan option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

Table 2-2. System Error Messages (continued)

Error Message	Description
Unique entry cannot be selected -- enter more digits or '#' sign	When using the AAR/ARS ''list route-chosen'' command, the Dialed Number string (part of input command) is incomplete or must end with a # symbol.
Usage Allocation Schedule Plan is not administered	On the ISDN-PRI Trunk Group form—If the Fixed Field entry is ''y'', the Allocation Plan Number field must be assigned a number (1–3).
Use printable characters only	Do not enter space-bar characters or other non-printable characters.
Vectoring (Basic) feature not assigned	The Vectoring (Basic) feature must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.
Vectoring (Prompting) feature not assigned	The Vectoring (Prompting) feature must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.
Voice Paging and/or Code Calling data must be specified	On the Loudspeaker Paging Access form—Complete at least one Voice Paging or Code Calling TAC/COR pair assignment.
Warning Threshold must be less than or equal to Queue Length	On the Hunt Group form—The Calls Warning Threshold field entry must be less than the Queue Length field entry.
Warning Threshold must be specified since Warning Port specified	On the Hunt Group form—If the Calls Warning Port field has an entry, the associated Calls Warning Threshold field must have an entry.
X not supported for sets with data modules	On the Station form—The Port field cannot have an ''x'' as a valid entry (supports the Administration Without Hardware feature) if a Data Module is assigned to the station.
X not supported for this object	On the Access Endpoint form—An ''x'' is not a valid Port field entry. An ''x'' is permitted as the Port field entry on certain Station forms in support of the Administration Without Hardware feature.
X not supported for this set type	An ''x'' is not a valid entry in the Port field on this form. An ''x'' is permitted as the Port field entry on certain Station forms in support of the Administration Without Hardware feature.

System Features, Functions, and Services

3

This chapter lists the forms and fields required to implement features associated with the System. A brief description of each feature requiring implementation is given along with associated procedures and hardware requirements. A reference table is provided for each feature. These tables provide a list of System forms required to assign the feature, the fields on the form or forms requiring completion, and page locations for instructions; forms are listed in the order of completion. A listing of the forms with associated instructions and additional information, if applicable, is provided immediately following these tables. Examples are provided for complex features. Blank forms are provided in the accompanying *Blank Forms Package*.

This chapter does not attempt to discuss any feature in detail. Refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for detailed feature descriptions.

System features can be categorized into seven functional areas: Voice Management (VM), Network Services (NS), System Management (SM), Data Management (DM), Telemarketing (TM), Hospitality (H), and World Class Core (WCC). These feature abbreviations are used in the table below. A list of features by these functional areas is provided in Table 3-1 on the following pages. Features requiring no implementation are denoted with an asterisk * on the list. Features requiring additional hardware (AH) are noted with an ‘‘x’’ in the AH column. Features requiring implementation are described individually following the functional list.

Table 3-1. Generic 3r Features

VM	NS	SM	DM	TM	H	WCC	AH	Feature Name
	x							AAR/ARS Partitioning
				x			x	Abandoned Call Search
x							x	Abbreviated Dialing
	x							Adjunct-Switch Application Interface (ASAI)
						x		Administerable Timers
			x					Administered Connection/Access Endpoint
		x						Administration Without Hardware
				x				Agent Call Handling (includes Call Work Codes and Stroke Counts)
			x					Alphanumeric Dialing
	x							Alternate Facility Restriction Levels (AFRL)
x								Attendant Auto-Manual Splitting*
x								Attendant Call Waiting*
x								Attendant Control of Trunk Group Access
x							x	Attendant Direct Extension Selection With Busy Lamp Field
x								Attendant Direct Trunk Group Selection
x								Attendant Display
						x		Attendant Incoming Serial Calling
						x		Attendant Intrusion (Call Offer)
						x		Attendant Override
						x		Attendant Priority Queue
x								Attendant Recall*
x								Attendant Release Loop Operation*
x							x	Audio Information Exchange (AUDIX) Interface
x								Authorization Codes
	x							Automatic Alternate Routing
			x					Automatic Available Split (AAS)
x								Automatic Callback
				x			x	Automatic Call Distribution
	x							Automatic Circuit Assurance
x							x	Automatic Incoming Call Display*
	x							Automatic Route Selection
x					x		x	Automatic Wakeup
				x				Basic Call Management System (BCMS)
x								Bridged Call Appearance—Multi-Appearance Voice Terminal
x								Bridged Call Appearance—Single-Line Voice Terminal
x								Busy Verification of Terminals and Trunks

Table 3-1. Generic 3r Features (continued)

VM	NS	SM	DM	TM	H	WCC	AH	Feature Name
x								Call Coverage
		x					x	Call Detail Recording (CDR)
x								Call Forwarding—All Calls
x				x				Call Management System (CMS)
x								Call Park
x								Call Pickup
				x				Call Prompting
				x				Call Vectoring
x								Call Waiting Termination
	x							Call by Call Service Selection
	x							Calling Party Number/Billing Number
x							x	Centralized Attendant Service (CAS)
x								Class of Restriction
x								Class of Service
x							x	Code Calling Access
x								Conference—Attendant*
x								Conference—Terminal*
x								Consult
x								Coverage Callback
x								Coverage Incoming Call Identification
		x						Customer-Provided Equipment Alarm
			x				x	Data Call Setup
			x					Data Hot Line
			x					Data Privacy
			x					Data Restriction
			x				x	Data-Only Off-Premises Extensions
	x							D-channel Backup
	x							DCS Alphanumeric Display for Terminals
	x							DCS Attendant Control of Trunk Group Access
	x							DCS Attendant Direct Trunk Group Selection
	x							DCS Attendant Display
	x							DCS Automatic Callback
	x							DCS Automatic Circuit Assurance
	x							DCS Busy Verification of Terminals and Trunks
	x							DCS Call Forwarding—All Calls
	x							DCS Call Waiting*
	x							DCS Distinctive Ringing*
	x							DCS Leave Word Calling
	x							DCS Multi-Appearance Conference/Transfer*

Table 3-1. Generic 3r Features (continued)

VM	NS	SM	DM	TM	H	WCC	AH	Feature Name
	x							DCS Over ISDN-PRI
	x						x	DCS Pgate
	x							DCS Trunk Group Busy/Warning Indication
			x					Default Dialing
x								Demand Print
x								Dial Access to Attendant*
x								Dial Plan
x								Dialed Number Identification Service
			x				x	Digital Multiplexed Interface (DMI)
x							x	Direct Department Calling
x							x	Direct Inward Dialing
x							x	Direct Outward Dialing
x								Distinctive Ringing (Alerting)
					x		x	Do Not Disturb
			x				x	DS1 Tie Trunk Service
			x				x	EIA Interface
x								Emergency Access to the Attendant
		x						Enhanced Terminal Administration
	x							Extended Trunk Access
x								Facility Busy Indication
	x							Facility Restriction Levels and Traveling Class Marks
		x						Facility Test Calls
	x							Facility/Non Facility Associated Signaling
x								Forced Entry of Account Codes
						x		Fully Restricted Service (FRS)
	x							Generalized Route Selection
x								Go to Cover
x								Hold
						x		Hold—System-wide Automatic
x								Hot Line Service
x								Hunting
		x						ISDN-BRI Service SPID (Service Profile Identifier)
				x				Inbound Call Management
x								Individual Attendant Access
			x				x	Information System Network (ISN) Interface
x								Integrated Directory

Table 3-1. Generic 3r Features (continued)

VM	NS	SM	DM	TM	H	WCC	AH	Feature Name
	x							Integrated Services Digital Network—Primary Rate Interface
x							x	Inter-PBX Attendant Calls
x							x	Intercept Treatment
x								Intercom—Automatic
x								Intercom—Dial
x								Intra-switch CDR
				x				Intraflow and Interflow
x								Last Number Dialed
x								Leave Word Calling
x								Line Lockout*
				x				Lookahead Interflow
x							x	Loudspeaker Paging Access
x							x	Loudspeaker Paging Access—Deluxe
x				x				Malicious Call Trace (MCT)
x								Manual Message Waiting
x								Manual Originating Line Service
x								Manual Signaling
			x				x	Modem Pooling
		x		x			x	Move Agent From CMS*
x								Multi-Appearance Preselection and Preference
x								Multiple Listed Directory Numbers
		x						Multiuser System Management Access
x							x	Music-on-Hold Access
					x			Names Registration
	x						x	Network Access—Private
	x						x	Network Access—Public
x								Night Service—Hunt Group
x								Night Service—Night Console Service
x								Night Service—Night Station Service
x							x	Night Service—Trunk Answer From Any Station
x								Night Service—Trunk Group
	x							Node Number Routing (NNR)
	x						x	Off-Premises Station
				x				Outbound Call Management System
		x						Performance Measurements
x							x	Personal Central Office Line
x								Personalized Ringing
x							x	Power Failure Transfer*

Table 3-1. Generic 3r Features (continued)

VM	NS	SM	DM	TM	H	WCC	AH	Feature Name
x								Priority Calling
x								Privacy—Attendant Lockout
x								Privacy—Manual Exclusion
					x		x	Property Management System Interface
				x			x	Queue Status Indications
x								Recall Signaling*
		x						Recent Change History*
x							x	Recorded Announcements
x							x	Recorded Telephone Dictation Access
x							x	Remote Access
		x						Report Scheduler and System Printer
x								Restricted/Unrestricted Call Lists
x								Restriction—Controlled
x								Restriction—Miscellaneous Terminal
x								Restriction—Miscellaneous Trunk
x								Restriction—Toll
x								Restriction—Voice Terminal—Inward
x								Restriction—Voice Terminal—Manual Terminating Line
x								Restriction—Voice Terminal—Origination
x								Restriction—Voice Terminal—Outward
x								Restriction—Voice Terminal—Termination
x								Ringback Queuing
x								Ringer Cutoff
x								Rotary Dialing*
		x						Security Violation Notification
x								Send All Calls
x								Senderized Operation*
				x				Service Observing
x								Single-Digit Dialing and Mixed Station Numbering
	x							Software Defined Data Network
x								Straight Forward Outward Completion*
	x						x	Subnet Trunking
		x						System Access
		x						System Measurements*
		x						System Status Reports*
x								Temporary Bridged Appearance*

Table 3-1. Generic 3r Features (continued)

VM	NS	SM	DM	TM	H	WCC	AH	Feature Name
	x							Temporary Signaling Connection (TSC)
		x						Terminal Translation Initialization (TTI)
x								Terminating Extension Group
x								Through Dialing*
	x							Time of Day Routing
x								Timed Reminder
x								Touch-Tone Dialing*
x								Transfer*
x								Trunk Flash
x								Trunk Group Busy/Warning Indicators To Attendant
x								Trunk Identification By Attendant
x								Trunk-to-Trunk Transfer
x								Trunk-to-Trunk Transfer (Outgoing-Trunk to Outgoing-Trunk)
x							x	Uniform Call Distribution
	x						x	Unrestricted 5-digit Uniform Dialing Plan
x							x	Voice Message Retrieval
x							x	Voice Terminal Display

7400A/7500B Data Module

The 7400A/7500B Data Modules connect data terminal equipment (DTE) (for example, a PC) or data communications equipment (DCE) (for example, a modem) to the ISDN network. These Data Modules support EIA 232C and V.35 interfaces and RS-366 Automatic Calling Unit interface (for the EIA 232C interface only). When configured as an asynchronous DCE, these Data Modules support data rates of 300, 1200, 2400, 4800, 9600, and 19200-bps. When configured as a synchronous DCE, these Data Modules support data rates of 1200, 2400, 4800, 9600, 19200, 56000, and 64000-bps.

The 7400A/7500B have no voice functions, and can be configured in the following ways:

- Asynchronous DCE

  300, 1200, 2400, 4800, 9600, 19200-bps

- Synchronous DCE

  1200, 2400, 4800, 9600, 19200, 56000, 64000-bps

- Asynchronous DTE

  Up to 19200-bps. Used for modem pooling.

The 7400A/7500B can be stand-alone or in a multiple-mount housing.

Asynchronous Data Module (ADM)

NOTE:
The ‘‘alias station’’ command cannot be used to alias data modules.

The ADM may be used with asynchronous DTEs as a data stand for 7500 Series of ISDN-BRI voice terminals, thus providing connection to the ISDN network. The ADM provides integrated voice and data on the same voice terminal and supports data rates of 300, 1200, 2400, 4800, 9600, and 19200-bps. This module also supports the Hayes command set, providing compatibility with PC communications packages.

AAR/ARS Partitioning

Provides for the Automatic Alternate Routing (AAR) and Automatic Route Selection (ARS) services to be partitioned among as many as eight different groups of users within the System.

NOTE:
The ARS/AAR Partitioning feature must be enabled on the System-Parameters Customer-Options form before fields and associated fields on forms can be administered.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction **or** Time of Day Routing	Partitioned Group Number All
AAR Analysis	All
AAR Digit Conversion	All
ARS Analysis	All
ARS Digit Conversion	All
Feature Access Code	Automatic Alternate Routing Access Code
Node Number Routing	All
RHNPA	All
Routing Pattern	All

- Class of Restriction Form—Displayed when the ARS/AAR Partitioning option is enabled and the Time of Day Routing option is not enabled on the System Parameters Customer Options form. Assign a Partitioned Group Number (1–8) that is used by AAR/ARS features to select the AAR/ARS service for a group of users.
- Time of Day Routing Form—Complete one form for each PGN as required.

  NOTE:
  The Time of Day Routing option must be enabled on the System Parameters Customer Options form before a Time of Day Routing form can be administered.

- AAR Analysis Form—Complete each table (Partitioned Group Number) as required. Complete the Dialed String, Minimum, Maximum, Rte Pat (Routing Pattern), Call Type, and Node Num fields for each dialed string to be given specific routing considerations.
- AAR Digit Conversion Form—Complete the Matching Pattern and associated Replacement String fields for each dialed string (matching pattern) to be modified in part or whole. These dialed strings will be routed based on the assigned replacement strings.
- ARS Digit Analysis Form—Complete each table (Partitioned Group Number) as required. Complete the Dialed String, Minimum, Maximum, Route Pat (Routing Pattern), Call Type, and Node Num fields for each dialed string to be given specific routing considerations.

- ARS Digit Conversion Form—Complete the Matching Pattern and associated Replacement String fields for each dialed string (matching pattern) to be modified in part or whole. These dialed strings will be routed based on the assigned replacement strings.
- Feature Access Code Form—Assign an access code to AAR (usually the digit ‘‘8’’) in the Automatic Alternate Routing Access Code field.
- Node Number Routing Form—If Node Number Routing is used, associate a routing pattern with each node in the Extension Number Portability (ENP) sub-network.
- RHNPA Form—Assign the applicable table number (1–32) in the RHNPA Table field.

  Enter the significant digit (0–9) to identify the hundreds block codes administered on this form in the CODE field.

  Enter the routing pattern number (1–640) in each appropriate field, starting with ‘‘1:’’ in the Pattern Choices fields. Up to 12 different pattern choices may be assigned.

  Enter a routing pattern number (1–12) from the above list that is required to provide additional 3-digit translations to that provided on the AAR or ARS Analysis forms. These codes are the least two significant digits of the hundreds block of codes represented on the RHNPA form.
- Routing Pattern Form—Enter a Pattern Number (1–640) in the Pattern Numver field.

  NOTE:
  The NPA, Prefix Mark, and Toll Table fields are used by ARS and not AAR.

  Prefix Marks 2 and 3 must refer to a Toll Table (see Toll List below).

  Enter a number from 0–4 to assign the outpulsing for prefix digit 1 as:

  0 Do not outpulse prefix digit 1.

  NOTE:
  Prefix Mark 0 suppresses a user-dialed Prefix digit 1 for 10-digit FNPA calls, but leaves a user-dialed Prefix digit 1 for 7-digit HNPA calls. This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

  1 Outpulse prefix digit 1 for 10-digit calls. Prefix Mark 1 should be selected for those HNPAs that require users to dial 1 to indicate a toll call.

2 Outpluse prefix digit 1 for all toll calls and 7- and 10-digit calls whether the user dials 1 or not.

3 Outpulse prefix digit 1 all toll calls. These calls are always outpulsed as 10-digit numbers, even those within the HNPA.

4 Suppress a user-dialed Prefix digit 1.

NOTE:
This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

NOTE:
Prefix Marks 2 and 3 must refer to a Toll Table.

Enter the trunk group number used for this pattern in the Trk Grp field.

Enter the Facility Restriction Level (0–7) for this trunk group in this pattern. Trunk group FRLs can be changed from pattern to pattern. The FRL assigned to the trunk group when the COR is defined is not used on AAR calls.

Enter the inter-exchange carrier access digits (if any) used with this trunk group in the IXC field.

Enter the bearer capability code (0–4) if the ISDN-PRI option is enabled in the System Parameters Customer Options form.

Enter the TSC in the TSC field.

Enter the CA-TSC request in the CA-TSC Request field.

Enter the ITC in the ITC field.

Enter the service or feature in the Service/Feature field.

Hardware Requirements

None.

Abandoned Call Search

Provides identification of abandoned calls. Before an incoming trunk call to a hunt group or ACD split rings the hunt group member or agent, the System checks to ensure that the calling party has not abandoned the call (that is, hung up). If the call has been abandoned, the call will not ring the hunt group member or agent.

NOTE:
Abandoned Call Search is designed to work with central office (CO) trunks (ground start—analog) that *do not* provide disconnect supervision. Central offices that provide disconnect supervision do not require use of the Abandoned Call Search feature.

Administration

To implement this feature, complete the following forms.

Form	Field
Central Office Trunk Group	Abandoned Call Search
Foreign Exchange Trunk Group	Abandoned Call Search
WATS Trunk Group	Abandoned Call Search

- Trunk Group Forms—Complete Abandoned Call Search field.

Hardware Requirements

Each CO trunk requires a port on the TN747C Central Office Trunk circuit pack.

Abbreviated Dialing

Provides lists of stored numbers that can be accessed to place local, long-distance, and international calls; to activate features; or to perform end-to-end signaling. (End-to-end signaling allows access to remote computer equipment.) Stored numbers can be accessed by voice terminal users and data terminal users.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	AD List 1 Access Code AD List 2 Access Code AD List 3 Access Code Program Access Code
Abbreviated Dialing 7103A Button Assignment	All
Console Parameters	List 1, 2, 3
Attendant Console	Feature Button Assignments -AD Buttons
Abbreviated Dialing System List	All
Abbreviated Dialing Group List	All
Abbreviated Dialing Personal List	All
Abbreviated Dialing Enhanced List	All
Data Line Data Module	List1:
Station (multi-appearance)	AD List 1 AD List 2 AD List 3
	Button/Feature Button Assignments -AD Buttons
	Hot Line Destination -AD List Number (if applicable)
Feature-Related System Parameters	Off-Premises Tone Detect Timeout Interval

- Feature Access Codes Form—Verify that all feature access codes for accessing lists and programming entries in a personal list have been established in the ''Abbreviated Dialing List 1, List 2, and List 3 Access Code and Program Access Codes'' fields.
- Abbreviated Dialing 7103A Button Assignment Form—Complete all fields of the 7103A list if the System uses 7103A Fixed Feature Voice Terminals.
- Console Parameters Form—Assign types and numbers in the Abbreviated Dialing field (needed for attendant's abbreviated dialing, not for stations).
- Attendant Console Form—Assign abbreviated dialing list button to attendant console.
- Abbreviated Dialing System List Form—Add a System List. Complete all fields.

- Abbreviated Dialing Group List Form—Add Group Lists. Contact personnel who will use Abbreviated Dialing Group List to determine the codes or numbers that should be entered on the various Group Lists. Blank lists can be established and codes or numbers can be added later. Also, specify if calls to numbers on this list should be privileged. Complete all fields.
- Abbreviated Dialing Personal List Form—Change Personal Lists. Users can program their own Personal List once the list is in the System via the System's administration terminal. Complete all fields.
- Abbreviated Dialing Enhanced List Form—Add an Enhanced List. Complete all fields.

  NOTE:
  The Abbreviated Dialing Enhanced List option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

- Data Line Data Module Form—Assign lists to Data Module List 1 field.
- Station Forms—Assign lists to voice terminal's Abbreviated Dialing field. On multi-appearance voice terminals, optionally assign buttons to access an Abbreviated Dialing list entry. For example, if entry 1 on the System List is the number of a branch office in London, then this entry can be assigned to a button. The call can be placed by lifting the receiver and pressing the button. Similarly, entries from a group or personal list can be assigned to a button. Users can program buttons which are assigned to an Abbreviated Dialing personal list entry.

  Some features have a button directly associated with them; others do not. To associate Priority Calling with a button, assign the Priority Calling feature access code to an Abbreviated Dialing list (normally the System List) and then assign that list entry to the button. This is exactly the same procedure as discussed in the preceding paragraph. Here, the Abbreviated Dialing list entry is a feature access code instead of a telephone number.

  Certain voice terminals supported by the System are capable of storing numbers. Like Abbreviated Dialing, a stored number is automatically dialed when the associated button is pressed. This, however, is Repertory Dialing, not Abbreviated Dialing. In this case, the number is stored in the voice terminal, not in the System. Abbreviated Dialing applies for numbers stored in the System.
- Feature-Related System Parameters Form—Assign the Off-Premises Tone Detect Timeout Interval (5–25 s). The AD special ''wait'' character, when used in an AD string, will cause a delay in the continued dialing of numbers in the string until this interval has elapsed. This interval is the number of seconds that a Call Progress Tone Receiver (Detector) will wait to detect a tone from off-premises during dialing. Once the time-out interval occurs, any additional call progress tones will not be detected.

Hardware Requirements

Additional TN748C Tone Detector circuit packs (up to five per System) may be required if the AD special ‘‘wait’’ character is to be used frequently. Several ‘‘wait’’ characters in an AD string may ‘‘tie up’’ a Tone Detector for an extended period (see Feature-Related System Parameters above).

Access Trunk Group

An Access Trunk Group provides the System with the ability to communicate with another System as either a main or a tandem switch in an Electronic Tandem Network arrangement. Trunks in this group will not send or receive Traveling Class Marks.

NOTE:
An ISDN-PRI trunk group whose Service Type field is ‘‘access’’ can also function as an access trunk group.

Administration

To implement this feature, complete the following forms.

Form	Field
Access Trunk Group	All

- Access Trunk Group Form—Complete all fields as required.

Hardware Requirements

A port is required on a TN722B, TN760C, or TN767 circuit pack for each trunk to be assigned in the Access Trunk Group. A TN722B or TN767 provides 24 ports and a TN760C provides four ports.

Adjunct-Switch Application Interface (ASAI)

Supports an Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) link between the switch and associated adjuncts (see Figure 3-1). The feature provides ‘‘building blocks’’ for implementing adjunct-based features such as Inbound Call Management. Specifically, the interface allows adjunct-based capabilities access to switch features.

NOTE:
For more detailed information on ASAI, refer to *Generic 3 CallVisor™ ASAI Protocol Reference*, 555-230-221, and *Generic 3 CallVisor™ ASAI Technical Reference*, 555-230-220.

The following functionality between associated adjunct and the switch is supported:

- The adjunct can make requests to the switch for call originations and dropping calls to local endpoints. With each call, call progress information and event reporting is transmitted across the interface.
- The adjunct can manipulate active calls in which the adjunct is not a party on the calls (3rd party). It can place calls on hold, reconnect calls, transfer calls, conference calls, and drop selected parties from a call.
- The adjunct has the ability to activate certain switch features.
- The adjunct can query the switch for information associated with a particular item.

When the System is configured with an Expansion Port Network (with or without duplication), it is recommended that the ASAI resources home on the switch's Processor Port Network.

ASAI Feature Administration

To use any ASAI capability, the ASAI Interface option must first be enabled on the System-Parameters Customer-Options form. This action causes Page 2 of the form (''ASAI Capability Groups'') to be displayed (see below).

```
change system-parameters customer-options                    Page 2 of 2
                            ASAI CAPABILITY GROUPS
              Adjunct Call Control Group? y
                   Adjunct Routing Group? y
                    Domain Control Group? y
                Event Notification Group? y
                   Request Feature Group? y
                         Set Value Group? y
```

The above capabilities default to ''y'', but can be disabled by entering ''n''. A brief explanation of each of the capability groups follows:

- Adjunct Call Control Group—Allows the associated adjunct to invoke Third Party Call Control capabilities, such as Third Party Selective Hold, Third Party Reconnect, Third Party Merge, etc. that can be used in either of the Third Party Call Control cluster subsets: Call Control and Domain Control. These capabilities enable the adjunct to place, monitor, control, and end calls as they move through the switch.

- Adjunct Routing Group—Allows the associated adjunct to provide adjunct routing information to the switch for incoming calls.
- Domain Control Group—Allows an adjunct to control calls and receive event reports for station sets and receive logout event reports for adjuncts in a given ACD split.
- Event Notification Group—Allows the associated adjunct to request incoming call notification on ACD Splits or Vectored Directory Numbers and enables the switch to send event reports about such calls.
- Request Feature Group—Allows the associated adjunct to request features such as ‘‘change work modes’’, ‘‘login’’, and ‘‘logout’’.
- Set Value Group—Allows the adjunct to request status changes for Message Waiting lamps (control the on/off state of the lamps).

Table 3-2 shows which capabilities are automatically enabled when ASAI is enabled on the System-Parameters Customer-Options form.

Table 3-2. Automatically Enabled ASAI Capabilities

Capability	Adjunct Call Control Group	Adjunct Routing Group	Domain Control Group	Event Notif. Group	Request Feature Group	Set Value Group
Call Ended Capability	X					
Event Reports	X		X	X		
Agent Logout			X			
Alerting	X		X	X		
Answered	X		X			
Busy	X		X	X		
Call Ended Event (FAC message)				X		
Call Initiated			X			
Call Offered to Domain				X		
Call Redirected			X	X		
Call Conferenced	X		X	X		
Connected	X		X	X		
Cut-Through	X		X	X		
Denial/Reorder	X		X	X		
Dropped	X		X	X		
Hold	X		X	X		
Queued	X		X	X		
Reconnected	X		X	X		
Call Transferred	X		X	X		
Trunk Seized	X		X	X		
Request Feature					X	
Notification Request				X		
Notification Cancel				X		
Notification Ended				X		
Route End		X				
Route Request		X				
Route Select		X				
Set Value						X
Stop Call Notification				X		

Table 3-2. Automatically Enabled ASAI Capabilities (continued)

Capability	Adjunct Call Control Group	Adjunct Routing Group	Domain Control Group	Event Notif. Group	Request Feature Group	Set Value Group
Third Party Answer			X			
Third Party Auto Dial			X			
Third Party Call Ended	X					
Third Party Clear Call	X					
Third Party Domain Control			X			
Third Party Domain Control Ended			X			
Third Party Make Call	X					
Third Party Make Call Proceed	X					
Third Party Merge	X		X			
Third Party Reconnect	X		X			
Third Party Relinquish Control	X		X	X		
Third Party Selective Hold	X		X			
Third Party Selective Drop	X		X			
Third Party Take Control	X			X		

NOTE:
By enabling the ASAI option(s) on Page 1 of the form, the following capabilities are automatically enabled as well, regardless of the groups selected on Page 2: Value Query (includes Response Continued Capability), Abort, Heart Beat, Restart Procedure, Suspend/Resume Alarm)

The capabilities shown here correspond to the operation values given in Table 3-14 (Operation Value/Error Value Coding) of *Generic 3 CallVisor™ ASAI Protocol Reference*, 555-230-221.

For ASAI adjuncts, an alarm severity option can be assigned via the ‘‘Set Options’’ command to each of the following categories:

- Major on-board ASAI adjunct alarms
- Major off-board ASAI adjunct alarms
- Minor on-board ASAI adjunct alarms
- Minor off-board ASAI adjunct alarms

The ‘‘Set Options’’ command is considered to be a maintenance command. Therefore, for more information on this command, refer to *Generic 3r—Maintenance*, 555-230-105.

NOTE:
The Hunt Group, Vector, Special Information Tones, Class of Service, and Trunk Group forms may also require administration when implementing ASAI.

The following provides information on assigning an ASAI link. Refer to specific adjunct feature coverage (Inbound Call Management) for associated adjunct implementation instructions.

ASAI Link Administration

Currently, this interface must be assigned when implementing the Inbound Call Management (ICM) feature.

NOTE:
The System must have the ICM feature (using the ASAI) optioned in the System (Customer Options screen).

NOTE:
The Packet Bus option must be enabled on the Maintenance-Related System Parameters form before other forms and fields on forms associated with ASAI implementation can be administered. Details regarding the use of this form is provided in *Generic 1 and Generic 3—Installation and Test*, 555-230-104.

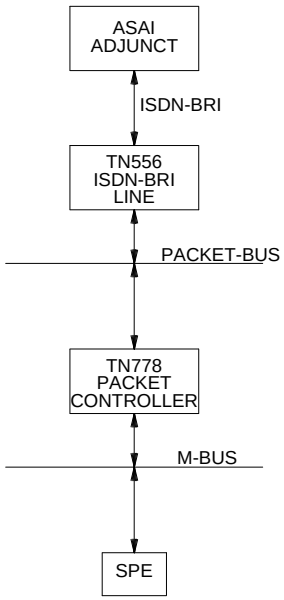
To implement this feature, complete the following forms.

Form	Field
Station	Extension
	Type
	XID
	Fixed TEI
	TEI
	MIM Support
	CRV Length

Hardware Requirements

A port on a TN556 ISDN-BRI circuit pack (12 ports) is required for each ASAI link to be assigned. Up to eight ports may be assigned.

The TN778 Packet Control circuit pack is required for ASAI applications. As noted above, the Packet Bus option must be enabled on the Maintenance-Related System Parameters form.



GLOSSARY:

ASAI -	ADJUNCT SWITCH APPLICATIONS INTERFACE
ISDN-BRI -	INTEGRATED SERVICES DIGITAL NETWORK-BASIC RATE INTERFACE
M-BUS -	MEMORY BUS
SPE -	SWITCH PROCESSING ELEMENT

Figure 3-1. ASAI Switch Interface Link

Administerable Timers

Administerable Timers allows control of the following Trunk and System timers:

Hardware Affecting Trunk Timers

- **Disconnect Signal Error**—Determines how long to wait for the far end to release a call after the System sends a disconnect signal, before logging the lack of release as an error.

  Disconnect signal error times vary from country to country, and sometimes between trunks inside one country.

  This timer begins timing when the System sends a disconnect signal over a Tie or Loop or ground start CO trunk, and ceases timing when the far end releases the trunk. If this timer expires, the System will log an error specifying the trunk involved.

The timer is administrable per Tie and Loop or ground start CO trunk group, from 1–255 s in increments of 1 s; default is 240.

- **End to End Signaling Tone**—Applied during end to end signaling. It specifies the length of a DTMF tone sent to the public network in response to a button depression at a hybrid station set.

  If a hybrid set is used for end to end signaling, it does not send tones directly to the network, but rather signals the System when a button has been pushed. The System determines the length of the tone sent to the network via a timer, but recommended tone durations vary from country to country.

  Hybrid sets are no longer being supplied, but this timer is provided to work with the installed base of hybrid sets.

  The timer begins timing at the start of a dial pad button depression on a hybrid set, and the System sends out DTMF tone until the timer expires. There is a separate timer to handle this function for CPE trunks.

  This timer is administered per non-CPE trunk group, from 20–2550 ms in increments of 10 ms.

- **End to End Signaling Pause**—Applied during end to end signaling. It specifies the minimum length of a pause between tones being sent in response to button depressions at a hybrid station set.

  If a hybrid set is used for end to end signaling, it does not send tones directly to the network, but rather signals the System when a button has been pushed. The System determines the length of the tone sent to the network via a timer, but recommended tone duration times vary from country to country.

  Hybrid sets are no longer being supplied, but this timer is provided to work with the installed base of hybrid sets.

  This timer begins timing at the end of a dial pad button depression on hybrid sets during end to end signaling. The pauses between generation of DTMF tones by the System in response to button depressions will continue for the time specified by this timer. There is a separate timer to handle this function for CPE trunks.

  This timer is administered per non-CPE trunk group, from 20–2550 ms in increments of 10 ms; default is 150.

- **Incoming Dial Guard**—Specifies the minimum time between detection of an incoming seizure and acceptance of the first digit on DID and Tie trunks.

  Incoming dial guard values vary from country to country and between DID and Tie trunks.

This timer begins timing after an incoming seizure on DID and Tie trunks. The System will ignore any digits it receives before the timer expires.

The timer is administrable per DID and Tie trunk group, from 10–2550 ms in increments of 10 ms; default is 70.

- **Incoming Disconnect**—A disconnect signal on an incoming call is considered valid if it continues at least for the time specified by this timer. Since it is being detected by the System, this signal would also be called "clear forward" for tie trunks.

  This timer begins timing when a on-hook signal has been detected on an incoming call over a Loop or ground start CO, DID, or Tie trunk, and resets when the signal is no longer detected. If the timer times out, the call is dropped.

  The timer is administrable per DID, CO and Tie trunk group, from 50–2550 ms in increments of 10 ms; default is 500.

- **Incoming First Digit**—Limits the interval after seizure but before the first digit is received on incoming DID or Tie calls over trunks using rotary signaling.

  This timer is administrable but is combined with the incoming partial dial timer on some Systems.

  This timer begins at seizure, and ceases when the first digit is received over DID or Tie trunks. If this timer times out before the first digit is received, the trunk will be dropped.

  The timer is administrable per DID and Tie trunk group, from 100–25500 ms in increments of 100 ms; default is 18000.

- **Incoming Glare Guard**—Specifies the minimum time between release of a trunk after an incoming call and seizure on the next outgoing call. This timer helps prevent seizure of the same two way trunk by both ends.

  This timer begins timing when a two way CO or Tie trunk is released from an incoming call. The System may not reseize the trunk to place an outgoing call until after the timer expires. During this time, an incoming call may seize the trunk.

  The timer is administrable on two way CO and Tie trunks, per trunk group. Its range is from 100–25500 ms in increments of 100 ms; default is 1500.

- **Incoming Incomplete Dial Alarm**—Limits the time between seizure of a DID trunk and receipt of all digits.

  For world class Systems, this timer is supported in administration and hardware. Operation of the timer is implemented in localization for countries that use this timer.

An administration field, ranging from 1–255 s in increments of 1 s is provided per DID and Tie trunk group; default is 255.

- **Incoming Partial Dial**—Limits the time the System waits between incoming digits for calls over rotary DID and Tie trunks. ("Digit" includes traveling class marks, if any, over Tie trunks.) The incoming partial dial times vary between countries, and between dial pulse and DTMF trunks.

  Italy requires that the System take one of two actions, depending on whether the CO is using a closed numbering plan, as do all COs in the USA, or an open numbering plan. Under an open numbering plan, the number of digits to be received from the CO varies, while under a closed numbering plan the number is fixed, typically at four. Under a closed numbering plan, the System will ignore the timer and wait, possibly forever, for sufficient digits, while under an open numbering plan the System will route the call to intercept treatment if this timer expires and the System has not received enough digits.

  After the first digit has been received over a rotary DID or Tie trunk, this timer begins, and begins again after each digit is received. If the time specified by this timer is reached and not enough digits have been received to route the call, the System will apply intercept treatment. The timer ceases if all digits have been received or if the incoming incomplete dial alarm timer times out.

  The timer is administrable per rotary DID and Tie trunk group from 5–255 s in increments of 1 s; default is 18. If a trunk is administered as ‘‘tone’’, the timer will not time out (automatically setting the trunk to 255 satisfies this requirement).

- **Incoming Seizure**—An incoming seizure signal (such as, ringing for CO trunks) is considered valid if it continues for the interval specified by this timer, as on System 75 IR1V1 and System 75 IR1V2.

  This timer begins timing when a seizure signal is detected on a CO or Tie trunk, and ceases timing if the signal disappears. If the timer expires, the seizure signal is considered valid. The timer does not apply to DID trunks, as they do not have a ringing state.

  The timer is administrable per CO or Tie trunk group, from 20–2550 ms in increments of 10 ms; default is 500.

- **Outgoing Dial Guard**—Specifies the minimum time between seizure acknowledgement of a CO or Tie trunk and the outpulsing of digits. For trunks which do not provide seizure acknowledgement, the timer specifies the minimum time between seizure and the outpulsing of digits.

  It may be possible for the user to dial a digit after the System seizes a trunk, but before the user hears dial tone. If a user immediately dials the first digits of a number they have permission to call but the CO ignores the

digits, it may be possible for the user to continue dialing and reach a number they do not have permission to dial.

Typical timing varies from country to country, and in the UK, from switch to switch.

After an outgoing call, this timer specifies the minimum time between seizure of a CO or Tie trunk and outpulsing of digits. Any digits dialed by the station user after they lift the receiver but before the timer times out will be delayed until the timer expires before being outpulsed.

This timer is administerable per CO and Tie trunk group, from 100–25500 ms in increments of 100 ms; default is 1600.

- **Outgoing Disconnect**—A disconnect signal on an outgoing call is considered valid if it continues at least for the time specified by this timer. Since it is being detected by the System, this signal would also be called "clear back" for tie trunks.

  This timer begins timing when a disconnect signal has been detected on an outgoing call over Tie and Loop or ground start CO trunks, and resets when the signal is no longer detected. If the timer times out, the trunk is dropped.

  The timer is administrable per Tie and Loop or ground start CO trunk group, from 50–2550 ms in increments of 10 ms; default is 500.

- **Outgoing Glare Guard**—Specifies the minimum time between release of a trunk after an outgoing call and seizure on the next outgoing call. Timing varies from country to country, and between trunk types.

  This timer begins timing when an outgoing or a two way CO or Tie trunk is released from an previous call. The System will not reseize the trunk to place an outgoing call until after the timer expires.

  The timer is administrable per trunk group for two way or outgoing CO & Tie trunks. Its range is from 100–25500 ms in increments of 100 ms; default is 1500.

- **Outgoing Rotary Dial Interdigit**—Gives the intervals between rotary digits being outpulsed by the System. Timing varies from country to country, and between COs inside some countries.

  The interval between digits being outpulsed by world class Systems on an outgoing call over CO and Tie trunks will last for the duration of this timer. The timer applies to dial pulse signaling.

  This timer is administrable per Tie and CO trunk group, from 150–2550 ms in increments of 10 ms; default is 800.

- **Outpulsing Dial Break and Make**—Specify the duration of the make-and-break intervals while the System is outpulsing digits using dial pulse or DTMF signaling.

  Timing varies from country to country, and from CO to CO inside some countries. For rotary signaling, the make and break timing always adds to 50 ms (for 20 pps signaling) or 100 ms (for 10 pps signaling), but the ratio break/(break + make) varies widely.

  The minimum make and break timings for DTMF signaling also vary widely between countries.

  The make and break times used by Tie and CO trunks will last for the intervals specified by these timers. They apply while the System is outpulsing digits.

  Rotary Signaling

  The ranges for these timers depend on the administered number of pulses per second for the trunk group: for 10 pps, the range is 20–80 ms in increments of 5 ms; and for 20 pps, the range is 10–40 ms in increments of 5 ms, since smaller increments affect board performance.

  The sum of these two timers must be 50 ms. for 20 pps or 100 ms for 10 pps, depending on the administered number of pulses per second, to help prevent user errors.

  The USA default is 60 ms and of the Dial Make Timer is 40 ms when 10 pps is administered. These timers are administrable per Tie and CO trunk group.

  The timers will be tested at the following settings: 60/40, 65/35, 70/30, and 35/15.

  DTMF Signaling

  For both the make and break timers, the range is 20–250 ms in increments of 5 ms, without other restrictions on the sum of the make and break timings.

- **Outgoing Seizure Response**—Monitors the time between seizure of a GS trunk and detection of proceed to dial indication (PDI, for example, tip ground return, delay dial signal, or wink). If there is no dial tone detector for a loop start trunk group, the timer monitors the time between seizure and sending of the first digit.

After the System waits for PDI, it can either clear the call or assume PDI should have been detected, and proceed with the call. In the first case, the period of time a typical System waits before assuming that the call has a seizure failure for lack of PDI varies from country to country. These times differ from that used for the second case (i.e., assuming PDI has been detected), but timing for the two cases can be controlled by the same timer since the two cases are mutually exclusive.

This timer is administrable in System 75 IR1V2.

This timer has two different modes of operation, depending on whether the System is using cut through or senderized outdialing. Under cut through operation, this timer begins timing at seizure of a CO or Tie trunk, and ceases when PDI detection occurs or the end user hears dial tone, assuming end users have heard dial tone if they begin dialing digits. If the timer expires the System will assume there has been a seizure failure. Under senderized outdialing, the timer begins at seizure of a CO or Tie trunk, and ceases when PDI detection occurs. If this timer expires, the call proceeds but the switch logs an error.

The timer is administered per CO or Tie trunk group, 1–255 s with increments of 1 s; default is 5. (This default value was chosen for Tie trunks. When the timer is used with CO trunks, the System is typically administered to 240.)

- **Outgoing End of Dial**—Limits the time a CO or Tie trunk may wait for answer supervision after dialing an outgoing call.

  Answer supervision is not expected in the USA or Canada, but is expected in Japan. Times vary depending on the country, and on whether answer supervision is expected.

  During cut through operation, the timer begins timing after each outgoing digit is received from a station by the System and sent out over the trunk. The timer ceases timing when an interdigit dial timer times out, or when the far end sends answer supervision to signal that all digits have been received. If the timer expires and the far end is not expected to send answer supervision, the System acts as if it had received answer supervision when the timer expires.

  During senderized operation, the timer begins after the last digit that was collected from the station set is sent by the System. The timer ceases timing when the far end signals that all digits have been received by sending answer supervision. If the timer expires and the far end is not expected to send answer supervision, the System acts as if it had received answer supervision.

  This timer applies to CO and Tie trunks, and when answer supervision is not expected.

This timer is administerable per outgoing and two-way CO or Tie trunk group, from 1–254 s in increments of 1 s; default is 10. Setting this timer to a value outside this range will disable the timer.

For tie trunks, whether answer supervision is expected is administerable per trunk group.

- **Programmed Dial Pause**—Determines the length of a pause during abbreviated dialing, ARS outpulsing, and terminal dialing. Similarly the Programmed Dial Wait timer determines the length of a wait. This timer always times out, even if the System detects tone. This timer applies to public network and tie trunk groups, that are outgoing or two way.

  This timer ranges from 100–25500 ms in increments of 100 ms; default is 1500.

- **Ringing Monitor**—If ringing disappears for the time specified by this timer, the call is assumed disconnected by the far end. This timer begins timing when a ringing signal that has been validated by the incoming seizure timer ceases to be detected. The timer resets when ringing is detected or when the call is answered, but if this timer expires the call will be dropped. The timer does not apply to DID or Tie trunks, as they do not have a ringing state.

  The timer is administrable per CO trunk group from 200–51000 ms in increments of 200 ms; default is 5200.

Hardware Affecting System Timers

- **Programmed Dial Wait**—Determines the length of a wait during abbreviated dialing, ARS outpulsing, and terminal dialing. This timer is also known as the Off Premises Tone Detection Timeout.

  The wait timer ceases timing if the System detects tone. The System will either clear the call or proceed to send digits, depending on a system administerable parameter.

  This timer ranges form 1–255 s in increments of 1 s; default is 6.

Software Affecting System Timers

- **Attendant Alerting Interval**—Gives the intervals between rotary digits being outpulsed by the System. Timing varies from country to country, and between COs inside some countries.

  The interval between digits being outpulsed by world class Systems on an outgoing call over CO and Tie trunks will last for the duration of this timer. The timer applies to dial pulse signaling.

This timer is administrable per Tie and CO trunk group, from 150–2550 ms in increments of 10 ms; default is 800.

- **Attendant No Answer**—Monitors the time a call to the attendant can remain unanswered before the delay threshold count is incremented. This feature is required for Italian type approval. Although the Italian requirement is for a 20 s interval, the timer will be administrable for flexibility.

  This timer begins timing when a call is directed to the attendant group, whether it goes into the queue or directly to an attendant. If the timer times out, the delay threshold count is incremented, the attendant lamp associated with call flashes faster and the ringing cadence increase, and the Attendant Alerting Interval Timer is started. The delay count is reported by the traffic feature.

  When this timer is disabled, the Attendant Alerting Interval Timer is started in its place.

  This timer is administrable per System from 10–1024 s in increments of 1 s; default is 10.

- **Attendant Return Call**—Limits the amount of time that an unanswered attendant-extended call is allowed to ring at the extended station. This timer is activated whenever the attendant extends a call to an extension. If the extension does not answer the call before the expiration of this timer, the call returns to the attendant that extended the call.

  This timer is administerable per System from 10–1024 s in increments of 1 s; default is 10.

- **Attendant Timed Reminder of Held Call**—Monitors how long a call has been held at an attendant console. If a call has been held too long the attendant is alerted of the call. On expiration of this timer the held call lamp flashes, the attendant gets ringing cadence, and the Attendant No Answer Timer is set.

  This timer is administerable per System from 10–1024 s in increments of 1 s; default is 10.

- **Line Intercept Tone**—Monitors how long an analog station user can wait after hearing warning tone without going on hook, before the station is placed in the lockout state. The analog intercept tone timer operates as the intercept timeout (30 s), but is administrable. It begins timing if the long interdigit timer times out, and ceases if the station goes on hook. If the Line Intercept Tone timer times out, the station is placed in the lockout state.

  This timer does not apply to stations with the Off-Hook Alert class of service (digital stations). Those stations use the "Time Before Off Hook Alert" timer, which sends an emergency call to the attendant when it times out.

This timer is administrable per System from 2–60 s in increments of 1 s; default is 30.

- **Short Interdigit**—Limits the time between digits collected from a station set by the System if digit processing predicts the digits already collected might form a complete dialed number (such as, after ‘‘0’’ in the USA, or when dialing 3-digit vs. 4-digit extensions).

  When a timeout is needed to determine when the user has finished dialing, a short time is desirable if the digits already collected could form a complete dialed number (such as, after ‘‘0’’ in the USA). These times vary from country to country.

  This timer begins timing after each digit is received from a station by the System if the digits collected so far could form a valid extension number.

  This timer ceases timing if answer supervision is received, and resets if another digit is received from a station. If the timer times out the call will be routed, if possible, otherwise the System waits for more digits until the long interdigit timer times out.

  This timer is administrable per PBX from 3–9 s in increments of 1 s; default is 3.

  NOTE:
  This timer should always be administered to a value less than the long interdigit timer (less than 10 s). A compromise must be struck between a shorter delay after dialing a short string of digits (like a 3-digit extension) and having enough time to dial a longer string of digits (like the fourth digit in a 4-digit extension).

- **Unanswered DID Call**—Limits how long a DID call can remain unanswered before it is routed to the attendant. This timer begins at original routing of a DID call, and continues timing through any coverage points, without being reset. When the timer expires, the call is routed to the attendant queue or to a recorded announcement. The timer ceases if the call is answered.

  This timer is administered per System, from 10–1024 s in increments of 1 s; default is 60.

  NOTE:
  Whether the call routes to the attendant queue or to a recorded announcement depends on an option administrable per System. This timer can be disabled by administration, so that an unanswered DID call will continue to ring a the called station, or following coverage station, forever.

Administration

To implement this feature, complete the following forms.

Form	Field
Trunk Group (Administerable Timers)	As required
Miscellaneous Related System Parameters	As required

- Trunk Group Form—Assign timer values as outlined in the description for each timer above.
- Miscellaneous Related System Parameters Form—Assign timer values as outlined in the description for each timer above.

Hardware Requirements

None.

Administered Connection/Access Endpoint

The Administered Connection (AC) feature provides the capability to establish end-to-end connections between two access/data endpoints based on AC attributes. An AC is automatically established by the System whenever the AC is scheduled to become active. ACs provide capabilities such as: alarm notification, including an administrable alarm type and threshold; automatic restoration of connections established over a Software Defined Data Network (SDDN) ISDN-PRI trunk group (service may be referred to as ISDN-PRI (AC/AE) Service); scheduled as well as continuous connections; and administrable retry interval for connection attempts that have failed.

The SDDN provides virtual private line connectivity using the AT&T Switched Network (via 4 ESS™ switch). Access to the service is provided via an ISDN-PRI trunk group whose Service Type is ‘‘sddn’’. The Destination field entry on the Administered Connection form is used by the system to route the AC when it is due to be active, based on associated Authorized Time Of Day field entries.

The AC feature replaces the Permanent Switched Calls feature that was provided in previous releases of the System.

An AC can be established between two endpoints on the same switch; between two endpoints in the same private network, but on different switches; or between one endpoint on the controlling switch and another endpoint off the private network. In all configurations, the originating endpoint and the AC must be administered on the same DEFINITY Generic 3 switch.

For an AC in a private network, if the two endpoints are on two different switches, normally the connection will be routed via AAR through tie trunks (ISDN-PRI, DS1, or analog tie trunks) and possibly intermediate switches. However, if required, the connection can be routed via ARS and the Generalized Route Selection features through the public network. The call is routed over associated ISDN-PRI trunk group members (trunks). When the far-end answers, a connection is ''setup'' between the far-end and the extension number entered in the Originator field on the AC form.

The *Access Endpoints* feature provides the ability to terminate ACs to non-signaling trunks (trunks that neither generate nor respond to signaling) and thus use these trunks as endpoint facilities. This feature allows for the administration of a single trunk (does not require an entire trunk group) providing the capability to assign an extension number to an individual trunk.

Access Endpoints are non-signaling trunk ports and therefore neither generate signaling to the far-end of the trunk nor respond to any signaling from the far-end. An Access Endpoint cannot be used as a trunking facility between switches. It is used primarily to support devices, switches, or services which have a trunk interface but do not require signaling on the trunk.

An Access Endpoint may be designated as the originating (local) endpoint or destination endpoint in an AC. This provides a trunk-to-trunk cross-connect capability.

Up to 4000 trunks (including access endpoints) can be administered (equal to the maximum trunks that can be administered).

The following are typical AC applications:

- A local data endpoint connection to a local or remote access endpoint. Examples are an MPDM ACCUNET® digital service connecting to a Software Defined Data Network via an ISDN-PRI trunk group DS1 port, or an MPDM ACCUNET digital service connecting to an ACCUNET Switched 56 Service via a DS1 port.
- A local access endpoint connecting to a local or remote access endpoint. Examples are a DSO cross-connect and a 4-wire leased line modem to a 4-wire leased line modem connection via an analog tie trunk.
- A local data endpoint connecting to a local or remote data endpoint such as a connection between two 3270 data modules.

Up to 128 ACs can be administered.

NOTE:
The following guidelines do not include AAR, ARS, or Generalized Route Selection administration information in support of routing AC calls over trunk groups. Refer to the respective feature coverage elsewhere in this chapter for that information.

Administration

NOTE:
For DCS to work with the Administered connection feature, first set up a DCS X.25 connection on one end.

To implement this feature, complete the following forms.

Form	Field
Data Module	All
Circuit Pack (trunks)	All
Access Endpoint	All
Trunk Group ISDN-PRI Tie	All
COR	All
COS	All
Dial Plan	Local PBX ID
Administered Connection	All
Station (multi-appearance)	Button/Feature Button Assignments -ac-alarm
Attendant Console	Feature Button Assignments -ac-alarm

- Data Module Form—Complete the appropriate Data Module forms (MPDM or MTDM) if the AC involves one or two local data modules.
- Trunk Circuit Pack Form—Non-signaling DS1 or analog tie trunk ports, if required as access endpoints, may be administered as ports but not as members of trunk groups. Assign associated circuit packs using the Circuit Pack form instructions as provided in the *Generic 1 and Generic 3—Installation and Test* (555-230-104). These circuit packs must be assigned before the port field on the Access Endpoint form can be completed.

- Access Endpoint Connection Form—Complete all fields as required. Complete a form for each Access Endpoint to be defined.
- Trunk Group Form—Complete the appropriate trunk group form for AC calls that are to be routed via AAR or ARS and Generalized Route Selection over associated trunk group members.
- COR Form (Optional)—Administer appropriate class of restrictions (CORs) so that an AC endpoint can be connected to another AC endpoint. If a non-AC endpoint calls an AC endpoint, intercept treatment is given the non-AC endpoint.
- COS Form—Administer class of service (COS) assignments so that the originating and destination endpoints are blocked from using the Call Forwarding All Calls feature.
- Dial Plan Form—The Auto Restoration field on the AC form cannot be ''y'' unless the Local PBX ID field on the Dial Plan form is other than blank. Insure that all far-end destinations as administered on the AC form are accounted for on the Dial Plan form.
- Administered Connection Form—Complete all fields as required. Complete a form for each AC to be established.

  NOTE:
  The Originator (and Destination if local) fields must be administered and be a valid extension of an access or data endpoint before the AC form can be administered.

- Station/Attendant Console Forms—Administer ''ac-alarm'' feature buttons as required. The associated status lamp is used to indicate an AC alarm.

Hardware Requirements

- Trunk Circuit Packs—DS1 Interface circuit pack (TN767), Analog Tie Trunk (TN760C).
- TN754B/TN7400A Digital Line circuit pack connections including:
  - MPDM (700A, 700D), MTDM (700B, 700C, 700E)
  - 7400A or 7400B Data Module
  - 7401D Voice Terminal with 7400B Data Module
  - 7403D/7405D/7407D/7410D/7434D Voice Terminal with DTDM or 7400B Data Module
  - 7404D or 7406D Voice Terminal
  - 7505D/7506D/7507D Voice Terminal with ADM
  - 510D Personal Terminal
  - 515 BCT
  - PC/PBX Connection.

- TN556 ISDN-BRI Line circuit pack connections including:
  - — 7500B Data Module
- TN778 Packet Control circuit pack connections including:
  - — 7500B Data Module
- Other Circuit Packs—Data Line (TN726B), Pooled Modem (TN758).

Administration Without Hardware

Provides the ability to administer station forms without specifying a port location. Stations administered as such will not cause alarms or errors to be generated when the station is translated but not yet installed. These station types are referred to as ''phantom'' extensions. The feature supports the following applications:

- Ability to administer station forms without specifying a port location.
- Ability by use of a phantom extension to provide call coverage (including AUDIX coverage) for users who do not have stations physically located on the switch.
- Ability to use phantom extensions for ACD Dialed Number Identification Service (DNIS). This application allows a phantom extension to be administered on the switch for each call type that needs to be identified to ACD agents. The phantom extension is either ''Call Forwarded'' (via an attendant console) to an ACD split, or its coverage path is defined to include the ACD split. The Name field that is administered for the phantom extension will identify to the ACD agent which service the caller is attempting to reach, allowing the agent to properly address the caller.
- Ability to store station templates that can later be used with the *duplicate station* command when implementing many station forms of the same type in the System.

The primary use of the Administration Without Hardware feature is to streamline system initializations, major additions, and rearrangement/changes by allowing voice terminal translations to be entered before the actual ports are assigned. Port assignments can be done at a later time, as required.

Appropriate instructions are provided in each of the voice terminal administration instructions provided in Chapter 5, specifically the administration of the Port field on the station forms.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (Analog)	Port
Station (Hybrid)	Port
Station (DCP)	Port

- Station Forms—Enter an ‘‘X’’ in the Port field to indicate that there is no hardware associated with the station administration. Complete the remaining fields on the station form as required per the station type.

Advanced Private Line Termination (APLT) Trunk Group

An APLT Trunk Group provides access to and termination from private line networks. The private network may be a Common Control Switching Arrangement (CCSA) or an Enhanced Private Switched Communications Service (EPSCS) network. If the trunk group is assigned as external, incoming calls will have a 2-burst distinctive ringing signal.

Administration

To implement this feature, complete the following forms.

Form	Field
APLT Trunk Group	All

- APLT Trunk Group Form—Complete all fields as required.

Hardware Requirements

A port on a TN760C Tie Trunk circuit pack or TN722B or TN767 DS1 Tie Trunk circuit pack is required for each trunk to be assigned in the APLT Trunk Group. A TN760C provides four ports for 4-wire E&M lead signaling. A TN722B or TN767 provides 24 ports for tie trunks, release link trunks, and APLT trunks.

Agent Call Handling

Provides ACD agents with the various capabilities required to answer and process ACD calls. When the Forced Entry option is enabled for a split, agents are required to complete a Stroke Count or Call Work Code entry for every call answered in the Manual-In mode.

Administration

To implement this feature, complete the following forms. Also, refer to ''Automatic Call Distribution'' elsewhere in this chapter.

Form	Field
Feature Access Codes	Complete Feature Access Codes for Automatic Call Distribution Features
Hunt Groups	Forced Stroke Count or Call Work Code
Station (multi-appearance)	Button/Feature Button Assignments -auto-in -aux-work -after-call -assist -callr-info -manual-in -release -stroke-cnt -work code
Stations	Auto Answer
Attendant Console	Feature Button Assignments -after-call -assist -auto-in -aux-work -manual-in -release -service-observing -stroke-cnt -work code
	Auto Answer

- Feature Access Codes Form—Assign ACD codes as needed.
- Hunt Group Form—Enter ‘‘y’’ in the Forced Stroke Count or Call Work field if either a Stroke Count or Call Work Code must be entered for each call answered by an agent when in the Manual-In mode.

  NOTE:
  The Call Work Codes option must be enabled on the System-Parameters Customer-Options form before the Forced Stroke Count field can be enabled.

- Station Forms—Assign Agent Call Handling feature buttons to multi-appearance stations as needed. Enter ‘‘y’’ in the Auto Answer field if an incoming call is to be automatically answered by an ACD agent.
- Attendant Console Form—Assign Agent Call Handling feature buttons to the Attendant Console as needed. Enter ‘‘y’’ in the Auto Answer field if an incoming call is to be automatically answered without any action (no button presses) by the attendant.

Hardware Requirements

None.

Alphanumeric Dialing

Allows a terminal user to place a data call using the Data Call Setup feature and an alphanumeric string or alpha-name for the call destination address. For example, a user can type ‘‘abcdef’’ instead of ‘‘9+1-403-253-1234+%0000’’ to make a call. Users need only remember the alpha-name of the far-end terminating point instead of the actual digit string to complete a call. Alphanumeric names can be mixed in with normal digit dialing strings for data call setup.

Alphanumeric Dialing allows a system administrator to change a ‘‘mapped string’’ (actual digit dialing address) without having to inform all users of a changed dial address. Users simply dial the associated alpha name to complete calls.

Refer to the ‘‘Data Call Setup’’ feature coverage provided elsewhere in this chapter for a complete listing of functions available when using Data call Setup.

Administration

To implement this feature, complete the following forms.

Form	Field
Alphanumeric Dialing Table	-Alpha-name -Mapped String

- Alphanumeric Dialing Table Form—Complete a ‘‘Alpha-name/Mapped String’’ dialing pair for each combination to be defined.

Hardware Requirements

None.

Alternate Facility Restriction Level (AFRL)

Alternate Facility Restriction Levels (AFRLs) allow attendants to change FRLs on originating facilities (lines or trunks) to a different set of FRLs. This feature allows or restricts access to trunking facilities not normally accessed with (and possibly less expensive than) their current FRLs and Authorization Codes.

CAUTION:
This feature impacts AAR/ARS call routing in that AFRLs may change the routing preferences used to route a call. Using AFRLs on tandem and tie trunk applications will affect entire networks. This means that a judicious use of this feature must be applied when engineering AFRLs as now calls which may be part of a cross-country private network may be blocked from completion due to the engineering of a restrictive AFRL arrangement.

Administration

To implement this feature, complete the following forms.

NOTE:
See also ‘‘Authorization Codes’’, ‘‘Automatic Alternate Routing’’, and ‘‘Facility Restriction Levels and Traveling Class Marks’’ elsewhere in this chapter.

Form	Field
Alternate Facility Restriction Level	Current Status Alternate FRL
Station	Feature Button Assignments
Attendant Console	Feature Button Assignments

- Alternate Facility Restriction Level Form—Enable the AFRL feature by assigning ‘‘active’’ in the Current Status field.

  Assign the alternate FRLs for each original FRL in the Alternate FRL field.
- Station Form—Assign an AFRL button to those stations that should be allowed to activate and deactivate the AFRL feature in the Feature Button Assignments field.
- Attendant Console Form—Assign an AFRL button to those attendants that should be allowed to activate and deactivate the AFRL feature in the Feature Button Assignments field.

AFRL Guidelines and Examples

The examples given here are designed to help understand AFRLs and to illustrate some of their practical aspects. In reality, each System must be administered to meet individual needs.

AFRL Mapping

Facility Restriction Levels (FRLs) are used to determine the privileges an originating party can have when making an outgoing trunk call. This originator can be either a line or a trunk. An FRL is assigned to all devices and/or device groups through its associate Class Of Restriction (COR). When a device originates an outgoing trunk call its FRL is compared to either the terminating trunk group’s FRL or the FRL of the preference in the case of AAR/ARS routing. If the FRL of the originator is greater than or equal to the terminated to FRL, the call can proceed. If the FRL of the originator is less than that of the terminated to trunk, the call is blocked (unless an Authorization Code is used to override the blockage, this will be explained later). For example, if the FRL assigned to a particular trunk group is 3 (where 7 is least accessible and 0 most accessible from the perspective a someone wishing to access the trunk group) originators with an FRL of 3 or greater can use this trunk. FRLs are engineered within Generic 3 to allow or restrict outgoing calls according to their particular destination, due to tariffs applied on certain calls at certain times of day, or due to facility problems (trunk outages for example).

AFRLs allows a remapping of the engineered FRLs for all originating devices and Authorization Codes to a new value. With the AFRL feature, a remapping of

a FRL level can be established by the technician. For example, all FRLs less than 3 are assigned a value of 3 and FRLs greater than 3 are assigned a value of 7 as shown in Figure 3-2. The control of whether the original FRL value or the AFRL value is used is controlled through any attendant or station which has an AFRL feature button. By depressing the button, the user can control whether calls in the switch which require FRLs for determining access will be using FRLs or AFRLs.

Original FRL Level	Alternate FRL Level
0	3
1	3
2	3
3	7
4	7
5	7
6	7
7	7

Figure 3-2. Example of Alternate FRL Mapping

Authorization Codes

Authorization Codes prevent unauthorized access to various facilities. They can be used to restrict access to certain trunk groups or to Remote Access trunk groups as examples. When a user dials an Authorization Code, it is validated by the System against all the technician engineered Auth Codes. If invalid, the call is routed to an assignable intercept. If the code is valid, an associated Class Of Restriction (COR) is determined. This COR has an FRL associated with it. If the AFRL feature is activated, it is this FRL level and not the originator's FRL that is used in the mapping of the AFRL. For example, a user whose FRL is 1 attempts a toll call. The AFRL feature is active and maps as shown in Figure 3-3. Since the trunk facility desired has an FRL of 7, the user is blocked even though the

AFRL allows him greater calling privileges. If the Authorization code feature is engineered, the user can attempt to dial an authorization code to obtain greater calling privileges. As shown in Figure 3-3, an Auth Code of 1234567 has an FRL of 5. This would still not have access to the trunk the user desires except that the AFRL feature being active maps the FRL to a higher level of 7.

Authorization code to COR Table

Authorization Code	COR
1234567	3
1234568	2
1234569	3
2222222	3

Originator COR is 1
Trunk Desired COR is 4

COR to FRL Table

COR	FRL
1	1
2	3
3	5
4	7

FRL To AFRL Table

FRL	AFRL
0	3
1	3
2	3
3	3
4	7
5	7
6	7
7	7

Figure 3-3. Example of Authorization Codes with AFRLs

Hardware Requirements

None.

Attendant Console

The attendant console is a digital call-handling position with pushbutton control used to answer incoming calls, place outgoing calls, and to manage and monitor some of the System's operations.

A System can have as many as 27 consoles in operation at any time. A daytime console can double as a night console, or a 28th console can be provided. If a 28th console is provided, it must be classified as night-only and cannot operate when the other 27 operate.

Administration

To implement this feature, complete the following forms.

Form	Field
Console Parameters	All
Attendant Console	All

- Console Parameters Form—Complete all fields as required. This provides the group parameters for all attendant consoles to be assigned in the System.
- Attendant Console Form—Complete all fields as required. This provides the unique parameters for each attendant console in the System. A completed form is required for each console to be assigned.

Hardware Requirements

Requires a port on a TN754B/TN7400A Digital Line circuit pack for each attendant console to be assigned. For reliability, the attendant consoles should not be assigned to ports on the same TN754B/TN7400A circuit pack. For example, if three attendant consoles are to be provided, assign each console to a port on three different TN754B/TN7400As, if possible. However, if required, all attendant consoles may be assigned to ports on the same TN754B/TN7400A circuit pack.

Attendant Control of Trunk Group Access

Allows the attendant to control trunk groups and prevents voice terminal users from directly accessing a controlled trunk group. Attendant consoles may be administered to control different trunk groups if required.

Administration

To implement this feature, complete the following forms depending on the console type.

Form	Field
Attendant Console Feature Button Assignments	-act-tr-grp -deact-tr-g -local-tgs -remote-tgs
Trunk Group Access APLT CO CPE DMI-BOS FX ISDN-PRI RLT Tandem Tie WATS	Busy Threshold

- Attendant Console Form—A Control Activate (act-tr-grp) and a Control Deactivate (deact-tr-g) button (one each) must be assigned to one of the 24 programmable feature buttons on the attendant console Feature Button Assignments field. Trunk groups to be controlled are assigned via Attendant Direct Trunk Group Selection.
- Trunk Group Forms—Assign Busy Threshold field for trunks controlled by this feature.

Hardware Requirements

None.

Attendant Direct Extension Selection With Busy Lamp Field

Allows the attendant to place or extend calls to up to 2000 extension numbers assigned in the system by pressing a Group Select button and a Direct Extension Selection (DXS) button instead of dialing the extension number.

NOTE:
An associated DXS lamp for a Vector Directory Number (VDN) is always dark. The DXS button may be used to place a call to a VDN.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Hundreds Select Button Assignments (1–20)

- Attendant Console Form—Assign up to 20 buttons in the Hundreds Select Button Assignments field. If the selector console has eight Hundred Group Select buttons, assign the first eight buttons on Page 1 of the form. If required, additional buttons can be assigned to Page 2 of the form.

Hardware Requirements

A Selector Console is required. The 24A Selector Console is equipped with eight Hundred Group Select buttons and the 26A Selector Console is equipped with 20 Hundred Group Select buttons.

Attendant Direct Trunk Group Selection

Allows the attendant direct access to an idle outgoing trunk by pressing the button assigned to the desired trunk group.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	DTGS Button Assignments (1–12) -DTGS Buttons (local-tgs)

- Attendant Console Form—Assign up to 12 buttons in the Direct Trunk Group Buttons (Access Code) field and up to 12 additional buttons, if required, on Page 2 of the form. If trunk groups are to be controlled via the Attendant Control Of Direct Trunk Group Access feature, they should be assigned the first six DTGS Button Assignments (1–6) if using the Basic Attendant Console (301A1). Loudspeaker Paging zones may be assigned these buttons if required. In this case, the busy/idle lamp button indicates the busy/idle status of the associated paging zone.

This feature is closely related to the Attendant Control of Trunk Group Access and Trunk Group Busy/Warning Indicators to Attendant features. Refer to those features for additional information.

Hardware Requirements

None

Attendant Display

Shows call-related information that helps the attendant to operate the console more efficiently. Also shows personal-service and message information. Information is shown on the alphanumeric display on the attendant console.

Administration

To implement this feature, complete the following forms depending on console type.

Form	Field
Attendant Console	Display Module Button Assignments (1–8)

- Attendant Console Form—Assign up to eight buttons in the Display Module Button Assignments fields.

Hardware Requirements

None.

Attendant Serial Calling

Attendant Serial Calling allows attendant-extended trunk calls to return to the same attendant position after the party to which the call was extended goes on hook. The returned call may then be extended to another station within the System by this attendant. An attendant may activate Attendant Serial Calling for:

- A trunk call originated or answered by the attendant
- A trunk call originated or answered by a station which is subsequently transferred to, or conferenced with, an attendant.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Feature Button Assignments

- Attendant Console Form—Assign a Serial Call button to one of the attendant console feature buttons.

NOTE:
Only one Serial Call button may be assigned to an attendant console but this button may be assigned to every attendant console. Normally, the same button on all consoles is administered as the Serial Call button.

Hardware Requirements

None.

Attendant Intrusion

Attendant Intrusion (Call Offer) allows an attendant to intrude on an existing call. The attendant can then add a new call or offer a message to this intruded call. Upon releasing from the intruded call, the attendant's source party (if it exists) is Call Waiting at the intruded party. (The intruded party must be an analog voice terminal for Call Waiting to be allowed.)

NOTE:
If there is a Call Waiting call at the intruded party, the source party (split from the attendant) cannot wait at the intruded party.

Call Intrusion is denied for Data Privacy or Data Restriction calls, on call forwarded stations, or when stations are talking to another attendant.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Feature Button Assignments

- Attendant Console Form—Assign an Intrusion button to those attendants who will access the Attendant Intrusion feature in the Feature Button Assignments field.

Hardware Requirements

None.

Attendant Override

Attendant Override allows an attendant to override call diversion features (such as, Call Forwarding, Send All Calls, Call Coverage) invoked by or associated with the called station. An Override call terminates at the called station as if no diversion features of the station were activated.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Feature Button Assignments

- Attendant Console Form—Assign an Override button to those attendants who will access the Attendant Override feature in the Feature Button Assignments field.

Hardware Requirements

None.

Attendant Priority Queuing

Attendant Priority Queuing allows attendant calls to be answered in order of call category (such as by trunk type). Such prioritizing allows calls to be handled in an organized fashion during times of attendant congestion. Each call within a call category is then answered on a first-come-first-serve basis. When all calls from the highest priority queue are answered, the attendant then answers calls in the next highest priority queue, and so on.

Up to 12 call categories can be administered or grouped together to make less than 12 categories. The twelve possible categories are:

- **Emergency Access to the Attendant Group**—The highest-priority queue is the Emergency Access Queue. This is a special queue that assigns a specific telephone number to notify an attendant when the set goes off-hook and dialing does not commence. This queue is used to contact the attendant during emergencies and should always be given the highest priority.

  You can also administer an emergency access code to allow any station to access this queue by dialing this code.

- **Assistance Call to the Attendant Group**—A station may either dial the attendant access code or access the attendant group through the Manual Origination Calls Feature.

- **Attendant Group Call over a CO Trunk**— An incoming call including FX and WATS calls directed at the attendant group. This refers to the first appearance of such a call to an attendant rather than a subsequent reversion after a timeout or some deferred attendant recall such as in a serial call. Calls transferred to the attendant group apply to this category.

- **Attendant Group Call over a DID Trunk**— Identical to the previous category except that a DID trunk is involved.

- **Attendant Group call over a Tie Trunk**— Identical to the previous two categories except that a Tie Trunk is involved.

- **Redirected DID Call**—If a DID call times out due to ring no-answer, busy calls, or Number Unobtainable, it will revert back to the attendant group.

- **Attendant Redirected Call**—A call initially assigned to one attendant, but subsequently reassigned to the group because the position has become busy or active.

- **Attendant Return Call**—A recall of the attendant after a timeout on the extended call. Held Call Timed Reminder Calls should be included in this category. If this attendant is active on another call or in position busy mode, the call is redirected to the attendant group. If the queue is full a periodic timer will be set and the call will receive ringback.

- **Serial Call**—A call with a pending attendant recall. If the called party goes on hook, the same attendant who extended the call will automatically be recalled. If this attendant is active on another call or in position busy

mode, the call will be redirected to the attendant group. The Serial Call lamp lights when the attendant depresses the Serial Call button and is extinguished once the call is extended and released from the console. (Refer to ''Attendant Serial Calling'' elsewhere in this chapter).

- **Individual Attendant Access**— Each attendant has an individual access number. If the attendant is active on a call, the call will be queued for the individual attendant and continue ringing.
- **Interposition Call**— If one attendant seeks to access another by the Individual Attendant Access number but the attendant is active on a call or in position busy mode, the call will be queued for that individual attendant and continue ringing.
- **Miscellaneous Call**— Other calls not covered in the categories above, such as ACA Calls.

Administration

To implement this feature, complete the following forms.

Form	Field
Console Parameters	As required
Feature-Related System Parameters	As required

- Console Parameters Form—Assign Attendant Priority Queue levels for any or all call categories (including the highest priority level).

  Assign the attendant group calls-waiting threshold, which is used to light the Queue Warning Indication lamp on all active consoles if that threshold is exceeded, in the Calls in Queue Warning field.
- Feature-Related System Parameters Form—Assign the reserved queue size in the Reserved Slots for Attendant Priority Queue field.

  Assign the time (in seconds) that an emergency extension can remain off-hook before being automatically connected to the Emergency Access Queue in the Time Before Off-hook Alert field.

  Assign the extension number for emergency queue access in the Emergency Access Redirection Extension field.

Hardware Requirements

None.

Audio Information Exchange (AUDIX) Interface

Provides a communications link between the System and AUDIX. AUDIX allows both System users and outside callers to write, edit, send, and forward voice messages to other users. In addition, System users can also receive and store incoming voice messages from others and transfer calls into AUDIX.

The following requires implementation:

- **AUDIX Interface to Switch**—The AUDIX analog connection to the System requires up to 16 (small AUDIX) or 32 (large AUDIX) 2500-type Voice Terminal forms to be completed to assign AUDIX voice ports. In addition, an associated data link from the System to AUDIX must be administered.
- **Call Transfer Into AUDIX**—A user who is an AUDIX subscriber or a covering user for a principal who is an AUDIX subscriber may transfer a call to AUDIX. This requires use of the Transfer Into AUDIX Feature Access Code or use of an abbreviated dialing button programmed with the access code.
- **Call Transfer Out of AUDIX**—Provides call progress feedback to the calling party in the form of call ringing and voiced messages if the called party is busy. In addition, a called party with a display-equipped terminal is informed of the call type (direct or redirected) and receives associated information about the call.

  NOTE:
  Administration for Call Transfer Out of AUDIX must be performed on the AUDIX machine. AUDIX machine administration is not covered in this manual. Refer to the appropriate AUDIX manual for additional information.

- **AUDIX in DCS via BX.25 Data Channels**—An AUDIX connected to the System can support other switches (remote) in a DCS network. One AUDIX can be used to support all switches in a DCS network or can serve a group of switches in a DCS. The remote switch does not have a direct data link connection to AUDIX. It passes its data to the host switch via a BX.25 data link and associated processor channels. The AUDIX machine on the host switch has separately administered DCS hop channels to each of the remote switches that it is supporting (that is, either all or a group of switches). The host switch then provides the AUDIX connection. All AUDIX features can be activated from a host or remote switch. An AUDIX in DCS with connectivity via BX.25 data channels is referred to as ‘‘Traditional DCS AUDIX’’ later in this section.

  The remote AUDIX hunt group can be a coverage point in a call coverage path at a remote switch not connected directly to AUDIX. The remote switch must be in the DCS network.

- **AUDIX in a DCS via ISDN-PRI D-channel**—(May also be referred to as ISDN-PRI D-channel DCS AUDIX feature.) This feature still uses BX.25 connectivity between the AUDIX and host switch. The ISDN-PRI connectivity is used between the host switch and remote switches in the DCS network. The feature requires the same hardware as the DCS Over ISDN-PRI D-channel feature.

  AUDIX messages are transported via administered Non-Call Associated Temporary Signaling Connections (NCA-TSCs) between nodes supporting the ISDN-PRI D-channel DCS AUDIX feature. An administered NCA-TSC is a NCA-TSC that is established between two administered NCA-TSC endpoints on two different PBXs and will be up or enabled for a period of time depending on administered translations. The connection may be administered on a ''as-needed'' or ''permanent'' basis. (Refer to ''DCS Over ISDN-PRI D-channel'' elsewhere in this chapter for additional information on NCA-TSCs and DCS over ISDN-PRI D-channel.)

- **AUDIX as an ACD Split**—An AUDIX hunt group may be administered as an ACD split by setting the ACD field on the Hunt Group form to ''y''. This allows AUDIX traffic to be measured via the ACD's Call Management System (CMS). AUDIX requests to enable voice ports are recorded as logins and AUDIX requests to the switch to disable voice ports are recorded as logouts by the CMS.

  This feature is for use by Systems currently equipped with an ACD and CMS. For those Systems not equipped with an ACD and CMS, AUDIX traffic measurements can be obtained using the System Measurements feature functionality.

- *AUDIX as a Listed Directory Number (LDN) Night Destination*—An AUDIX may be used to support LDN calls when the System is in the night service mode. The following steps are required to implement this service:

  1. Assign a night destination extension (must be an AUDIX subscriber extension) on the Listed Directory Numbers form. The extension can be assigned to a phantom extension (see the Administration Without Hardware feature elsewhere in this chapter).
  2. Assign a coverage path to the station and assign the associated Call Coverage Paths form with the AUDIX hunt group as the first coverage point. Set the ''All'' coverage criteria field for outside calls on the form to ''y''.
  3. Activate the Call Forwarding All Calls feature for the night extension.

NOTE:
Refer to the AUDIX feature description in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for additional AUDIX information.

The following provides references to associated forms that must be completed to administer either a small or large AUDIX. Typical figures and examples of completed forms, where necessary, are also shown. Information required to administer DCS tie trunks and data links is not given in this section. Refer to the DCS information elsewhere in this chapter. The completed forms, where shown, are examples. The actual data assigned on the forms will vary depending on System configuration and prior assignment of switch facilities.

The data link interface between the System and the AUDIX may be via an X.25 data module (PGATE board).

Administration—AUDIX Interface

To implement the AUDIX interface in a non-DCS configuration, complete the following forms.

NOTE:
Refer to ''Distributed Communications System (DCS)'' elsewhere in this chapter for examples of administering AUDIX in various environments.

Form	Field
User-Defined Adjunct Names	All
PGATE	All
X.25 Data Module	All
Interface Links	All (for one AUDIX link)
Processor Channel Assignment	All (for one AUDIX link)
Station—2500 Form	All (for AUDIX voice port)
(up to 32 forms may be assigned depending on AUDIX size)	
Recorded Announcements	All
Feature Access Codes	Transfer Into AUDIX
Hunt Groups	All (as required)

Form	Field
Stations (User stations as required)	All, including: COS LWC Reception LWC Activation Data Restriction Redirect Notification Call Waiting Indication Coverage Path AUDIX Name Message Server Name Button/Feature Button Assignments -call-fwd -goto-cover -lwc-store -send-calls
Class of Service	Call Fwd-All Calls
Call Coverage Paths	All

NOTE:
AUDIX translations (not covered in this manual) and the System translations must be coordinated to ensure proper operation. It is recommended (but not required) that the Interface Channel number associated with each logical link match AUDIX port numbers on all forms. This helps in coordinating assignments and aids in troubleshooting.

- User-Defined Adjunct Names Form—Assign a name to the AUDIX machine in the AUDIX Name field. (Up to eight AUDIXes are supported.)

  NOTE:
  Enter this same name in the Adjunct Name field on the Hunt Group, Station, and Processor Channel Assignment forms.

- PGATE Form—Enter the board location and ''rs232'' as the cable type.
- Data Module (X.25) Form—Assign DTE/DCE as ''dte''.

  Assign a Baud Rate of 9600.

  Note that the second page protocol parameter defaults are appropriate for adjunct applications.
- Interface Links Form—Complete all fields on the form for one link, as required. Assign the extension of the X.25 data module to this link (from the Data Module form above).

- Processor Channel Assignment Form—Complete the required fields on the form for the AUDIX interface.

  The entry in the Remote Port field must agree with an associated AUDIX port field (translated on AUDIX); the Local Port field must agree with the AUDIX Switch Port field. The entry in the Machine ID field must agree with the AUDIX field entry as translated on the AUDIX Data Link form (typically with just one AUDIX this entry is 1.

- Station Form (2500 Voice Terminal)—Complete up to 32 forms for a large AUDIX or up to 16 for a small AUDIX. This assigns AUDIX voice ports to the System. The associated extension numbers will then be administered in a hunt group as hunt group members. Assign COR field the same COR as the AUDIX hunt group COR. Assign the Name field on each form as ''audix'' (although this can be any name, e.g., ''audix1'', ''audix2'', etc).

  NOTE:
  You can add one AUDIX Voice Port and then use the ''duplicate station'' command to add others.

- Recorded Announcements Form—Assign an announcement type to be associated with AUDIX, if required.
- Feature Access Codes Form—Enter the Transfer to AUDIX access code.
- Hunt Group Form—all fields including the following:
  - — Enter the AUDIX extension number in the Group Extension field on page 1 of the form.
  - — Enter ''ucd'' in the Group Type field.
  - — Enter ''audix'' in the Group Name field. (This can be any name.)
  - — Enter ''y'' in the ACD field if AUDIX is to be an ACD split.
  - — Enter the destination (extension, attendant) where calls to the ACD split will go when in the Night Service mode (optional).
  - — Enter ''y'' in the Queue field.
  - — Enter the number of users assigned as hunt group members in the Queue Length field. For example, if the hunt group has ten members, then 10 must be entered in the field. These members are used for AUDIX voice retrieval.
  - — Enter ''audix'' in the Message Center field.
  - — Enter the AUDIX machine name in the AUDIX Name field. (This is the same name defined on the User Defined Adjunct Names form.)
  - — Enter ''y'' in the Primary field to assign this hunt group as the primary hunt group (a ''n'' assigns it as a secondary hunt group).

You can have several hunt groups assigned to the same AUDIX. Refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for more information about multiple AUDIXes.

— Enter a recorded announcement extension and associated delay. The associated announcement will be provided to a user after being in a call waiting queue for the specified delay interval.

— In the Measured field, enter ''internal'', ''external'', ''both'', or ''blanks'' to indicate if the System will transmit data for this trunk group to the Call Management System. Enter ''internal'' if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ''external'' to send the data to the Call Management System Adjunct. Enter ''both'' to send the data to both systems for measurement reports. Enter ''none'' (default) if trunk group measurements are not required.

— Assign up to 32 AUDIX voice ports as member numbers for a large AUDIX or 16 for a small AUDIX. Enter previously administered AUDIX voice port extensions (assigned using 2500 Station forms) in the Hunt Group Member Number Assignments Ext. fields.

- Station Forms (user stations)

  — Assign correct Class of Service number so voice terminal can activate Call Forwarding All Calls feature.

  — Enter ''y'' in the LWC Activation field.

  — Enter the name of the AUDIX machine as it appears in the User-Defined Adjunct Names form in the AUDIX Name field.

  — Enter ''audix'' in the LWC Reception field.

  — Enter ''y'' in the Redirection Notification field.

  — Enter ''n'' in the Data Restriction field.

  — Enter ''n'' in the Call Waiting Indication field.

  — Assign a coverage path number which has the AUDIX hunt group in a coverage point.

- Class of Service Form—Verify Call Forwarding All Calls feature is activated.

- Call Coverage Paths Form—Assign a coverage path which includes the AUDIX hunt group number in a coverage point. It is recommended (but not required) that the AUDIX be the last point in a coverage path.

Administration—AUDIX in a DCS via BX.25 Data Channels

To implement the AUDIX interface via BX.25 Data Channels in a DCS configuration (traditional AUDIX in a DCS), refer to the ''Distributed Communications System (DCS)'' section elsewhere in this chapter for a complete listing of forms needed and their explanations.

NOTE:
DCS is a prerequisite of administration of AUDIX. Refer to ''Distributed Communications System (DCS)'' elsewhere in this chapter for examples of administering AUDIX in various environments. Instructions associated with implementing the DCS data links between switches and the associated DCS entries on Processor Channel Assignments forms, Interface Link forms, etc., are also covered there.

Administration—AUDIX In a DCS via ISDN-PRI D-channel

To implement the AUDIX interface via ISDN-PRI D-channel in a DCS configuration, refer to the ''Distributed Communications System (DCS)'' section elsewhere in this chapter for a complete listing of forms needed and their explanations.

NOTE:
DCS is a prerequisite of administration of AUDIX. Refer to ''Distributed Communications System (DCS)'' elsewhere in this chapter for examples of administering AUDIX in various environments. Instructions associated with implementing the DCS Over ISDN-PRI D-channel are covered in the DCS Over ISDN-PRI D-channel feature coverage provided elsewhere in this chapter.

Hardware Requirements

A Universal DS1 board (TN464C) is required (TN577 PGATE boards are not needed).

Authorization Codes

Provides the means for extending control of the System users calling privileges.

On an internally dialed outgoing call, the COR assigned the facility (such as a station) being used to originate the call and its Partitioned Group Number (PGN), when assigned, is used to select a routing pattern. At this point in the call, a 4- to 7-digit authorization code may be required to override the COR's Facility Restriction Level (FRL) assignment. This then allows users to override the FRL and users within a PGN to have access to up to seven FRL's when assigned and still remain partitioned. On a remote access incoming call, the authorization code may be required as part of the initial dialing sequence, and here, the authorization code selects the COR and associated PGN (when assigned) to be used in routing the call on an incoming trunk group basis. Here, Authorization codes are required, and COR and PGN are unaffected.

Administration

The Authorization Codes option must be enabled on the System-Parameters Customer-Options form before the associated forms and fields on forms can be administered.

NOTE:
The use of authorization codes with dialed Vector Directory Number extensions is not allowed and will be blocked.

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	Authorization Code Enabled Authorization Code Length Authorization Code Cancellation Symbol Attendant Time Out Flag
Authorization Codes	AC, COR
Station	COR
Class of Restriction	FRL
Routing Patterns	Trunk Group Number FRL
Remote Access	Authorization Code Remote Access Dial Tone
Trunk Groups Access APLT CO FX ISDN-PRI Tie WATS	Auth Code

- Feature-Related System Parameters Form—Verify ‘‘y’’ is entered in the Authorization Code Enabled field so that Authorization Codes can be assigned on a System wide basis.
  - — In the Authorization Code Length field, enter a number from 4–7 that defines the number of digits (length) in the authorization code. This is the number of digits that must be assigned to the AC field on the Authorization Codes form.

— In the Authorization Code Cancellation Symbol field, enter the type of symbol the caller must enter to cancel the partially-entered authorization code or to skip authorization code entry.

— In the Attendant Time Out Flag field, define if the caller will be routed to the attendant should the caller not dial an authorization code within 10 s or dials an invalid authorization code.

- Authorization Codes Form—Assign 4- to 7-digit authorization codes (with CORs 0–95).

  — In the authorization code (AC) field, enter the 4- to 7-digit authorization code the user must dial. The number of digits entered must agree with the number assigned to the Authorization Code Length field on the Feature-Related System Parameters form.

  — In the Class of Restriction field, enter the desired COR number (0–95). This is the replacement COR to be used to modify the user's calling privileges and is effective after the corresponding authorization code has been dialed.

- Station Forms—Assign CORs so a separate COR exists for users with different restrictions. If CORs are already established, they must be taken into account when adding/assigning new CORs.

- Class of Restriction Form—In FRL field, assign originating Facility Restriction Levels for restricted and unrestricted users. The originating FRL can be a value of 0–7 where 0 is the most restrictive.

- Routing Patterns Form—

  — In the Group Number field, enter the desired trunk group number 1–666.

  — In the FRL field, assign route FRLs for each trunk group in the Route Pattern. A route FRL of 7 is the most restrictive (users with an FRL of 7 can use the trunk group) and a route FRL of 0 (users with FRLs from 0–7 can use the trunk group) is the least restrictive.

  NOTE:
  Trunk groups must have been assigned previously on the Trunk Group form.

  The first choice trunk group has the lowest FRL, the second choice trunk group (if there is one) has the next lowest FRL, etc. The assigned FRL is used for this pattern. Trunk group FRLs are changeable from pattern to pattern. The FRL assigned to the trunk group when the COR is defined is not used on ARS calls.

- Remote Access—

  — In the Authorization Code Required field, enter ''y'' if an Authorization Code must be dialed to access the System features remotely.

— In the Remote Access Dial Tone field, enter ‘‘y’’ if the user will receive a recall dial tone before dialing the authorization code. If Barrier Codes are assigned, the recall dial tone is heard after the Barrier Code has been dialed.

- Trunk Group Forms—In the Authorization Code field, enter a ‘‘y’’ if an Authorization Code must be dialed on incoming calls to access the trunks in this trunk group (Auth Code field is used for incoming calls).

Authorization Code Examples

The following provides three examples of typical Authorization Codes assignments.

Example 1.

Establish a group of users who must dial an authorization code in order to make outside calls. The client has ARS and the Authorization Codes feature. The forms and fields are administered as follows:

1. Feature-Related System Parameters Form

   - Authorization Codes Enabled y
   - Authorization Code Length 7
   - Authorization Code Cancellation Symbol #
   - Attendant Timeout Flag n

2. Voice Terminal Forms

   Assign COR = 1 for all unrestricted users and COR = 49 for restricted users who must dial an authorization code to make outside calls.

3. Authorization-Codes Form

   Assign the restricted users a replacement COR = 1 and an authorization code the same as their 7-digit phone number.

4. COR Form

   Assign/change originating FRLs for restricted and unrestricted users. Assign an originating FRL of 7 to users with a COR of 1 and an originating FRL of 0 (zero) to users with a COR of 49.

5. Routing Patterns Form

   For route pattern 1, assign trunk group 40 (CO) as the first choice route with a route FRL = 1, NPA = 201, and Prefix Mark = 1 (that is, dialing ‘‘1’’ is required here to indicate a toll call). Assign first, second, and third choice routes as follows:

Grp No	FRL	NPA	Prefix Mark	Toll List	No. Del. Digits	Inserted Digits
40	1	201	1			
2	3	201	1			
32	3	201	1			9

For this example, trunk group 40 is a CO trunk, trunk group 2 is WATS, and trunk group 32 is a tie trunk to the System 85.

When a caller dials the ARS access code to call out, the FRL of the originating facility is compared with the FRL of the available outgoing facility. If the FRL of the originating facility is less than the FRL of the trunk group, the restricted user will be prompted (via recall dial tone) to enter an authorization code. After the authorization code is entered, the call is routed to the CO for completion. If the FRL is insufficient to seize any trunk group in the route pattern, the user gets intercept tone.

Restricted callers will be prompted for and be required to enter an authorization code (as previously described). Unrestricted users will simply dial the ARS code followed by the desired number.

Refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for additional information on the use of AAR/ARS FRLs for control of call routing.

Example 2.

Set up remote access to the switch such that the remote user must enter a barrier code and an authorization code to access the System features from home. The forms and fields on forms are assigned as follows:

- Remote Access Form

  - Remote Access Extension 71234
  - Barrier Code Length 4
  - Authorization Code Required y
  - Remote Access Dial Tone y
  - Barrier Code 4444
  - COR 1
  - COS 1

- Remote Access using the DID Feature

  To use remote access through the DID feature, dial the 7- to 10-digit Remote Access number (957-1234) followed by the barrier code (4444). After you hear recall dial tone, enter the authorization code followed by the desired number, or dial the ARS access code (9) and the 7- or 10-digit number you are calling. The call will be routed through to completion.

- Remote Access using a dedicated CO, FX, or WATS Trunk

  To implement the remote access feature via a dedicated CO, FX, or WATS trunk, the Remote Access form is administered as above. In addition, the Incoming Destination field is assigned the Remote Access Extension number on the Trunk Group form.

  When the caller dials the Listed Directory Number associated with the trunk group dedicated to Remote Access, the trunk group routes the call to the Remote Access Extension. The caller will hear a data tone followed by dial tone. The barrier code is then entered and, in this example, since Remote Access Dial Tone is ''1'', the caller will be prompted (via recall dial tone) to enter an authorization code. After the authorization code is entered, the caller will hear System dial tone. At this point, the desired number can be dialed and routed to completion.

Example 3.

On a System that does not use AAR or ARS for call routing, implement the Authorization Codes feature to allow a caller to override the originating COR assigned to a specific CO trunk group. On the trunk group form, enter ''y'' in the Authorization Code field if an authorization code must be dialed to access the trunks in this trunk group. This is in addition to administering the parameters on the Feature-Related System Parameters form, the Station form, the Authorization Codes form, and the COR form as specified in the example provided.

Hardware Requirements

None.

Automatic Alternate Routing (AAR)

Provides alternate routing choices for private on-network calls. Also provides digit modification to allow on-network calls to route through the public network when on-network routes are not available.

Administration

Either the Private Networking or Uniform Dialing Plan option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Dial Plan	All
Class of Restriction	FRL Partitioned Group Number **or** Time of Day Plan Number
Feature Access Codes	AAR Access Code
AAR Analysis	All
AAR Digit Conversion	All
Node Number Routing Table	All
Routing Patterns	All
Remote Home Number Plan Area	All
Time of Day Routing (optional)	All
Feature-Related System Parameters	AAR/ARS Dial Tone Required

- Dial Plan Form—Enter local area code. Complete digit identification and numbering.
- Class of Restriction Form—Assign FRLs for station CORs. The minimum FRLs required to access a route are assigned as part of the Routing Pattern form. Assignment of these values determines the calling privileges associated with calls placed from stations assigned the COR.

  If required, assign an appropriate Partitioned Group Number (1–8) or a Time of Day Routing Plan Number (1–8) if the respective field is displayed on the form.
- Feature Access Codes Form—Assign ‘‘AAR Access Code’’.
- AAR Analysis Form—Complete all fields as required. The form allows for the mapping of customer dialed numbers to routing patterns and/or node numbers.
- AAR Digit Conversion Form—Complete all fields as required. The form is used to convert private network numbers to other private network numbers, or to change the dialed digits to an extension to a public network number. The form may also be used to divert certain private network calls to the attendant group.

- Remote Number Plan Area Form—Complete all fields as required. The form is used for 3-digit translations from 000–999. The form is typically used for mapping CO codes to routing pattern numbers.
- Routing Patterns Form—Complete all fields as required. In addition to normal trunking data, this form provides subnetwork trunking information which extends a call through a chain of subtending switches (see Subnet Trunking).
- Time of Day (TOD) Routing—Assign up to eight TOD charts. Each chart can have up to eight routing plans administered, each scheduled to change (based on the time of day entered on the form) up to six times a day for each of the seven days in a week. This is an optional form. The Private Networking, Automatic Route Selection Partitioning, and Time of Day Routing must be enabled on the System-Parameters Customer-Options form before this form can be implemented.
- Feature-Related System Parameters Form—complete the AAR/ARS Dial Tone Required field. Enter ''y'' if second dial tone is required after the feature access code.

AAR Guidelines and Examples

The examples that follow are designed to illustrate some of the practical aspects of AAR. Each System must be administered to meet its individual needs.

Completing the Class of Restriction Form

Make assignments as required for the following field:

- **FRL**—Assign a Facility Restriction Level (0-7) for each voice terminal user activating AAR. An FRL of 0 (zero) is the most restrictive and an FRL of 7 is the least restrictive. The FRL of the calling facility is compared against the FRL of the AAR pattern choices to select an allowed route.
- **Partitioned Group Number**—Displayed when ARS Partitioning is enabled on the System-Parameters Customer-Options form and Time of Day Routing is not enabled. Enter an appropriate PGN (1–8).
- **Time of Day Plan Number**—Displayed when Time of Day Routing is enabled on the System-Parameters Customer-Options form. Enter an appropriate Time of Day Routing Plan Number (1–8).

Completing the Feature Access Codes Form

Make assignments as required for the following field:

- **Auto Alternate Routing (AAR) Access Code**—Assign an access code to AAR. The usual entry is ''8''.

Completing the AAR Analysis Form

Complete one to eight AAR Analysis Tables. Each table is associated with a different Partitioned Group Number. Complete the Dialed String, and associated Minimum and Maximum, Rte Pat (Routing Pattern), Call Type, and Node Num fields for each dialed string to be given specific routing consideration.

NOTE:
If a Rte Pat and Node Num fields are both administered, calls are routed via the entered pattern. If there is only a Node Num entered, calls are routed via the entered Node Number.

NOTE:
Only the Pattern Number may differ between partitions (changing the Node Number will effect a change in all Partitions).

Completing the AAR Digit Conversion Form

Complete the Matching Pattern and associated Replacement String fields for each dialed string (matching pattern) to be modified (either in part or whole) to an alternative address. Calls will be routed based on the modified address.

Completing the Node Number Routing Form

Complete this form if a routing pattern is not specified in the AAR Analysis form. This form specifies the routing pattern associated with each node in a private network. NNR is a required capability for Extension Number Portability (ENP) and is associated with the Uniform Dial Plan (UDP). UDP extensions can be routed to a specified node using its associated pattern and allows a UDP routing choice based on node numbers or on location codes.

Completing the Routing Pattern Form

Make assignments as required for the following fields:

- **Pattern Number**—Enter a Pattern Number 1–640.
- **Grp No.**—Enter the desired trunk group number 1–665.
- **FRL**—Enter the Facility Restriction Level 0–7 (0 being the least restrictive and 7 being the most restrictive) for this trunk group as it will be used by this pattern. Trunk group FRLs are changeable from pattern to pattern. The FRL assigned to the trunk group when the COR is defined is not used on AAR calls. The NPA, Prefix Mark, and Toll Table fields listed below are used by ARS and not AAR.
- **NPA**—Enter the NPA of the distant end.

- **Prefix Mark**—Determines the outpulsing of the Prefix digit 1 as:

  0 Do not outpulse prefix digit 1.

  NOTE:
  Prefix Mark 0 suppresses a user-dialed Prefix digit 1 for 10-digit FNPA calls, but leaves a user-dialed Prefix digit 1 for 7-digit HNPA calls. This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

  1 Outpulse Prefix digit 1 for 10-digit calls. Prefix Mark 1 should be selected for those HNPAs that require users to dial 1 to indicate a toll call.

  2 Outpluse prefix digit 1 for all toll calls and 7- and 10-digit calls whether the user dials 1 or not.

  3 Outpulse prefix digit 1 all toll calls. These calls are always outpulsed as 10-digit numbers, even those within the HNPA.

  4 Suppress a user-dialed Prefix digit 1.

  NOTE:
  This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

  NOTE:
  Prefix Marks 2 and 3 must refer to a Toll Table.

- **BCC**—Only administerable when ISDN-PRI is enabled on the System Parameters Customer Options form. Required by the Generalized Route Selection feature. Enter a value from 0–4.
- **Toll List**—Enter a number, 1–32, that references the ARS Toll Table assigned to this trunk group. This field must be completed if the Prefix Mark is 2 or 3.
- **No. Del. Digits**—Enter the total number of digits (0-23) to be deleted from the dialed number when this trunk group is selected for use within this pattern.
- **Inserted Digits**—Enter the actual digits to be inserted (0–36). Up to 52 digits may be outpulsed. This includes 34 digits inserted (up to 32 digits per group plus one special character) plus up to 18 digits originally dialed. These digits may be divided into groups separated by a two-digit wait-for-dial-tone separator. The ‘‘˜w’’ is used for pause, ‘‘˜p’’ for the second dial tone, and ‘‘˜m’’ for end-to-end signaling. Valid entries are 0–9, ‘‘˜w’’, ‘‘˜p’’, and ‘‘˜m’’.

NOTE:
The special character ‘‘˜p’’ (pause) should not be used unless absolutely necessary as the first character in the string. Typical misuse can result in calls such as Abbreviated Dialing or Last Number Dialed calls not completing to the far-end.

Completing the Remote Home Number Plan Area (RHNPA) Form

This form is used for the analysis of the last three digits in a dialed string. References from a Dialed String entry on the AAR Analysis Table (in the ‘‘Route Pat’’ field) must be in the form ‘‘r1’’ through ‘‘r-32’’. This reference points to one of the 32 RHNPA Table forms available. Select the proper RHNPA Table forms and make assignments as required for the following fields:

- **RHNPA Table**—Enter the applicable Table Number (1-32).
- **Code**—Enter the significant digit (0-9) to identify the hundreds block of codes to be administered on the form.
- **Pattern Choice Assignments**—Enter the routing pattern number (1-640) in each appropriate field starting with 1:. Up to 12 different pattern choices may be assigned.
- **Code-Pattern Choice Assignments**—Enter a routing pattern number (1-12) from the above list beside each appropriate code that is required to provide additional 3-digit translations to that provided on the AAR Analysis form. These codes are the least two significant digits of the hundreds block of codes represented on the RHNPA form.

Hardware Requirements

Requires the use of tie trunk facilities if not already assigned and AAR/ARS Digit Conversion software.

Automatic Call Distribution (ACD)

Provides automatic connection of incoming calls to specific splits (hunt groups). Calls to a specific split are automatically distributed among the agents (hunt group members) assigned to that split. Automatic Call Distribution (ACD) data, transmitted from the switch to the Call Management System (CMS) or the Basic Call Management System (BCMS), is used to generate various reports on ACD agents, splits, and trunks.

NOTE:
The Automatic Call Distribution option on the System-Parameters Customer-Options form must be enabled before associated forms or fields on forms can be administered.

ACD is implemented using the features or functions listed below. These features can be used singularly or in combination with each other. The features are listed alphabetically below and associated administration instructions are provided with each feature's coverage (this chapter).

- Abandoned Call Search
- Adjunct-Switch Application Interface (ASAI)
- Agent Call Handling
- Attendant Console
- Basic Call Management System (BCMS)
- Call Prompting
- Call Management System (CMS)
- Call Vectoring
- Call Work Codes
- Central Office Trunk Group
- Class of Restriction
- Foreign Exchange Trunk Group
- Hunting
- Intraflow and Interflow
- Lookahead Interflow
- Malicious Call Trace (MCT)
- Music On Hold
- Queue Status Indications
- Recorded Announcements
- Service Observing
- Stations
- Stroke Counts
- Stroke Counts, Forced Entry of
- Wide Area Telecommunications Service Trunk Group

Figure 3-4 provides an example of an ACD arrangement.

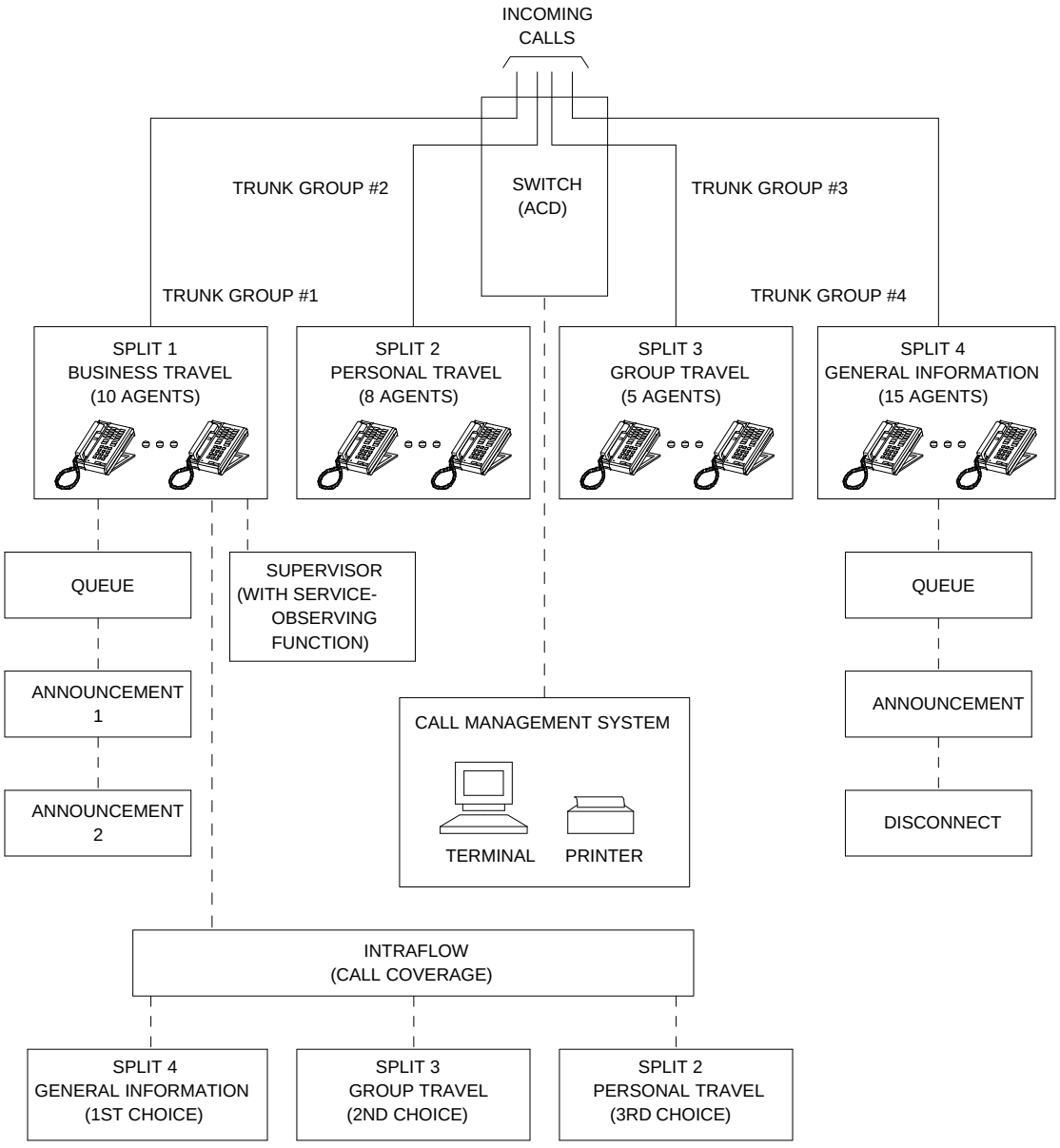


Figure 3-4. Typical Automatic Call Distribution Arrangement

Administration

To implement this feature, complete the following forms.

Form	Field
Trunk Groups: CO FX Tie WATS	Incoming Destination
Attendant Console	Headset Auto Answer
Station	Headset Auto Answer Queue Status Call Info Buttons Feature Button Assignments -work-mode
Hunt Group	ACD Auto-available Queue Warning Lamp
Feature-Related System Parameters	ACD Log-In Identification Length Service Observing Warning Tone
Feature Access Code	Automatic Call Distribution Features Announcement Access Code

- Trunk Group Forms—Group Number Field—Assign Group Numbers to trunk groups when two or more trunk groups are to be used to support ACD applications.

  Incoming Destination Field—Enter ACD hunt group extension number in the Incoming Destination field (only available on ground-start trunks).

  NOTE:
  The use of the Abandoned Call Search feature is not supported for tie trunks.

- Attendant Console Form—Enter ‘‘y’’ in the Headset and Auto Answer fields.
- Station Forms—If required, enter ‘‘y’’ in the Headset and Auto Answer fields. Assign the appropriate entries in the Work Mode, Queue Status, and Call Info Buttons fields. Assign voice terminals, as required, including the CALLMASTER™ digital voice terminal.

- Hunt Group Form—Complete fields that apply when ACD field is ''y''.

  Activate the Auto-available split feature by entering a ''y'' in the Auto-available field.

- Feature-Related System Parameters Form—In the ACD Log-In Identification field, enter the minimum number of digits (0-9) that must be dialed to identify an ACD agent to CMS. Enter ''y'' in the Service Observing Warning Tone field to provide an audible tone when a voice terminal user is monitored by a service observer.

  ⚠ CAUTION:
  The use of Service Observing features may be subject to federal, state, or local laws, rules, or regulations; or require the consent of one or both of the parties to the conversation. Customers should familiarize themselves with and comply with all applicable laws, rules, and regulations before using these features.

- Feature Access Code Form—Assign feature access codes (FACs) for Automatic Call Distribution features. Assign a FAC for announcements in the Announcement Access Code field.

Hardware and Software Requirements

Each auxiliary queue warning level lamp requires one port on a TN742, TN746B, or TN769 Analog Line circuit pack. A ''beehive'' indicator lamp may be used as a queue warning level lamp. This lamp operates on ringing voltage and can be mounted at a location convenient to the split. Delay announcements are provided via the TN750 Integrated Announcement circuit pack or external announcement equipment. If music is to be heard after the first delay announcement, a music source and a port on a TN763C Auxiliary Trunk circuit pack is required. If a CMS is to be used, CMS software and hardware is required.

The following is a list of all stations which can be used by an ACD agent:

- The following Multifunction stations (except the 7200 series):
  - — CallMaster™ (602A)
  - — Multibutton Electronic Telephone (MET) stations
  - — Hybrid Sets (7300s)
  - — Digital 7400 sets (except 7401 CDT) and 510 BCTs
  - — Basic Rate Interface (BRI) sets (7500s and 8500s)
- Attendant consoles

Automatic Callback

Allows internal users who placed a call to a busy or unanswered internal voice terminal to be called back automatically when the called voice terminal becomes available.

NOTE:
Automatic Callback is not functional for call placed to Vector Directory Numbers.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	Automatic Callback—No Answer Timeout Interval (rings)
Feature Access Codes	Automatic Callback Activation/Deactivation
Station (multi-appearance)	Button/Feature Button Assignments -auto-cback
Class of Service	Auto Callback (0-15)

- Feature-Related System Parameters Form—Specify callback time-out interval in the Automatic Callback—No Answer Time-out Interval (rings) field.
- Feature Access Codes Form—Verify Automatic Callback Activation and Deactivation fields have been assigned.
- Station Forms—Assign Automatic Callback (auto-cback) buttons to multi-appearance voice terminals, as desired.
- Class of Service Form—Verify Automatic Callback field has the correct permission.

Hardware Requirements

None.

Automatic Circuit Assurance (ACA)

Assists users in identifying possible trunk malfunctions. The System maintains a record of the performance of individual trunks relative to short and long holding time calls. The System automatically initiates a referral call to an attendant or to a designated display-equipped voice terminal user when a possible failure is detected.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	ACA Enabled ACA Referral Calls ACA Referral Destination ACA Short Holding Time Originating Extension ACA Long Holding Time Originating Extension ACA Remote PBX Identification
Attendant Console	Feature Button Assignments -aca-call
Trunk Groups	ACA Assignment Short Holding Threshold Long Holding Time Short Holding Time
Access APLT CO CPE DMI-BOS FX ISDN-PRI RLT Tandem Tie WATS	
Station (multi-appearance)	Button/Feature Button Assignments -aca-call

- Feature-Related System Parameters Form—Verify ACA Enabled? field is assigned and the following fields are completed:
  - — ACA Referral Calls
  - — ACA Referral Destination
  - — ACA Short Holding Time Originating Extension
  - — ACA Long Holding Time Originating Extension
  - — ACA Remote PBX Identification, when ACA referral is specified as ''remote''.
- Attendant Console Form—Assign aca-call button.

  NOTE:
  Only one aca-call button can be assigned to the System. The button can be assigned to the attendant console or a voice terminal.

- Trunk Group Forms—Verify ACA Assignment field is completed and the Short Holding Time, Long Holding Time, and Short Holding Time Threshold fields are completed.
- Station Forms—Assign aca-call button if one was not assigned to the attendant console.

Hardware Requirements

A TN725B Speech Synthesizer circuit pack is required if the referral destination is not a display-equipped voice terminal.

Automatic Route Selection (ARS)

Routes calls over the public network based on the preferred (normally the least expensive) route available at the time the call is placed.

Administration

The Automatic Route Selection (ARS) option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	FRL Calling Party Restriction Restricted Call List Partitioned Group Number or Time of Day Plan Number
Dial Plan	Home Area Code ARS Prefix 1 Required
Feature Access Codes	Automatic Route Selection (ARS) Access Code(s)
Toll Analysis	Dialed String Max/Min RCL UCL (1-10) Toll List
ARS Analysis	All
ARS Digit Conversion	All
Node Number Routing Table	All
Routing Patterns	All
Remote Home Numbering Plan Area (RHNPA)	All
ARS Toll Table	All
Time of Day Routing	All
Feature-Related System Parameters	AAR/ARS Dial Tone Required

- Class of Restriction Forms—Assign Facility Restriction Levels (FRLs) for station CORs. The minimum FRLs required to access a route are assigned as part of the Routing Pattern. Assignment of these values determines the calling privileges associated with calls placed from stations assigned the COR.

  Assign an appropriate Partitioned Group Number (1–8) or a Time of Day Routing Plan Number (1–8) if the respective field is displayed on the form. (The Time of Day Plan Number field is displayed if the Time of Day Routing option is enabled on the System-Parameters Customer-Options form. The Partitioned Group Number field is displayed if the ARS Partitioning option is enabled and the Time of Day Routing option is not enabled.)

- Dial Plan Form—Enter the HNPA (Area Code) and complete the ARS Prefix 1 Required field.
- Feature Access Codes Form—Verify or assign ARS access codes (1 & 2).
- Toll Analysis—Complete the Dialed String, Min/Max, Toll List, RCL, and UCL fields as required to control outgoing call access.
- ARS Analysis Form—Complete all fields as required.
- ARS Digit Conversion Form—Complete all fields as required.
- Remote Home Numbering Plan Area (RHNPA) Form—Complete all fields as required. This form can be used for 3-digit translations in addition to that provided on the ARS Analysis form. Translations for digits in the range 000–999 can be provided.
- Routing Patterns Form—Complete all fields as required.
- ARS Toll Table Form—Complete all fields as required to identify which office codes/numbers are toll, non-toll, or restricted calls.
- Time of Day (TOD) Routing Form—Assign up to eight TOD charts. Each chart can have up to eight routing plans administered, each scheduled to change (based on the time of day entered on the form) up to six times a day for each of the seven days in a week. This is an optional form. The Private Networking, Automatic Route Selection Partitioning, and Time of Day Routing must be enabled on the System-Parameters Customer-Options form before this form can be implemented.
- Feature-Related System Parameters Form—Complete the AAR/ARS Dial Tone Required field. Enter ''y'' if second dial tone is required after the feature access code.

ARS Guidelines and Examples

The examples that follow are designed to illustrate some of the practical aspects of ARS. Each System must be administered to meet its individual needs.

Completing the Class of Restriction Forms

Make assignments as required for the following fields on each station's COR form:

- **FRL**—Enter an originating FRL number from 0–7 to assign call privileges for calls placed from stations assigned the COR. An originating FRL of 0 has the least calling privileges and ''7'' the most.
- **Partitioned Group Number**—Displayed when ARS Partitioning is enabled and Time of Day Routing is not enabled on the System-Parameters Customer-Options form. Enter the appropriate Partitioned Group Number (1–8).

- **Time of Day Plan #**—Displayed when Time of Day Routing is enabled on the System-Parameters Customer-Options form. Enter the appropriate Time of Day Plan number (1–8).

Completing the Dial Plan Record

Make assignments as required for the following fields:

- **Area Code**—Enter the Home Numbering Plan Area of the PBX.
- **ARS Prefix 1 Required**—Enter ''y'' if the user is required to dial 1 to indicate a toll call.
- **FIRST DIGIT TABLE**—Defines the PBX dial plan. For each dialable first digit (0-9, * and #), this table contains an identifier associated with the first digit and the total number of digits to collect. The following identifiers can be assigned to first digits: extension, trunk access code, and feature access code, miscellaneous (also requires entries in the Second Digit Table), attendant, and prefix extensions.

Completing the Feature Access Codes Form

Make assignments as required for the following fields:

- **Auto Route Selection (ARS) Access Code**—Assign an access code to ARS. The usual entry is ''9''.

Completing the ARS Toll Table Form

This form is used to specify whether calls to central office codes are toll or non-toll type calls.

This 800-entry table consists of eight screen forms of 100 office codes each: 200-299, 300-399,...800-899, 900-999. Up to 32 ARS Toll Tables may be completed. The default value for each office code is ''y''. This implies that all calls are toll calls. To identify those calls within the Table that are not toll calls, change the ''y'' to ''n'' beside the appropriate office codes.

Toll Tables are associated with the terminating NPA of a given trunk group. They are always required for those trunk groups assigned a Prefix Mark of 2 or 3 on the Routing Pattern form. Refer to Prefix Mark (described earlier under ''Completing the ARS Routing Patterns Form'') for additional information on Prefix Marks.

Completing the ARS Routing Patterns Form

Make assignments as required for the following fields (see example form which follows discussion):

- **Pattern Number**—Enter a Pattern Number 1–640.

- **Grp No.**—Enter the desired trunk group number 1–665.
- **FRL**—Enter the Facility Restriction Level 0–7 (0 being the least restrictive and 7 being the most restrictive) for this trunk group as it will be used by this pattern. Trunk group FRLs are changeable from pattern to pattern. The FRL assigned to the trunk group when the COR is defined is not used on ARS calls.
- **NPA**—Enter the NPA of the distant end. For WATS trunks, the term NPA is the same as the home NPA. For tie trunks, the NPA field is left blank.
- **Prefix Mark**—Determines the outpulsing of the Prefix digit 1 as:

  0 Do not outpulse prefix digit 1.

  NOTE:
  Prefix Mark 0 suppresses a user-dialed Prefix digit 1 for 10-digit FNPA calls, but leaves a user-dialed Prefix digit 1 for 7-digit HNPA calls. This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

  1 Outpulse Prefix digit 1 for 10-digit calls. Prefix Mark 1 should be selected for those HNPAs that require users to dial 1 to indicate a toll call.

  2 Outpluse prefix digit 1 for all toll calls and 7- and 10-digit calls whether the user dials 1 or not.

  3 Outpulse prefix digit 1 all toll calls. These calls are always out-pulsed as 10-digit numbers, even those within the HNPA.

  4 Suppress a user-dialed Prefix digit 1.

  NOTE:
  This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

  NOTE:
  Prefix Marks 2 and 3 must refer to a Toll Table.

- **Toll List**—Enter a number, 1–32, that references the ARS Toll Table assigned to this trunk group. This field must be completed if the Prefix Mark is 2 or 3.
- **No. Del. Digits**—Enter the total number of digits (0-18) to be deleted when this trunk group is selected for use within this pattern.

- **Inserted Digits**—Enter the actual digits to be inserted (0–36). Up to 52 digits may be outpulsed. This includes 34 digits inserted (up to 32 digits per group plus one special character) plus up to 18 digits originally dialed. These digits may be divided into groups separated by a two-digit wait-for-dial-tone separator. The ''~w'' is used for pause, ''~p'' for the second dial tone, and ''~m'' for end-to-end signaling.

  NOTE:
  The special character ''~p'' (pause) should not be used unless absolutely necessary as the first character in the string. Typical misuse can result in calls such as Abbreviated Dialing or Last Number Dialed calls not completing to the far-end.

- **IXC**—Displayed when ISDN-PRI is enabled on the System-Parameters Customer-Options form. Enter the last three digits to represent an equal access Inter-exchange Carrier code (such as, 10XXX). This field is used by all calls that route via an IXC, and is also used for Call Detail Recording (CDR). If an IXC is not specified, a call will be transmitted by the presubscribed common carrier.

  NOTE:
  The IXC value for non-ISDN trunk groups must be entered in the Inserted Digits field.

- **BCC Value** (required by Generalized Route Selection feature)—Displayed when ISDN-PRI is enabled on the System-Parameters Customer-Options form. Enter ''y'' (default) or ''n'' in the appropriate BCC column (0, 1, 2, 3, or 4) to specify whether or not the BCC (Bearer Capability Class) is valid for the associated route (1–16). The following defines the BCC values:

BCC VALUE	DESCRIPTION
0	Voice-Grade Data and Voice
1	56-kbps Data (Mode 1)
2	64-kbps Data (Mode 2)
3	64-kbps Data (Mode 3)
4	64-kbps Data (Mode 0)

  NOTE:
  Refer to the ''Generalized Route Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls. The BCC value is used to determine compatibility when non-ISDN-PRI facilities are connected to ISDN facilities (ISDN-PRI Interworking feature).

- **TSC**—Enter ''y'' to allow incoming Non Call Associated TSC requests to be tandemed out and to allow the establishment of Call Associated TSCs associated with B-channel connections of that preference. To achieve feature transparency, DCS+ calls should be routed via a routing pattern that has an ISDN-PRI *Used for DCS* trunk group as a first preference.
- **CA-TSC Request**—Appears when the TSC field is ''y''. A CA-TSC uses the call reference value of the call control data packets to exchange user information messages associated with an ISDN B-channel connection. Valid entries are:

  at-setup — Causes a CA-TSC to be established at the same time the initial B-channel connection is established. In other words, a CA-TSC will be setup for each and every B-channel call **whether or not that CA-TSC will ever really be needed**.

  as-needed — No CA-TSC will be established along with the B-channel call. If a CA-TSC is needed due to feature activation somewhere in the lifetime of this B-channel call, then the CA-TSC will be established at that time and remain active for the duration of the call.

  none — Disallows the establishment of CA-TSCs associated with B-channel connections of the current preference (tandeming of NCA-TSC setup requests however, are still permitted).

  NOTE:
  With ''as-needed'', the need to establish the CA-TSC causes a slight delay in the invocation of the Call Associated feature. This delay is not present with ''at-setup'' because the CA-TSC is already established at call setup and is ready to be used immediately upon feature invocation.

- **Service/Feature**—Specifies the ISDN-PRI Services/Features for an incoming call type as:

Table 3-3. Predefined Services/Features—ISDN-PRI

Service/Feature	
Administration Mnemonic	Description
accunet	ACCUNET Switched Digital Service—part of ACI (AT&T Communications ISDN) phase 2.
i800	International 800 Service—allows a subscriber to receive international calls without a charge to the call originating party.
inwats	INWATS—provides OUTWATS-like pricing and service for incoming calls.
lds	Long-Distance Service—part of ACI (AT&T Communications ISDN) phase 2.
megacom	MEGACOM Service—an AT&T communications service that provides unbanded long-distance services using special access (PBX to 4 ESS switch) from an AT&T communications node.
megacom-800	MEGACOM 800 Service—an AT&T communications service that provides unbanded 800 service using special access (4 ESS switch to PBX) from an AT&T communications node.
multiquest	AT&T MULTIQUEST® Telecommunications Service—dial 700 service. A terminating users service supporting interactive voice service between callers at switched access locations and service provides directly connected to the AT&T Switched Network (ASN).
operator	Network Operator—provides access to the network operator.
outwats-bnd	OUTWATS Band—WATS is a voice-grade service providing both voice and low speed data transmission capabilities from the user's location to defined service areas commonly referred to as bands. Currently, the widest band is 5.
sdn	Software Defined Network (SDN)—an AT&T communications offering that provides a virtual private network using the public switched network. SDN can carry voice and data between customer locations as well as off-net locations.
sddn	Software Defined Data Network—provides a virtual private line connectivity via the AT&T switched network (4 ESS switch). Services include voice, data, and video applications. These services complement the SDN service.
sub-operator	Presubscribed Common Carrier Operator—provides access to the presubscribed common carrier operator.
wats-max-bnd	Maximum Banded Wats—a WATS-like offering for which a user's calls are billed at the highest WATS band subscribed to by the user.

As an example, assume that an FX trunk group to North Carolina (Area Code 919) is being defined:

1. The ARS user dials 9+(919)-555-1349. (The first 9 represents the ARS Access Code.)
2. The System checks the ARS Analysis and ARS Digit Conversion Tables for the assigned Routing Pattern (Code 919).

3. For the identified routing pattern, if a trunk is available on the first routing preference, then the call is allowed. If a trunk is not available, then the System will search the next routing preference for an available trunk on the next trunk group listed on the routing pattern.
4. Assume that on the routing pattern that the value assigned to No. Del. Digits field is 3. The System deletes the first three digits dialed (the digits 919 are deleted).

   Prefix Mark 2 is specified on the routing pattern and the associated Toll Table field is 3. As a result, Toll Table 3 is checked to determine if the call is a local or toll call with respect to the office at the distant end of the trunk. If local, the number 555-1349 is outpulsed; if toll, 1-555-1349 is outpulsed.

   No digits are inserted for this example.

```
                                Pattern Number: __                Page 1 of 1
Pattern Assignments (Enter Up To 6)
    Grp.   FRL  NPA    Prefix   Toll   No. Del.   Inserted              IXC
    No.                 Mark   List   Digits     Digits
1.  ___    _    ___      _       _      _        ____________________   ___
2.  ___    _    ___      _       _      _        ____________________   ___
3.  ___    _    ___      _       _      _        ____________________   ___
4.  ___    _    ___      _       _      _        ____________________   ___
5.  ___    _    ___      _       _      _        ____________________   ___
6.  ___    _    ___      _       _      _        ____________________   ___

    BCC Value           CA-TSC            Service/Feature
   0  1  2  3  4   TSC  Request
1. _  _  _  _  _    _   _________          ___________________   Band: ___
2. _  _  _  _  _    _   _________          ___________________   Band: ___
3. _  _  _  _  _    _   _________          ___________________   Band: ___
4. _  _  _  _  _    _   _________          ___________________   Band: ___
5. _  _  _  _  _    _   _________          ___________________   Band: ___
6. _  _  _  _  _    _   _________          ___________________   Band: ___
```

Routing Pattern Form (Page 1 of 1)

Implementation Note:

The IXC, BCC Value, TSC, CA-TSC Request and Service/Feature fields are displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

The Band field is displayed when the Service/Feature field is ‘‘outwats-band’’.

Completing the ARS Analysis Table

Up to eight of these forms can be assigned. Each form can be associated with a different Partitioned Group Number (1-8). The form is used to associate dialed or modified strings to routing patterns (1-640). An associated Call Type field for each Dialed String entry is used to identify the call type (such as, international, operator assisted, FNPA, HNPA, etc,).

Completing the ARS Digit Conversion Table

This form is used to modify dialed public network numbers to private network numbers, other ARS numbers, or extensions so as to route associated calls by the private network (AAR). Its purpose is to save toll charges and to allow users to dial calls using public numbers. In addition, unauthorized public calls can be intercepted and routed to an attendant or given intercept treatment.

Completing the Node Number Routing Table

Complete this form if a routing pattern is not specified in the AAR Analysis form. This form specifies the routing pattern associated with each node in a private network. NNR is a required capability for Extension Number Portability (ENP) and is associated with the Uniform Dial Plan (UDP). UDP extensions can be routed to a specified node using its associated pattern and allows a UDP routing choice based on node numbers or on location codes.

Completing the Remote Home Numbering Plan Area

The form is used for the translating of 3-digit codes in the range of 000–999. The form consists of ten pages of 100 codes each: 000-099, 100-199, 200-299,...800-899, 900-999. Up to 32 RHNPA Tables may be administered. Each screen form provides fields for the selection of up to 12 Routing Pattern choices. Each Code is assigned a Routing Pattern from the 12 routing pattern choices that can be assigned on the form. It is not necessary to assign all 12 choices.

The form can be used to translate 3-digit codes in addition to the translations provided by the ARS Analysis Table

Enter a routing pattern number from the routing patterns listed (1-12) for each 3-digit code to receive additional translations. Ranking of Pattern choices is not pertinent, however, because the default value for each code is 1, the Routing Pattern assigned to Pattern Choice 1 should be the one used most frequently.

Completing the ARS Toll Table Form

This form is used to specify whether calls to central office codes are toll or non-toll type calls.

This 800-entry table consists of eight screen forms of 100 office codes each: 200–299, 300–399,...800–899, 900–999. Up to 32 ARS Toll Tables may be completed. The default value for each office code is ‘‘y’’. This implies that all calls are toll calls. To identify those calls within the Table that are not toll calls, change the ‘‘y’’ to ‘‘n’’ beside the appropriate office codes.

Toll Tables are associated with the terminating NPA of a given trunk group. They are always required for those trunk groups assigned a Prefix Mark of 2 or 3 on the Routing Pattern form. Refer to Prefix Mark (described earlier under ‘‘Completing the ARS Routing Patterns Form’’) for additional information on Prefix Marks.

Hardware Requirements

None.

Automatic Transmission and Measurement System (ATMS)

To be provided.

Automatic Wakeup

Allows attendants, front desk users, and guests to request that a wakeup call be placed automatically to a certain extension number at a later time. Wakeup requests may be placed from 5 minutes to 23 hours and 55 minutes in advance of the wakeup call.

NOTE:
A wakeup call cannot be programmed for a Vector Directory Number.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -Auto-wkup
Attendant Console	Feature Button Assignments -Auto-wkup
Class of Service	Console Perms
Feature Access Codes	Announcement Access Code
Feature Access Codes For Hospitality Features	Automatic Wakeup Call Access Code Voice Do Not Disturb Access Code Verify Wakeup Announcement Code
Hospitality-Related System Parameters	Announcement Type Length of Time To Remain Connected To An Announcement Announcement Ports Auxiliary Board For Announcement Extension To Receive Failed Wakeup LWC Messages Extension of Journal/Schedule Printer Time of Scheduled Wakeup Activity Report Time of Scheduled Wakeup Summary Report Routing Extension On Unavailable Voice Synthesis

- Station Forms—Assign an ‘‘auto-wkup’’ button to 510, 515, or 7400 series voice terminal equipped with a display.
- Attendant Console Form—Assign an ‘‘auto-wkup’’ button to the attendant console.
- Class of Service Form—Assign the correct console permissions so the attendant console can place wakeup requests for voice terminals.
- Feature Access Codes Form—Assign Announcement Access Code.
- Feature Access Codes for Hospitality Features Form—Assign Automatic Wakeup Call Access Code used for voice prompting. Assign Voice Do Not Disturb field, and Verify Wakeup Announcement codes.

- Hospitality-Related System Parameters Form—Assign the type of automatic wakeup announcement the hotel guest will receive.
  - — Assign the announcement ports if the voice synthesis was entered for the announcement type.
  - — Assign an auxiliary board for announcement if external is used for announcement type.
  - — Assign extension number to receive unsuccessful Wakeup LWC messages.
  - — Assign extension number to the journal/schedule printer.
  - — Assign time to receive the scheduled wakeup activity report.
  - — Assign time to receive scheduled wakeup summary report.
  - — Assign length of time to remain connected to announcement.
  - — Assign extension number (or 0 for the attendant) to which a call will be placed during voice synthesis entry of a wakeup message request when a voice synthesis port is not available.

Hardware Requirements

If voice prompting is used, a TN725B Speech Synthesizer circuit pack is required. Each circuit pack has four ports to provide voice prompting. If speech synthesis is selected for wakeup call announcements, two ports must be reserved for wakeup announcements.

If recorded announcements are used, a model HQD614B Recorder/Announcer manufactured by the Audichron Company is required. Each Recorder/Announcer requires four trunk ports which must be on the same TN763C Auxiliary circuit pack.

Basic Call Management System (BCMS)

Basic Call Management System (BCMS) provides a subset of the Call Management System (CMS) capabilities within the System's digital switch. BCMS provides real-time and historical reports which assist in the management of individual agents, Automatic Call Distribution (ACD) splits, members of measured hunt groups, trunk groups, and Vectored Directory Numbers (VDNs).

BCMS reports can be accessed and displayed on the DEFINITY® Communications System Generic 3 Management Terminal (G3-MT) (previously known as Manager I) and can be scheduled to print on a dedicated asynchronous printer associated with the System's Report Scheduler. Printout intervals and associated schedules are assigned using ''report scheduler'' administration commands on the G3-MT. (Refer to the ''Report Scheduler'' elsewhere in this chapter for

administration information associated with the Report Scheduler and its dedicated System printer interface.)

NOTE:
A complete description of BCMS can be found in *Generic 1 and Generic 3—Feature Description*, 555-230-201, and in *Generic 1 and Generic 3—Basic Call Management (BCMS) Operations*, 555-230-703.

Administration

To implement this feature, complete the following forms.

Form	Field
Hunt Groups	Measured
Trunk Groups	Measured
Feature-Related System Parameters	BCMS Parameters -Measurement Interval -System Printer
VDN	Measured

- Hunt Group, Trunk Group, and VDN Forms—Assign the Measured field on the Hunt Group, Trunk Group, and VDN forms as one of the following:
  - internal - measured by BCMS (internal to the digital switch)
  - external - measured by CMS adjunct (external to the digital switch)
  - both - measured by both BCMS and the CMS adjunct
  - none - not measured (default).
- Feature-Related System Parameters Form—Assign either ''hour'' or ''half-hour'' in the Measurement Interval field associated with the BCMS Parameters to indicate the interval to be used in polling and reporting measurement data. Assign the extension of the system printer in the System Printer Extension field. Assign the number of lines printed on each page by the system printer in the Lines Per Page field.

Hardware Requirements

None (refer to the ''Report Scheduler'' elsewhere in this chapter for associated printer interface requirements).

Bridged Call Appearance—Multi-Appearance Voice Terminal

Allows multi-appearance voice terminal users to have an appearance of another user's primary extension number. The bridged call appearance can be used to originate, answer, and bridge onto calls to or from the other user's primary extension number.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Bridged Call Alerting
	Button/Feature Button Assignments -brdg-appr

- Station Forms—Assign ''brdg-appr'' to a 2-lamp button. In the BTN field, enter the button number of the call appearance on the principal voice terminal that is being bridged. Enter the principal's extension in the ''Ext'' field. Enter ''y'' or ''n'' in the Bridged Call Alerting field to enable or disable the audible signal on bridged call appearances. One button must be assigned for each bridged appearance. If the principal has three call appearances, the bridging extension must have three bridged appearances assigned in order to emulate the principal's extension. Less than a full complement of bridged extensions can be assigned, but call appearance emulation (tracking) is on a one-for-one basis.

Hardware Requirements

None.

Bridged Call Appearance—Single-Line Voice Terminal

Allows a multi-appearance voice terminal to have an appearance of a single-line voice terminal's extension number. The appearance of the single-line terminal's extension number at a multi-appearance terminal is called a bridged call appearance.

The bridged call appearance can be used to originate, answer, or bridge onto an existing call to or from the single-line user's extension number.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Bridged Call Alerting Button/Feature Button Assignments -abrdg-appr

- Station Forms—Assign ''abrdg-appr'' to a 2-lamp feature button. Enter the principal's extension in the dynamic field, ''Ext'' Enter ''y'' or ''n'' in the Bridged Call Alerting field to enable or disable the audible signal on bridged call appearances. One button must be assigned for each bridged appearance to a single-line voice terminal.

Hardware Requirements

None.

Business Communications/Personal Terminals

The System supports the following special purpose terminals:

- AT&T Personal Terminal 510D
- 515 Business Communications Terminal (BCT).

The 510D integrates voice and data transmission into a single terminal. It has an integral data module and provides a Digital Communications Protocol (DCP) channel interface to the digital switch. The 510D can serve as a remote on-premises administration terminal.

The 515 BCT integrates voice and data into a single terminal. It has an integral data module and provides a DCP channel interface to the digital switch. The 515 BCT provides a standard EIA RS-232C interface and can serve as a remote on-premises administration terminal or as a standard data terminal.

Administration

To implement this feature, complete the following forms.

Form	Field
510D	All
515 BCT	All
Data Line Data Module	All

Hardware Requirements

510D Form—Requires a port on a TN754B/TN7400A Digital Line circuit pack.

515 BCT Form—Requires a port on a TN754B/TN7400A Digital Line circuit pack.

Data Line Data Module Form—Requires an ADU and a port on a TN726B Data Line circuit pack when the terminal is used as a remote on-premises administration terminal or as a standard data terminal.

Busy Verification of Terminals and Trunks

Allows attendants and specified multi-appearance voice terminal users to make test calls to trunks, voice terminals, and hunt groups [Direct Department Calling (DDC) and Uniform Call Distribution (UCD) groups]. These test calls check the status of an apparently busy resource.

NOTE:
Busy Verification of Vector Directory Numbers will be denied.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Feature Button Assignments -verify
Station (multi-appearance) (this feature is best used on a display-equipped voice terminal)	Button/Feature Button Assignments -verify

- Attendant Console Form—Assign a ‘‘Verify’’ button.
- Station Forms—Assign a ‘‘Verify’’ button per multi-appearance voice terminal.

Hardware Requirements

None.

Call by Call Service Selection

Allows the System to set up, on a call-by-call basis, various voice and data services and/or features for a particular call. Services/Features such as MEGACOM® service, ACCUNET® digital service, and INWATS can be integrated onto a single transmission facility (ISDN-PRI trunk group) with flexible assignment of trunks to the Service/Feature being used. Calls such as an incoming 800 Service call requiring through switching as an Outgoing WATS call can be routed via the same facility.

NOTE:
The Call by Call Service Selection feature is available when the ISDN-PRI option on the System-Parameters Customer-Options form has been enabled.

Administration

To implement this feature, complete the following forms.

NOTE:
In addition to the following administrable forms, the Network Facilities form in Chapter 4, which is a display-only form, provides a listing of the predefined services and features that are available to support the Call by Call Service Selection feature.

Form	Field
ISDN-PRI Trunk Group	Service Type Usage Alloc
Routing Patterns	IXC Service/Feature Band

- ISDN-PRI Trunk Group Form—Enter ''cbc'' in the Service Type field (up to ten ISDN-PRI trunk groups can be assigned with a Service Type of cbc). If the Usage Alloc field is administered as ''y'', two additional Call by Call related pages of the trunk group form are displayed. Complete all associated fields on the form as required.
- Routing Patterns Form—Complete all fields including the following:
  - — IXC—Enter three digits to represent the Inter-Exchange Carrier (IXC) which will be used to carry an associated call. If no entry is provided, calls will be carried by the presubscribed carrier.
  - — Service/Feature—Enter the network provided Service/Feature for establishing an associated call. Refer to the ''Network Facilities'' form for a list of valid Services/Features (MEGACOM service, ACCUNET digital service, INWATS, etc.)
  - — Band—If the Service/Feature field is administered as ''outwats-bnd'', the Band field will be displayed. Enter the wats band to be used for carrying the call.

Hardware Requirements

None (refer to ''ISDN-PRI Trunk Group'' elsewhere in this chapter for trunk group hardware requirements).

Call Coverage

Provides automatic redirection of certain calls to alternate answering positions in a Call Coverage path.

NOTE:
A Vector Directory Number cannot be administered as a Coverage Point.

There are two reports that provide measurement information about call coverage.

- The Coverage Path Measurement Report describes coverage activity as it relates to the coverage paths.

- The Principal Coverage Measurement Report describes coverage activity as it relates to the principal extensions.

  For each report, there is a selection form that lists the specific coverage paths or principal extensions to be measured. For more detailed information on these reports and their associated commands, refer to *Generic 3r—System Reports*, 555-230-510.

Administration

To implement this feature, complete the following forms.

Form	Field
Call Coverage Answer Group	All
Call Coverage Paths	All
Feature-Related System Parameters	Coverage—Don't Answer Interval For Subsequent Redirection (rings) Coverage—Caller Response Interval (seconds) Keep Held SBA at Coverage Point
Feature Access Codes	Send All Calls Activation Send All Calls Deactivation Transfer into AUDIX
Hunt Groups	Coverage Path
Terminating Extension Group	Coverage Path
Station	Coverage Path Redirect Notification Coverage Msg Retrieval Permission Button/Feature Button Assignments -consult -cov-cback -goto-cover -send-calls (Type:__Grp:__)
Trunk Group APLT ISDN_PRI Tie	Internal Alert

  - Call Coverage Answer Group Form—Establish coverage answer groups.

- Call Coverage Paths Form—Establish desired coverage paths.
- Feature-Related System Parameters Form—Verify or complete Coverage Don't Answer Interval for Subsequent Redirection (rings), Keep Held SBA at Coverage Point, and Coverage-Caller Response Interval (secs) fields.
- Feature Access Codes Form—Verify or assign a ''Send All Calls Activation and Deactivation'' code, if desired. If required, enter the digits that must be dialed (1–3 digits) to have the caller transferred to the called party's AUDIX mail .
- Hunt Groups Form—Assign coverage path to groups, as desired.
- Terminating Extension Group Form—Assign coverage paths to groups as desired.
- On principal's Station Form—(the one to whom the call was first directed):
  - — Assign a Call Coverage Path.
  - — Complete Redirect Notification field (which causes the principal's voice terminal to receive a half ring on calls that redirect to coverage). This field is common to Call Coverage and Call Forwarding.
  - — Complete Coverage Msg Retrieval Permission field (which allows any user in the principal's call coverage path to retrieve the principal's Leave Word Calling messages).
  - — Assign a Go to Cover (goto-cover) button, if desired.
  - — Assign a Send All Calls (send-calls) button, if desired.
- On covering user's Station Form (the one to whom a call redirects), assign the following buttons, as desired:
  - — Consult
  - — Coverage Answer Group Numbers (in-call-id field)
  - — Coverage Call Back (''cov-cback'')
  - — Send All Calls.
- Station Form—On voice terminals where users will place calls that can redirect to Coverage, assign a Go to Coverage (goto-cover) button, if desired.
- APLT, ISDN-PRI, and Tie Trunk Group Forms—Assign ''y'' to the Internal Alert field to specify that internal ringing and call coverage will be used for incoming calls on these trunk groups.

Call Coverage Guidelines and Examples

The examples that follow illustrate some of the practical aspects of Call Coverage. Each System must be administered to meet its individual needs.

Three typical coverage arrangements are as follows:

- Executive Coverage

  Provides a principal with call redirection to covering users having a close working relationship with the principal. Because of the status of the principal, personalized answering should be provided. Also, the principal may or may not choose to answer his or her own calls.

  An example of this form of coverage is when a principal's calls are redirected to a secretary. The secretary would be informed of the principal's daily schedule and other pertinent facts such as the importance of certain calls. The secretary could provide personalized answering by answering calls with the principal's name.

  If the secretary is unavailable to answer the coverage call for the principal, the call redirects to a backup answering position (personalized answering should be provided at the backup position).

- Middle Manager Coverage

  Provides a group of principals with call redirection to one or more covering users (such as a secretary). The secretary should have some knowledge of the principal's daily schedule. A backup answering position should be provided in case the secretary is unavailable.

- General User Coverage

  Provides less-personal coverage for a broader spectrum of users. Covering users typically consist of a group or pooled answering arrangement. With this type of arrangement, coverage calls may be distributed among the members of the answering group.

As an example of how to provide a particular cover arrangement, the following provisions for the Executive Coverage arrangement are given.

- Determine if the secretary and backup position have a call display capability.
  - — If so, Coverage Answer Groups are not required.
  - — If not, establish a unique Coverage Answer Group for each one without a display. Specify the applicable extension number. The Coverage Answer Group will contain one member. Establish two groups, if required.

NOTE:
If the secretary and/or the backup answering position are in a Coverage Answer Group, each will receive one redirected call for the executive at any given time. Calls do not ring a Coverage Answer Group member already busy on a call to the group. For frequently called executives, it is desirable that the secretary and possibly the backup answering position have a digital display capability.

- Establish a unique Call Coverage Path for the executive.
  - — If the secretary will screen the calls, specify Cover All Calls as the redirection criteria.
  - — If the executive will answer calls, specify Active, Busy, Don't Answer, Active/Don't Answer, or Busy/Don't Answer as desired.
  - — Specify the secretary and the backup position [or the Coverage Answer Group(s) containing the secretary's and backup position's extension numbers] as the coverage points in the path.
- Optionally, specify a Send All Calls button on the executive's voice terminal. If someone else answers the executive's calls, the button is not needed.
- Specify a Send All Calls button and a Consult button on the secretary's voice terminal. Specify a Coverage ICI button if the secretary doesn't have a call display capability. Send All Calls is needed if the secretary will be unavailable for a period of time. Consult is needed to enable private consultation with the executive during an established call. Coverage ICI is needed to identify the call as a call to the executive rather than a personal call to the secretary.
- Specify a Consult button and a Coverage ICI button on the backup position's voice terminal for the same reasons these buttons were specified for the secretary.

Hardware Requirements

None.

Call Detail Recording (CDR)

NOTE:
This section deals with Call Detail Recording (CDR). For information on the Intra-switch CDR feature, refer to the ''Intra-switch CDR'' coverage elsewhere in this chapter.

Records detailed call information on all incoming and outgoing calls on specified trunk groups and sends this information to a CDR output device. Internal calls are not recorded. The CDR output provides details that can be used by the System Manager to compute call costs, allocate charges, analyze calling patterns, and keep track of unnecessary calls.

Figure 3-5 provides typical System CDR connections.

Administration

The System forms listed in the first table that follows must be completed to assign CDR. In addition, depending on the CDR output device connection to the digital switch, System forms as listed in either the second, third, fourth, or fifth table must also be completed.

Form	Field
Trunk Groups: Access APLT CO CPE DMI-BOS DID FX RLT Tandem Tie WATS	CDR Reports Answer Supervision Timeout
Personal Central Office Line Groups (PCOLGs)	CDR Reports
Loudspeaker Paging and Code Calling Access	CDR
CDR System Parameters	All
Inter-Exchange Carrier (IXC) Codes	All
Feature Access Codes	CDR Account Code Access Code

CDR Output Device Connected To MPDM/MTDM:

Form	Field
System Access Port Data Module	All
MPDM/MTDM Data Module	All

CDR Output Device Connected To Data Line Circuit Pack and Asynchronous Data Unit (ADU):

Form	Field
Data Line Data Module	All
System Access Port Data Module	All

CDR Output Device Connected To 212A-type Modem:

Form	Field
Modem Pool Group (integrated)	All, if not already assigned; otherwise, verify that a circuit pack assignment has been made.
Station-2500 type	All

- Trunk Group Forms—Complete CDR Reports field. Enter a number 0–250 in the Answer Supervision Timeout field. This field specifies the amount of time in seconds at which the System will assume it received answer supervision for a call. This interval begins as soon as the outgoing trunk is seized.
- Personal Central Office Line Groups Form—Complete CDR Reports field.
- Loudspeaker Paging and Code Calling Access Form—Complete CDR field.
- CDR System Parameters Form—Complete all CDR Parameters fields as required.
- Inter-Exchange Carrier (IXC) Codes Form—Assign IXC codes where applicable to allow identification of the IXC on the CDR report. If no carriers are specified, the CDR record will contain a ‘‘0’’ in the IXC code field on the CDR printout.

- Feature Access Codes Form—Complete CDR Account Code Access Code field.

Complete the following forms if the CDR output device is connected to MPDM/MTDM:

- System Access Port Data Module Form—Complete all fields as required. An associated This form activates a channel on the TN726B which connects via software to the TN553 (packet bus). MPDM/MTDM Data Module form must also be completed to assign the associated MTDM interface from the CDR output device to the switch.
- MPDM/MTDM Data Module Form—Complete all fields if a 700A-type MPDM is to be used. The 700A-MPDM/MTDM form can be used to connect the CDR output device to a port on a TN754B/TN7400A Digital Line circuit pack.
- CDR System Parameters Form—Complete the Primary/Secondary Output Layout, and Primary/Secondary Output Extension fields.

Complete the following forms if the CDR output device is connected to a TN726B Data Line circuit pack via a Z3A ADU.

- System Access Port Data Module—Complete all required fields.
- Data Line Data Module Form—Complete all fields as required. The Data Line circuit pack provides an alternative to MPDM and 212A-type modems for interconnection to CDR output devices and is the preferred method. A Data Line circuit pack must be assigned using the Circuit Pack Administration form as described in *Generic 1 and Generic 3—Installation and Test* (555-230-104). Up to eight ports are provided. A Z3A Asynchronous Data Unit (ADU) is required at the CDR output device.
- CDR System Parameters Form—Complete the Primary/Secondary Output Layout, and Primary/Secondary Output Extension fields.

Complete the following forms if the CDR output device is connected to an integrated modem pool.

- Modem Pool Group Form—Complete all fields. Do not fill out this form if the CDR output device is connected to an MPDM. This is used with the TN758 Pooled Modem circuit pack.
- Station Form—Complete the required fields for a 2500-type voice terminal. This is used with the TN742, TN746B, or TN769 Analog Line circuit pack and provides a dial-up extension for the associated 212-type modem.
- CDR System Parameters Form—Complete the Primary/Secondary Output Layout, and Primary/Secondary Output Extension fields.

Hardware Requirements

The type of data module required depends on how the CDR output device is connected to the digital switch.

- A Modular Processor Data Module (MPDM) must be connected to a port on a TN754B/TN7400A Digital Line circuit pack if the CDR output device is a Printer, AT&T TELESEER® CDR Unit.
- A Modular Trunk Data Module (MTDM) must be connected to a port on a TN754B/TN7400A Digital Line circuit pack if the CDR output device is a Host Computer or a 61 Local Storage Unit (LSU).

  NOTE:
  This will not work if previously connected to a Dimension or a 62 LSU on a System 85.

- If the CDR output device is connected to a conventional modem, a TN758 Pooled Modem circuit pack and a TN742, TN746B, or TN769 Analog Line circuit pack must be installed.
- If the CDR output device is connected to a Data Line Data Module, a TN726B Data Line circuit pack is required.

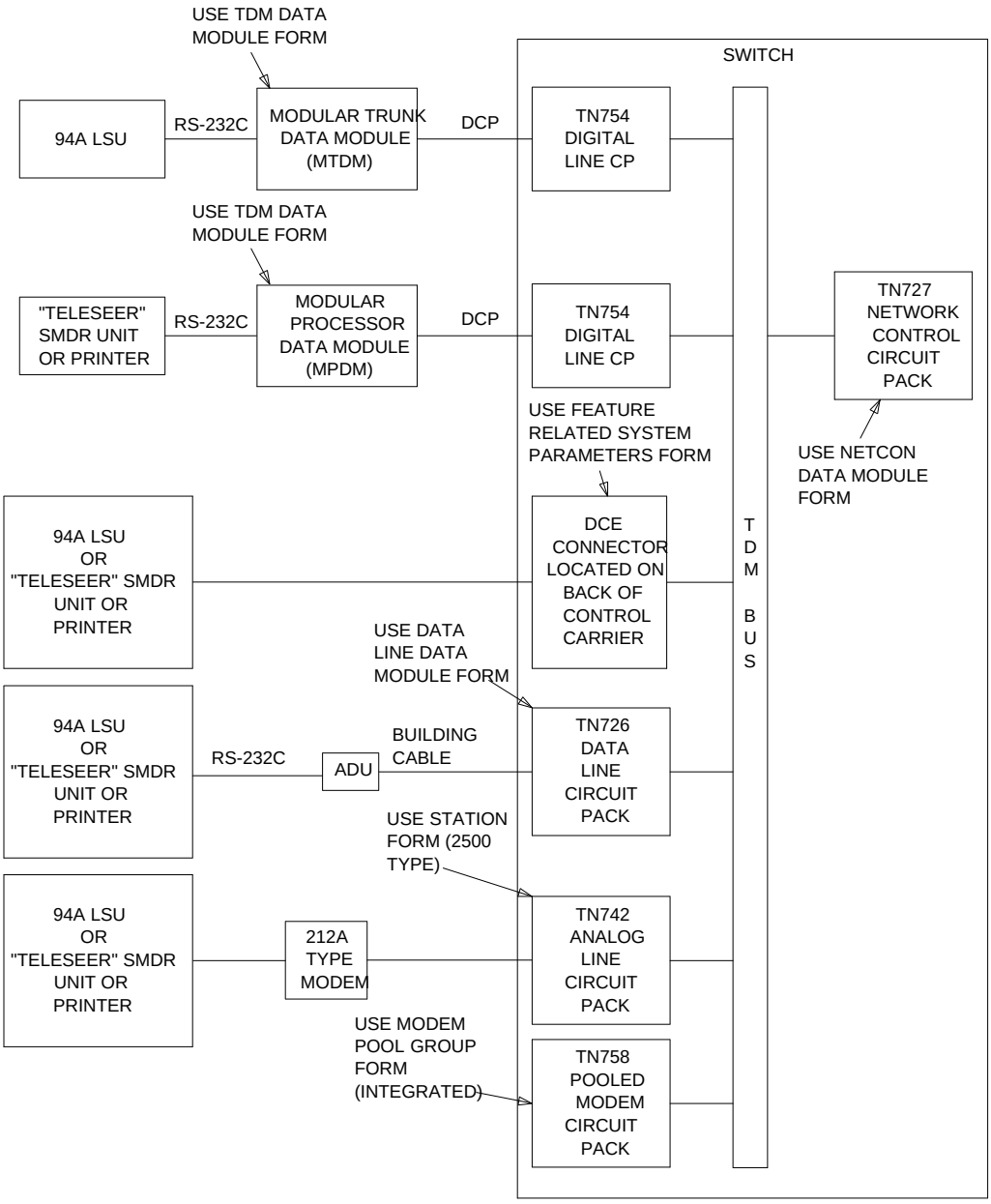


Figure 3-5. Typical CDR Connections

Call Detail Recording (CDR) Account Code Dialing

Allows certain calls to be associated with a particular project or account number by dialing a CDR Account Code feature access code and then the appropriate account code before making outgoing calls. This information is recorded by the CDR feature and can be used later for accounting and/or billing purposes. (The Forced Entry of Account Codes feature is covered elsewhere in this chapter.)

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	CDR Account Code Length
CDR System Parameters	CDR Account Code Length

- Feature Access Codes Form—Assign an appropriate access code to the CDR Account Code Access Code field (default is *6).
- CDR System Parameters Form—Complete CDR Account Code Length field.

Hardware Requirements

None.

Call Detail Recording (CDR), Intra-switch

NOTE:
For administrative information on CDR, refer to the ''Call Detail Recording (CDR)'' section in this chapter.

An administrable option that allows CDR records to be generated for some internal calls. Interactions exist with the administration of group/member/VDN recording on CDR records.

To generate Intra-switch CDR records, one of the stations must be optioned for the Intra-switch CDR call. Intra-switch will generate a record based on the DIALED number (assuming the originator is not intra-switch optioned), but the number displayed in the dialed number field is determined by the group, member, and VDN administration.

Some calls may look like intra-switch CDR calls, but will result in trunk calls. For example, a call from a station to a VDN (Vector Directory Number) will end up an outgoing call on trunk T1. Such calls will not generate Intra-switch CDR records.

Administration

To implement this feature, complete the following forms.

Form	Field
Intra-switch CDR	All
Feature-Related System Parameters	Intra-switch CDR

The Intra-switch CDR form has 100 fields. Allowed extensions on the form must correspond to Terminating Extension Groups (TEGs), stations, data modules, VDNs, or hunt groups. Attendants are not allowed to be optioned on the Intra-switch CDR form. To add the Intra-switch feature to an extension, add the extension to the form. The *change intra-switch-cdr* and *display intra-switch-cdr* commands are supported for this feature.

NOTE:
The Intra-switch CDR feature is not supported for ASAI stations.

Call Detail Recording (CDR) Privacy

Allow for special considerations for call privacy needed for transferred, attendant handled, and conferenced international calls.

Administration

To implement this feature, complete the following forms.

Form	Field
CDR System Parameters	Privacy - Digits to Hide

- CDR System Parameters Form—Enter the number of digits (1–7) that are to be blanked from the CDR record in the Privacy - Digits to Hide field.

Hardware Requirements

None.

Call Forwarding—All Calls

Allows all calls to an extension number to be forwarded to a selected internal extension number (may be a VDN), external (off-premises) number, the attendant group, or a specific attendant. This feature is activated or deactivated by dial access code or by a Call Forwarding button.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Call Forwarding Activation and Deactivation
Station (multi-appearance)	Redirection Notification Button/Feature Button Assignments -call-fwd
Class of Service	Call Forwarding (0–15)

- Feature Access Codes Form—Verify Call Forwarding Activation and Deactivation field access codes have been assigned.
- Station Forms—Complete Redirect Notification field (which causes the forwarding terminal to receive a half ring on calls that forward). This field is common to Call Coverage and Call Forwarding. Assign a Call Forwarding (call-fwd) button, if desired.
- Class of Service Form—Verify Call Forwarding field has the correct permission.

Hardware Requirements

None.

Call Management System (CMS) Interface

The CMS is an adjunct to the System and is used to collect and process Automatic Call Distribution (ACD), trunk, and call vectoring data where applicable. The CMS uses this data to generate various reports on the history of agents, splits, trunks, and call vectors. These reports can be stored for later use or can be displayed on a terminal for real-time information. Refer to Figure 3-5 for a typical ACD CMS arrangement.

Also, refer to the ACD feature coverage elsewhere in this chapter for a listing of associated forms that must be administered to implement the ACD feature.

To implement CMS features, refer to Automatic Call Distribution elsewhere in this chapter.

Administration

To implement this feature, complete the following forms.

Form	Field
Trunk Group (all)	Measured
Hunt Group (all)	Measured
VDN (all)	Measured
Modular Processor Data Module	All
Processor Channel Assignment	All (for CMS link)
Interface Links	All (for CMS link)
CDR System Parameters	Automatic Call Distribution (ACD) Log-in Identification Length

- Hunt Group, Trunk Group, and VDN Forms—Complete the form that applies when Measured is answered either ‘‘external’’ or ‘‘both’’. Up to 99 hunt groups, 255 trunk groups, 2,050 measured agents, and 2,000 VDNs can be measured.
- Modular Processor Data Module Form—Complete all fields as required.
- Processor Channel Assignment Form—Complete the required fields on the form for CMS interface. Enter the CMS link number from the Interface Links Form.
- Interface Links Form—Complete all fields on the form for one link, as required. Assign the extension of the X.25 data module to this link (from the Data Module form).

NOTE:
When administering the Interface Links form using a *change communications-interface links* command, all fields may be initially entered except the Enable field. After completing and administering the Processor Channel assignment form, recall the Interface Links form using the *change* command and then enable the appropriate links by entering ‘‘y’’ in the Enable fields.

- CDR System Parameters Form—Enter the number of digits the agent must dial to log into the ACD split in the CDR Account Code Length field.

  NOTE:
  For CMS, this field cannot be ‘‘0’’.

Hardware Requirements

The CMS interface requires one port on a TN754B/TN7400A Digital Line circuit pack and a Modular Processor Data Module (MPDM) or PI EIA link. Each auxiliary queue warning lamp requires one port on a TN742, TN746B, or TN769 Analog Line circuit pack. A 21C-49 indicator lamp may be used as an auxiliary warning lamp.

Call Park

Allows users to put a call on hold and then retrieve the call from any other voice terminal within the system.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Call Park Access Code Answer Back Access Code
Feature-Related System Parameters	Call Park Timeout Interval (minutes)
Station (multi-appearance)	Button/Feature Button Assignments -call-park
Console Parameters	Common Shared Extensions-(all fields)

- Feature Access Codes Form—Verify Call Park Access Code and Answer Back Access Code fields are completed.
- Feature-Related System Parameters Form—Complete Call Park Timeout Interval (minutes) field.
- Station Forms—Assign Call Park button to voice terminal, if desired.
- Console Parameters Form—Complete Common Shared Extension fields.

Hardware Requirements

None.

Call Pickup

Allows voice terminal users to answer calls to other extension numbers within the user's specified Call Pickup group.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Call Pickup Access Code
Pickup Groups	All
Station (multi-appearance)	Button/Feature Button Assignments -call-pkup

- Feature Access Codes Form—Assign a call pickup access code in the Call Pickup Access Code field (used for voice terminals that do not have a Call Pickup button assigned on the Station form).
- Pickup Groups Form—Establish pickup groups.
- Station Forms—Assign Call Pickup (call-pkup) buttons to voice terminals, if desired.

Hardware Requirements

None.

Call Prompting

Provides flexible call handling based on information (such as, touch-tone digits) collected from a calling party. Applications such as an automated attendant function, limited Data In/Voice Answer (DIVA) capability, data collection, and message collection is supported as follows:

- **Automated Attendant**—Allows the calling party to enter the extension of the party to be called. The call is routed to the desired extension.
- **Data In/Voice Answer**—Allows the calling party to hear a particular announcement based on the digits entered.

- **Data Collection**—Allows the calling party to enter data which could then be used by a host/adjunct to assist in call handling. This data, for example, may be the calling party's account number.
- **Message Collection**—Allows the calling party the option to leave a message for an extension (such as, split/hunt group, station, etc.) or of receiving other call treatment (such as, queue to split, if call vectoring is enabled).

Call Prompting is administered using a set of specialized Call Vector commands. Refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for detailed information on the Call Prompting and Call Vector features.

Administration

To implement this feature, complete the following forms.

NOTE:
The Vector (Prompting) option must be enabled on the System-Parameters Customer-Options form before associated Call Prompting forms and fields on forms can be administered.

Form	Field
Vector Directory Number	All
Hunt Groups	Vector
Call Vector	All
Station (multi-appearance)	Button/Feature Button Assignments - callr-info
Attendant Console	Feature Button Assignments -callr-info

- **Vector Directory Number Form**—Complete one or more VDN forms for each Call Vector to be defined. Up to 3,000 VDNs may be administered in the System.
- **Hunt Group Form**—Enter ''y'' in the Vector field in each Split (ACD Hunt Group) to be controlled.
- **Call Vector Form**—Complete a Call Vector form for each Call Vector to be defined. 512 Call Vector forms are available for administration in the System.
- **Station Forms**—Assign Caller Information (callr-info) buttons to multi-appearance voice terminals equipped with a display, as desired.

- **Attendant Console Forms**—Assign Caller Information (callr-info) buttons to attendant consoles as required.

Hardware Requirements

The announcement capabilities of the Call Prompting feature will require either:

- A TN750 Integrated Announcement circuit pack

  or

- An external announcement facility.

NOTE:
Each external announcement requires a port on a TN742, TN746B, or TN769 Analog Line circuit pack.

The TN744 Call Classifier circuit pack is required to provide Touch-Tone Receivers (TTRs) for the Call Prompting feature. Each TN744 provides eight touch tone receivers. Up to 25 TN744s are allowed in the System.

NOTE:
TN744s are not to be used as general TTRs. Other TTRs (TN748C) must be used for normal call processing and maintenance-related features. See also Call Vectoring hardware requirements elsewhere in this chapter.

Call Vectoring

Provides a flexible way to process network and internal calls. Call Vectoring is used to control the type of call processing an incoming network or internal call receives. Vectoring allows calls to be directed to on-premises or off-premises destinations, to a hunt group or split, or to a treatment such as announcement, forced disconnect, forced busy, or delay.

A vector step may request routing instructions from an adjunct (see Outbound Call Management feature). In addition, the Lookahead Interflow feature makes use of Call Vectoring for its operation.

Vectors are accessed by Vector Directory Numbers (VDNs). A VDN maps to one vector. However, several VDNs may map to the same vector. VDNs are ‘‘soft’’ switch extension numbers that **are not** assigned to a physical equipment location. The VDN determines which vector is activated when a call terminates to the VDN. When a call enters a Call Vector, its routing and treatment will be determined by up to 15 vector commands per vector.

NOTE:
It is not recommended that you change a vector while it is processing calls since calls already in the vector could experience problems. Instead, add a new vector and change the VDN to point to the new vector.

An answering party's display-type terminal, for example, can be used to display information (Parts Dept) associated with the VDN and, thus, the user can respond to a call with knowledge of the called number. This operation provides a ''Dialed Number Identification Service''.

The five primary ways that a VDN can be used to access a vector are as follows:

- **Internal Call**—Dialing the VDN extension from a station
- **CO Trunk**—A CO trunk may be mapped to a VDN (as an incoming destination or night service extension)
- **Non-CO Trunk**—An incoming DID call may be routed to a VDN extension
- **Listed Directory Numbers (LDN)**—A VDN may be a night destination for a LDN.
- **From Another Vector**–Through the ''route-to number <VDN-ext> if ___'' step (see below). This is similar to an internal call.

Refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a complete description of Call Vectoring and associated features.

Administration

The Vectoring (Prompting) option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Vector Directory Number	All
Hunt Group	Vector ACD
Call Vector	All
Trunk Groups (all)	Incoming Destination Night Service Trunk Member (Night)
Feature-Related System Parameters	Music On Hold Port Music (or Silence) On Transferred Trunk Calls

- **Vector Directory Number Form**—Complete a VDN form for each VDN to be defined. Up to 3,000 VDNs and 512 Call Vectors may be administered in the System.

- **Hunt Group Form**—Enter ‘‘y’’ in the Vector and ACD fields in each Split (ACD Hunt Group) to be vector controlled.
- **Call Vector Form**—Complete a Call Vector form for each Call Vector to be defined. Up to 512 Call Vectors may be administered in the System.
- **Trunk Group Forms**—Incoming Destination, Night Service, and Trunk Member Night fields may be directed to a VDN extension. Administer as required.
- **Feature-Related System Parameters Form**—Enter a port number for Music On Hold Port field. This is required for the ‘‘Wait ___ Seconds Hearing Music’’ Call Vector command.

  Enter a port number for the Music (or Silence) On Transferred Trunk Calls field.

Hardware Requirements

The announcement capabilities of the Call Vectoring feature will require either:

- A TN750 Integrated Announcement circuit pack

  or

- An external announcement facility.

  NOTE:
  Each announcement requires a port on a TN742, TN746B, or TN769 Analog Line circuit pack.

  Music source connected to a port on a TN763C Auxiliary Trunk circuit pack.

NOTE:
See also Call Prompting hardware requirements elsewhere in this chapter.

Call Waiting Termination

Provides for calls to busy single-line voice terminals to wait and sends a distinctive call waiting tone to the called party.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (single-line)	Call Waiting Indication

- Station Forms—Complete Call Waiting Indication field for single-line voice terminals.

Hardware Requirements

None.

Calling Party Number/Billing Number

Provides for the transmission of Calling Party Number/Billing Number (CPN/BN) from the System to an ISDN Gateway adjunct (3B2 processor) which in turn passes the information to a host or to an Inbound Call Management (ICM) adjunct (CONVERSANT® voice system) for ICM applications. The information is subsequently available for display on associated Automatic Call Distribution (ACD) agent terminals.

The CPN is the calling party's telephone number and BN is the billing number of the calling party. The CPN/BN may also contain international country codes, where applicable.

Administration—Using ASAI Link for ICM Applications

Refer to the ''Inbound Call Management'' feature elsewhere in this chapter for associated administration information.

Administration—Using bx.25 for ISDN Gateway Adjunct Applications

The Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) features must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

All ISDN-PRI and ACD related forms must be administered as described in the ISDN-PRI and ACD coverage provided elsewhere in this chapter.

Figure 3-6 shows the switch connections to the ISDN-PRI Gateway.

To implement this feature, complete the following forms.

Form	Field
ISDN-PRI Trunk Group	All fields including ''Per Call CPN/BN''
MPDM/MTDM	All
Interface Links	All
Processor Channel Assignment	All (for one link)

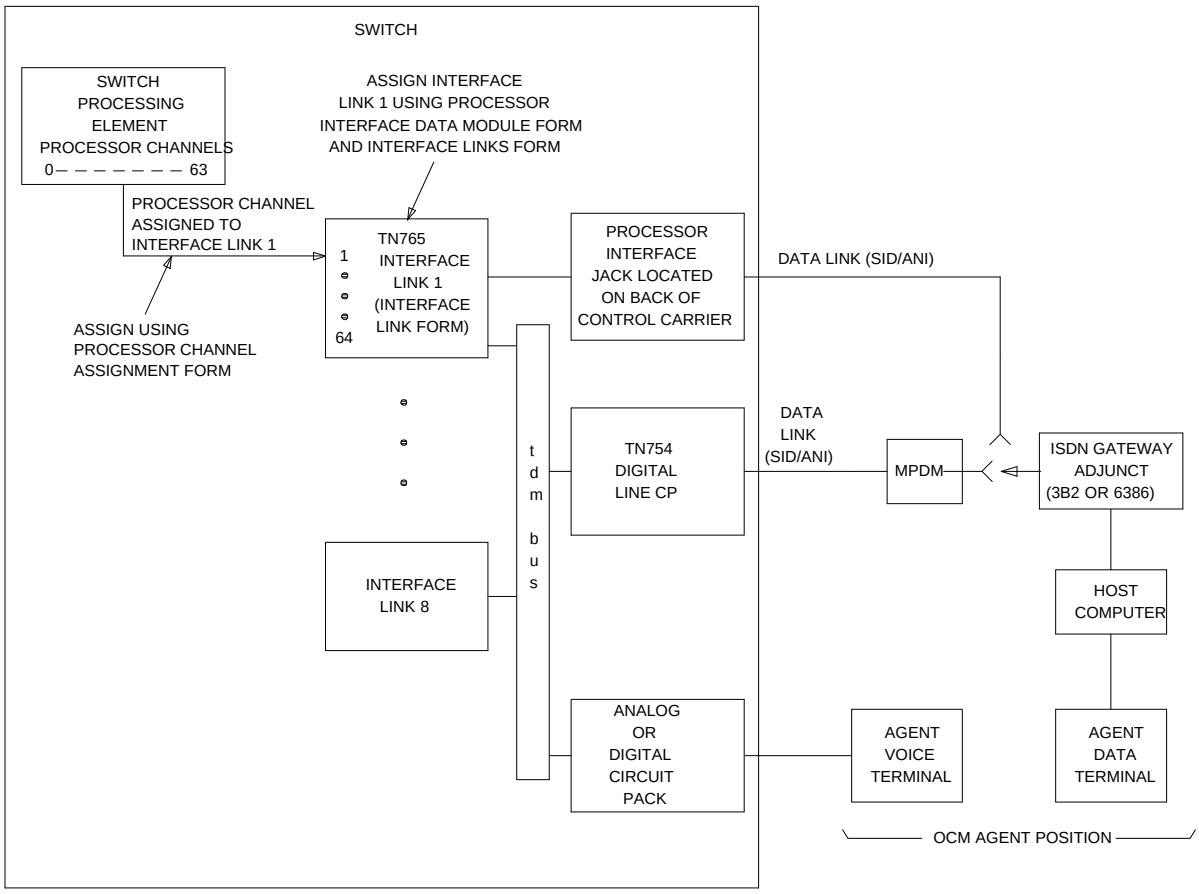
- ISDN-PRI Trunk Group—Assign all fields as required to provide an ISDN-PRI between the System and a far-end node. In the Per Call CPN/BN field, enter either ''cpn-only'', ''cpn-pref'', ''bn-only'', or ''bn-pref'' as required. The corresponding information will be sent with a call offered event report to the adjunct. If the field is blank, no CPN/BN information is sent to the adjunct.
- MPDM/MTDM Data Module Forms—Complete all fields. This provides the ISDN-Gateway data link (via Digital Line circuit pack port) to the switch.
- Interface Links Form—All (for one data link). Assign ''DCE'' in the DTE/DCE field.

  NOTE:
  When administering the Interface Links form using a *change communications-interface links* command, all fields may be initially entered except the Enable field. After completing and administering the Processor Channel Assignment form, recall the Interface Links form using the *change* command and then enable the appropriate links by entering ''y'' in the Enable fields.

- Processor Channel Assignment Form—All (for one data link). Only one interface (ISDN Gateway) can be supported in the System.

Hardware Requirements

None.



THIS ILLUSTRATION WILL BE UPDATED IN THE NEAR FUTURE.

Figure 3-6. Typical ISDN Gateway Interface to the System

Central Office Trunk Group

A Central Office Trunk Group provides access from the System to the public network through the local Central Office (CO).

Administration

To implement this feature, complete the following forms.

Form	Field
Central Office Trunk Group	All
Digit Absorption	All
DS1	All

- Central Office Trunk Group Form—Complete all fields as required.
- Digit Absorption Form—If required, complete this form when the central office is a step-by-step office. The Digit Absorption List field on the Central Office trunk group form must reference the Digit Absorption List Number entered on the form. DS1 circuit pack form—Complete all fields as required.

Hardware Requirements

A port on a TN747B Central Office Trunk or TN767 DS1 Interface circuit pack is required for each CO trunk to be assigned. A TN747B provides eight ports and a TN767 provides 24 ports.

Centralized Attendant Service

Allows services performed by attendants in a private network of switching systems to be concentrated at a central, or main, location. Each branch in a Centralized Attendant Service (CAS) has its own listed directory number (LDN) or other type of access from the public network. Incoming trunk calls to the branch, as well as attendant-seeking voice terminal calls, are routed to the centralized attendants over release link trunks (RLTs).

Administration

The Centralized Attendant Service (CAS) Branch or the Centralized Attendant Service (CAS) Main options (depending on your location) must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Feature Button Assignments -cas-backup -trunk-name
Console Parameters	CAS RLT Trunk Group Number CAS Back-Up Ext Timed Reminder on Hold Return Call Timeout (sec)
Station (multi-appearance)	Button/Feature Button Assignments -cas-backup -flash -trunk name -night serv
Release Link Trunk Group	All
Feature Access Codes	CAS Remote Hold Access Code

- Attendant Console Form—Assign ''cas-backup'' to a designated button lamp if an attendant console is available at a branch. Assign ''trunk-name'' feature button to identify the RLT name.
- Console Parameters Form—Verify ''CAS'' is administered as either main or branch and RLT Trunk Number and CAS Back-Up Ext fields are completed as required. Administer the Timed Reminder on Hold and Return Call time-out (sec) the same on all switches.

  NOTE:
  The CAS and IAS (Inter PBX Attendant service) Branch fields cannot both be administered as ''y''.

- Station Forms—Assign ''cas backup'' to a designated button lamp (an attendant console will probably not be available at a branch). It is a good idea to assign a ''night-serv'' button to one station when operating without an attendant console. Assign ''flash'' and ''trunk-name'' feature buttons as required to stations that may be handling CAS calls. Administer ''trunk name'' buttons to display-equipped voice terminals.
- Release Link Trunk Group Form—Complete all fields. Enter ''incoming'' in the Direction field if this is a CAS main location or enter ''outgoing'' if this is a CAS branch location. Assign Queue Length field to other than 0 when the direction field is outgoing.
- Feature Access Codes Form—Complete the CAS Remote Hold Access Code field. Administer the same code on all switches.

Hardware Requirements

Requires a TN760B Tie Trunk circuit pack or TN722B or TN767 DS1 circuit pack to assign a Release Link Trunk Group.

The screens below show typical Console Parameters and RLT Trunk Group forms, respectively, for a CAS Branch location.

```
                            CONSOLE PARAMETERS            Page 1 of 1

                       COS: 1                                  COR: 1
Time Reminder on Hold (sec): 60          Return Call Timeout (sec): 60
     Calls In Queue Warning: 2         Time In Queue Warning (sec): ___
      Ext Alert Port (TAAS): ______              Attendant Lockout? n
                       CAS: main              RLT Trunk Group No.: ___
            CAS Back-Up Ext.: _____         Night Service Act. Ext.: _____
                IAS (Branch)? n             IAS Tie Trunk Group No.: ____
       IAS Att. Access Code: _____   DID-LDN Only to LDN Night Ext? n
ABBREVIATED DIALING
     List1: ________       List2: ________       List3: ________
                    COMMON SHARED EXTENSIONS
               Starting Extension: 1900       Count: 4_
          ASSIGNED MEMBERS ( Installed attendant console types )
            1: principal                       5: ___________
            2: day-only                        6: ___________
            3: ___________                     7: ___________
            4: ___________
```

Typical CAS Main Console Parameters Form

```
                               TRUNK GROUP                      Page 1 of 9

      Group Number: _6               Group Type: rlt     CDR Reports? y
        Group Name: RLT BRANCH____          COR: 1_              TAC: _74
         Direction: incoming   Outgoing Display? n_
                                 Busy Threshold: 99    Night Service: 1234
                                                  Incoming Destination: 0
 TRUNK PARAMETERS
      Trunk Type (in/out): delay/delay  Incoming Rotary Timeout(sec): 5_
       Outgoing Dial Type: tone____               Incoming Dial Type: tone__
        Connected to Toll? n     STT Loss: normal    DTT to DCO Loss: normal
       Incoming Dial Tone? y
Answer Supervision Timeout? __
```

Typical CAS Main Release Link Trunk Group Form

```
                            CONSOLE PARAMETERS              Page 1 of 1

                       COS: 1_                                  COR: 1_
Time Reminder on Hold (sec): 60__         Return Call Timeout (sec): 60__
     Calls In Queue Warning: 2_         Time In Queue Warning (sec): ___
      Ext Alert Port (TAAS): ______               Attendant Lockout? n
                       CAS: branch             RLT Trunk Group No.: 10_
           CAS Back-Up Ext.: 5573           Night Service Act. Ext.: _____
               IAS (Branch)? n              IAS Tie Trunk Group No.: ____
       IAS Att. Access Code: _____    DID-LDN Only to LDN Night Ext? n
ABBREVIATED DIALING
     List1: ________       List2: ________       List3: ________
                     COMMON SHARED EXTENSIONS
              Starting Extension: 5600       Count: 4_
         ASSIGNED MEMBERS ( Installed attendant console types )
           1: principal                      5: ___________
           2: ________                       6: ___________
           3: ___________                    7: ___________
           4: ___________
```

Typical CAS Branch Console Parameters Form

```
                              TRUNK GROUP                        Page 1 of 9

       Group Number: 10             Group Type: rlt     CDR Reports? n
         Group Name: OPERATOR              COR: 1               TAC: 80
          Direction: outgoing    Outgoing Display? y
                                Busy Threshold: 60
       Queue Length: 10
    TRUNK PARAMETERS
        Trunk Type (in/out): delay/delay  Incoming Rotary Timeout(sec): 5
         Outgoing Dial Type: tone                  Incoming Dial Type: tone

          Connected to Toll? n     STT Loss: normal    DTT to DCO Loss: normal
         Incoming Dial Tone? y
 Answer Supervision Timeout? __
```

Typical CAS Branch Release Link Trunk Group Form

Class of Restriction (COR)

All System users have an assigned Class of Restriction (COR) to define their calling privileges. Restrictions can be assigned to facilities as listed in the table below. The COR specifies up to 96 different classes of call origination and termination privileges. Systems may have a single COR, one with no restrictions, or may have as many CORs (up to 96) as necessary to effect the desired restrictions. A unique COR must be defined for each combination of FRLs, calling party restrictions, called party restrictions, miscellaneous restrictions, and CCSA/EPSCS off-network restrictions.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	All
Abbreviated Dialing	COR
Access End Points	COR
Announcements	COR
Attendant Console	COR
Attendant Group	COR
Authorization Codes	COR
Console Parameters	COR
Data Module (System Access Port) (Recorded Announcement)	COR COR

Form	Field
Feature-Related System Parameters	COR
Hunt Groups	COR
Logical Agent	COR
Loudspeaker Paging and Code Calling Access	COR (1–9, all)
MPDM/MTDM Data Module	COR
Remote Access	COR (Barrier Code)
Station	COR
Terminating Extension Group	COR
Trunk Groups	COR
Vector Directory Number	COR

- Class of Restriction Form—Complete appropriate fields.
- Complete the ‘‘COR’’ fields for the following forms:
  - — Abbreviated Dialing
  - — Access End Points
  - — Announcements
  - — Attendant Console
  - — Attendant Group
  - — Authorization Codes
  - — Console Parameters
  - — Data Modules (includes MPDM, MTDM, Recorded Announcement, Data Line, and System Access Port)
  - — Feature-Related System Parameters
  - — Hunt Groups
    - DDC Group
    - UCD Group
    - ACD Split

— Logical Agent

— Loudspeaker Paging Access and Code Calling Access

— Remote Access (per barrier code)

— Station

— Terminating Extension Group

— Trunk Groups

— Vector Directory Number

Class of Restriction Guidelines and Examples

The examples which follow illustrate some of the practical aspects of assigning CORs. Each System must be administered to meet its individual needs.

Example Using Miscellaneous Restrictions

NOTE:
AAR/ARS calls do not enforce miscellaneous restrictions — FRLs are used instead (see ‘‘Example Using Calling Party Restrictions, Called Party Restrictions, and Miscellaneous Restrictions

As an illustration of miscellaneous restrictions, assume a System installation provides the following:

- Central office trunks
- WATS
- FX trunks
- Data modules
- Attendant service
- Voice terminals
- Direct Inward Dialing (DID) trunks
- Remote Access.

In an unrestricted environment, each of the preceding facilities could have the same COR. However, suppose the following requirements exist:

- Attendants cannot make data calls.
- Remote Access can be used for data calls.
- DID cannot be used for data calls except through Remote Access. (A dedicated Remote Access trunk group is not required, although one or more could be provided. This example assumes all Remote Access is via DID.)

- There are three classes of voice terminals:
  - — Those that can call anywhere, any time
  - — Those that can place local central office and in-house calls
  - — Those that can place local central office, FX, and in-house calls.

To implement the preceding requirements, a COR must be assigned to each facility or group of facilities. For simplicity, each can have a unique COR. The CORs are arbitrarily assigned as follows:

- COR 30—Local central office trunks
- COR 31—WATS trunks
- COR 32—FX trunks
- COR 33—Data modules
- COR 34—Attendant group
- COR 35—Unrestricted voice terminals
- COR 36—Voice terminals that can place in-house and local central office calls (no FX or WATS calls)
- COR 37—Voice terminals that can place in-house, local central office, and FX calls (no WATS calls)
- COR 38—DID trunk group
- COR 39—One of the remote access barrier codes (can be up to ten).

With the CORs defined, it should be individually determined which CORs cannot call other CORs. This is done as follows:

- COR 30 (local central office trunks)—No restrictions were specified for these trunks. The default values on the screen form are sufficient. No action is required, except to specify a COR number of 30.
- COR 31 (WATS)—CORs that cannot use WATS are specified as they are encountered. WATS itself is an outgoing service without any calling capabilities. Thus, Miscellaneous Restrictions are not specified on this form. The Calling Party Restriction should be ‘‘none’’ (although this restriction does not really have any meaning for an outgoing facility). Similarly, the Called Party Restriction applies to facilities capable of answering a call. Since this is not the case with WATS, ‘‘none’’ should be specified. Again, the default values are sufficient, so the COR number needs to be specified.
- COR 32 (FX)—According to the requirements for this example, no restrictions apply. Reasons are the same as for WATS. Only the COR number needs to be specified.

- COR 33 (data modules)—No restrictions apply for reasons similar to the reasons why no restrictions were assigned for WATS. Only the COR number needs to be specified.
- COR 34 (attendant group)—The attendant group cannot call COR 33 (data modules). Specify an ''n'' beside COR 33 in the Calling Permission field. Specify 34 in the COR Number field.
- COR 35 (unrestricted voice terminals)—Since no restrictions were specified, the COR number needs to be entered.
- COR 36 (no FX or WATS calls)—This COR cannot call COR 32 (FX) or COR 31 (WATS). Specify an ''n'' beside CORs 32 and 31 in the Calling Permission field. Specify 36 in the COR Number field.
- COR 37 (no WATS calls)—This COR cannot call COR 31 (WATS). Specify an ''n'' beside COR 31 in the Calling Permission field. Specify 37 in the COR Number field.
- COR 38 (DID)—This COR cannot call COR 33 (data modules). Specify ''n'' beside COR 33 in the Calling Permission field. Enter 38 in the COR Number field.
- COR 39 (Remote Access barrier code)—This COR can be used for data calls. Thus, this COR can call COR 33, but not CORs 30 (local central office), 31 (WATS), 32 (FX), 34 (attendant group), 35, 36, or 37 (voice terminals). Specify an ''n'' beside CORs 30, 31, 32, 34, 35, 36, and 37 in the Calling Permission field. Enter 39 in the COR Number field. [The CORs listed in the Calling Permission field can be viewed as terminating or screening CORs that can or cannot be called by the originating COR. Since COR 38 (DID) is neither a terminating nor a screening COR, it does not have to be considered when assigning the barrier code COR.]

Example Using Calling Party Restrictions, Called Party Restrictions, and Miscellaneous Restrictions

To illustrate the use of both Calling and Called Party restrictions, and Miscellaneous restrictions, assume a System installation provides the following:

- Central office trunks (outgoing)
- WATS
- FX trunks (outgoing)
- Voice terminals
- Data modules
- Terminating Extension Groups
- Loudspeaker Paging.

Suppose that the following requirements exist:

- Only the attendant can access loudspeaker paging.
- Terminating Extension Groups can accept calls from internal voice terminals.
- There are six classes of voice terminals:
  - — Those that are toll restricted
  - — Those that cannot call outside to a public network (outward restricted)
  - — Those that can receive calls from an attendant
  - — Those that can call anywhere, any time
  - — Those that cannot place FX or WATS calls
  - — Those that cannot place WATS calls.

To implement the preceding requirements, a COR must be assigned to each facility or group of facilities. For simplicity, each can have a unique COR. The CORs are arbitrarily assigned as follows:

- COR 40—Local central office trunks
- COR 41—WATS trunks
- COR 42—FX trunks
- COR 43—Attendant group
- COR 44—Data modules
- COR 45—Terminating Extension Groups
- COR 46—Loudspeaker Paging Access Zones
- COR 47—Unrestricted voice terminals
- COR 48—Voice terminals that are toll restricted
- COR 49—Voice terminals that are outward restricted
- COR 50—Voice terminals that can receive calls from an attendant
- COR 51—Voice terminals that cannot place FX or WATS calls
- COR 52—Voice terminals that cannot place WATS calls.

With the CORs defined, it should be determined individually which CORs cannot call other CORs. This is done as follows:

- COR 40 (local central office trunks)—Restrictions that prohibit access to this COR are assigned when the originating CORs are considered. Only the COR number has to be specified on this form.
- COR 41 (WATS)—Only the COR number needs to be specified, this is the same case as described in the previous configuration example.

- COR 42 (FX)—Again, the COR number needs to be specified.
- COR 43 (attendant group)—No restrictions were stated, so the COR number needs to be specified.
- COR 44 (data modules)—No restrictions were stated, so the COR number needs to be specified.
- COR 45 (Terminating Extension Group)—This COR can receive internal voice terminal-originated calls. Since no tie trunks are specified for this example, the Inward Restriction feature can provide the desired restriction. Specify ''inward'' as the Called Party Restriction. If dial repeating tie trunks are provided, Miscellaneous Restrictions could be used to deny trunk access to the group. Also, specify 45 as the COR number.
- COR 46 (Loudspeaker Paging Access zones)—Since this COR can be accessed by an attendant, the Manual Terminating Line feature can provide the restriction. Specify ''manual'' as the Called Party Restriction. Specify 46 as the COR number.
- COR 47 (unrestricted voice terminals)—No restrictions were stated, so the COR number needs to be specified.
- COR 48 (toll restricted voice terminals)—Specify ''toll'' as the Calling Party Restriction. Specify 48 as the COR number.
- COR 49 (outward restricted voice terminals)—Specify ''outward'' as the Calling Party Restriction. Specify 49 as the COR number.
- COR 50 (voice terminals that can receive calls from an attendant)—Specify ''manual'' as the Called Party Restriction. Specify 50 as the COR number.
- COR 51 (voice terminals that cannot place WATS or FX calls)—None of the Calling Party Restrictions uniquely prohibit WATS and FX calls, so Miscellaneous Restrictions are used. Enter an ''n'' beside COR 41 (WATS) and COR 42 (FX) in the Calling Permission field. Leave the Calling Party Restriction as ''none'' and specify 51 as the COR number.
- COR 52 (voice terminals that cannot place WATS calls)—Enter an ''n'' beside COR 41 (WATS) in the Calling Permission field. Leave the Calling Party Restriction as ''none'' and specify 52 as the COR number.

Another method to determine COR assignment is to consider the restrictions to be assigned.

This method is probably more difficult to use, but it minimizes the number of CORs established. This method requires 9 CORs to effect the same restrictions as 13 CORs with the previous method.

The requirements given for this example are as follows:

- Only the attendant can access loudspeaker paging.

- Terminating Extension Groups can accept calls from internal voice terminals.
- The six classes of voice terminals are:
  - — Those that are toll restricted
  - — Those that cannot call outside to a public network (outward restricted)
  - — Those that can receive calls from an attendant
  - — Those that can call anywhere, any time
  - — Those that cannot place FX or WATS calls
  - — Those that cannot place WATS calls.

Assignments for these requirements could be made as follows:

- COR 20—Manual Terminating Line Restriction.
- COR 21—Inward Restriction.
- COR 22—Toll Restriction (‘‘tac-toll’’ or ‘‘all-toll’’).
- COR 23—Outward Restriction.

  NOTE:
  A new Manual Terminating Line Restriction for voice terminals was not established. COR 20, above, can be assigned.

- COR 24—Unrestricted.
- COR 25—COR for WATS.
- COR 26—COR for FX.
- COR 27—Provides Miscellaneous Restrictions for WATS and FX. Enter an ‘‘n’’ beside COR 25 and COR 26 on the form for COR 27.
- COR 28—Provides Miscellaneous Restriction for WATS. Enter an ‘‘n’’ beside COR 25 on the form for COR 28.

Now assign the appropriate COR to each physical or screening facility:

- Central office trunks—COR 24 (unrestricted).
- WATS—COR 25 (WATS COR).
- FX—COR 26 (FX COR).
- Attendant group—COR 24 (unrestricted).
- Voice terminals—COR 22 (toll—‘‘tac-toll’’ or ‘‘all-toll’’), COR 23 (outward), COR 20 (manual), COR 24 (unrestricted), COR 27 (WATS and FX miscellaneous), or COR 28 (WATS miscellaneous), as required.

- Data Modules—COR 24 (unrestricted).
- Terminating Extension Group—COR 21 (inward).
- Loudspeaker Paging trunks—COR 20 (manual).

Example Using ARS/AAR Facilities Restriction Level (FRL) for Control of Call Routing

Establish a group of users who must dial an authorization code in order to make outside calls. The client has ARS and the Authorization Codes feature. The forms and fields are administered as follows:

1. Feature-Related System Parameter Features Form

Field	Enter
- Authorization Codes Enabled	y
- Authorization Code Length	7
- Authorization Code Cancellation Symbol	#
- Attendant Timeout Flag	n

2. Station Form

   Assign COR = 1 for all unrestricted users and COR = 49 for restricted users who must dial an authorization code to make outside calls.

3. Authorization-Codes Form

   Assign the restricted users a replacement COR = 1 and an authorization code the same as their 7-digit phone number.

4. COR Form

   Assign/change originating FRLs for restricted and unrestricted users. Assign an originating FRL of 7 to users with a COR of 1 and an originating FRL of 0 to users with a COR of 49.

5. AAR/ARS Route Pattern Form

   For route pattern 1, assign trunk group 40 (CO) as the first choice route with a route FRL = 1, NPA = 201, and Prefix Mark = 1 (that is, dialing 1 is required here to indicate a toll call). Assign first, second, and third choice routes as follows:

Grp No	FRL	NPA	Prefix Mark	Toll List	No. Del. Digits	Inserted Digits
40	1	201	1			
2	3	201	1			
32	3	201	1			9

For this example, trunk group 40 is a CO trunk, trunk group 2 is WATS, and trunk group 32 is a tie trunk to the System 85.

When a caller dials the ARS access code to call out, the FRL of the originating facility is compared with the FRL of the available outgoing facility. If the FRL of the originating facility is less than the FRL of the trunk group, the restricted user will be prompted (via recall dial tone) to enter an authorization code. After the authorization code is entered, the call is routed to the CO for completion. If the FRL is insufficient to seize any trunk group in the route pattern, the user gets intercept tone.

Restricted callers will be prompted for and be required to enter an authorization code. Unrestricted users will simply dial the ARS code followed by the desired number.

Another practical application of the use of auth-codes might be to enable an unrestricted user to make a call from a restricted phone. For example, an executive could enter an authorization code which enables him to dial out from a restricted phone in the factory.

Hardware Requirements

None.

Class of Service (COS)

Defines whether or not voice terminal users may access or use the following features and functions (refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for feature descriptions).

- Automatic Callback (feature)
- Call Forwarding All Calls (feature)
- Data Privacy (feature)
- Priority Calling (feature)
- Console Permission (allows multi-appearance voice terminal users to control the same features controlled by an attendant)
- Off-Hook Alert (see Emergency Access to Attendant feature)
- Client Room (see Hospitality Services—allows use of the check-in, check-out, room change/swap, and maid status features).

Administration

The 16 possible Classes of Service (COSes) are preassigned in the System. Choose and modify the appropriate COS and assign to users as required. Types of users are listed in the following table.

Form	Field
Class of Service	All
Attendant Console	COS
Console Parameters	COS
MPDM/MTDM	COS
PGATE	COS
System Access Port Data Module	COS
Recorded Announcement Data Module	COS
Data Line Data Module	COS
Station	COS
Remote Access	COS

Hardware Requirements

None.

Code Calling Access

Allows attendants, voice terminal users, and tie trunk users to page with coded chime signals.

Administration

To implement this feature, complete the following forms.

Form	Field
Loudspeaker Paging and Code Calling Access	Code Calling IDs-(all fields)

- Loudspeaker Paging and Code Calling Access Form—Complete Code Calling fields as follows:
  - — Assign Code Calling Playing Cycles (1–3) to indicate the number of times a code calling identification will be played.
  - — Assign TN763C Auxiliary Trunk ports to each paging zone to be used.
  - — Assign Code Calling TACs and CORs to each zone to be assigned (1–9, all).
- Assign extension numbers to Code Calling ID fields.

Hardware Requirements

Requires a port on a TN763C Auxiliary Trunk circuit pack for each of nine paging zones that can be assigned. The Code Calling Access feature shares the same ports used for loudspeaker paging.

Consult

Allows a covering user, after answering a coverage call, to call the principal (called party) for private consultation.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -consult

- Station Forms—Assign a Consult button.

Hardware Requirements

None.

Coverage Callback

Allows a covering user to leave a message for the principal (called party) to call the calling party.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -cov-cback

- Station Forms—Assign a Cover Callback (cov-cback) button.

Hardware Requirements

None.

Coverage Incoming Call Identification

Allows multi-appearance voice terminal users without a display in a Coverage Answer Group to identify an incoming call to that group.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -in-call-id (Type:__Grp:__)

- Station Forms—Assign a UCD/DDC Coverage Answer Group (in-call-id) button.

Hardware Requirements

None.

Customer-Provided Equipment (CPE) Alarm

The CPE alarm device provides an indication that a System alarm has occurred and that the System has attempted to contact a preassigned service organization about the problem. A customer-provided device, such as a lamp or bell, is used to indicate the alarm situation.

The CPE Alarm field is administered on the Maintenance-Related System-Parameters form as described in *Generic 1 and Generic 3—Installation and Test*, 555-230-104. Associated hardware requirements are also specified.

Customer-Provided Equipment (CPE) Trunk Group

The Customer-Provided Equipment (CPE) Trunk Group provides for the connection of on-premises customer equipment to the System for applications such as the Recorded Telephone Dictation Access feature. The auxiliary trunk ports that are used to connect CPE to the digital switch are administered as CPE Trunk Group members for those features such as Recorded Telephone Dictation Access that are not supported by port assignment fields on other System forms. For example, trunk port interfaces can be assigned on System forms for such features as Music-on-Hold Access (Feature-Related System Parameters form) and Loudspeaker Paging and Code Calling Access (Loudspeaker Paging and Code Calling Access form).

Administration

To implement this feature, complete the following forms.

Form	Field
CPE Trunk Group	All

Hardware Requirements

A port on a TN763C Auxiliary Trunk circuit pack is required for each trunk to be assigned the CPE Trunk Group. A TN763C provides four ports.

D-Channel Backup

For DS1 trunk port interfaces used for ISDN-PRI, this provides a backup signaling link (D-channel) in the event of a signaling link failure. If a signaling link failure were to occur, a switch to a backup signaling link (D-channel) can be implemented.

D-channel Backup requires that one D-channel be administered as the Primary D-channel and that a second D-channel be administered as the Secondary D-channel on the Signaling Group form. These assignments ensure that at certain times during D-channel Backup process that each switch at each end of the interface select the same D-channel. Here, the Primary D-channel is given precedence over the Secondary D-channel.

Refer to the ''Facility and Non Facility Associated Signaling'' feature coverage elsewhere in this chapter for additional information. A detailed discussion of both Facility and Non Facility Associated Signaling and D-channel Backup is provided. Sample Signaling Group forms which are used to administer the features are shown.

Data Call Setup

Provides three methods to set up a data call: Data Terminal (keyboard) Dialing which includes Alphanumeric Dialing, Data Hot Line, and Default Dialing (features covered separately elsewhere in this chapter) and Voice Terminal Dialing, or dedicating a voice terminal for data calls.

NOTE:
Voice terminal dialing is not available in ISDN-BRI applications because: ISDN-BRI terminals do not support voice call transfer to data or data call transfer to voice.

Typically, when a data terminal is available, keyboard dialing is more convenient and requires less steps; therefore, it should be used whenever possible.

In addition to data terminal and voice terminal dialing, the System accepts calls from devices, such as a Modular Processor Data Module (MPDM) equipped with an Automatic Calling Unit (ACU) interface module. An analog modem interfaced with an ACU can also be used to provide dialing capability for a host computer.

The Administered Connection/Access Endpoint feature (provided elsewhere in this chapter) may also be used to establish a data call.

Administration—Voice Terminal Dialing

Voice Terminal Dialing includes the use of analog modems with built-in terminal dialing interfaces. Voice Terminal Dialing must also be used when a data terminal is not accessible for dialing.

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Data Origination Access Code
Station (multi-appearance)	Button/Feature Button Assignments -data-ext (Ext:__)
Data Module MPDM/MTDM Data Line	All
Modem Pool Group	Circuit Pack Assignments (1–32)

- Feature Access Codes Form—Assign a Data Origination Access Code. When a user places a data call to digital data endpoint, and does not transfer the call to another digital data endpoint but uses a modem or acoustically coupled modem, the user must dial the Data Origination access code before dialing the distant endpoint.
- Station Forms—Assign Data Call Setup buttons to multi-appearance voice terminals. This supports the use of the Data Call Setup One-Button Transfer To Data, Return-to-Voice, and Data Call Preindication features. If the Data Module form is associated with the station form complete the form.
- Data Module Form—If the Data Module form is not associated with the station, complete an MPDM/MTDM or Data Module form as required.
- Modem Pool Group Form—Assign Circuit Pack port locations if dialing outside locations requiring digital to analog conversion.

Depending on the hardware being used, assign ports to the following as required:

— Data Modules

— BCTs/510Ds

— 7400D Series or CALLMASTER Digital Voice Terminals

— 7500D Series of Voice Terminals with ADM

— Analog Modems (port is assigned using a 2500 Voice Terminal form).

Administration—Data Terminal (keyboard) Dialing

In addition to standard keyboard dialing, Data Terminal Dialing can be enhanced by Alphanumeric Dialing, Default Dialing, and the Data Hot Line features. Refer to the respective feature coverage provided elsewhere in this chapter for additional administration information associated with these features.

To implement this feature, complete the following forms.

Form	Field
Data Module MPDM/MTDM Data Line 7500B	All
Modem Pool Group	Circuit Pack Assignments (1–32)

- Data Module Form—Complete an MPDM/MTDM, Data Line Data Module, or 7500B Data Module form as required.
- Modem Pool Group Form—Assign Circuit Pack port locations if dialing outside locations requiring digital to analog conversion.

Hardware Requirements

Data Call Setup is a means of using data equipment to establish data calls. Requirements for data modules, 510D or 515 BCT voice terminals, and modems are as follows:

- **Data Modules** Each MPDM/MTDM Data Module requires one port on a TN754B/TN7400A Digital Line circuit pack. The TN7500B Data Module requires a port on a TN556 ISDN-BRI Line circuit pack. When administered in multipoint (passive bus) configuration, a port may be shared by up to two endpoints which can be of the following types: stand-alone voice or stand-alone data. However, there can only be one integrated voice and data endpoint on a ISDN-BRI port. A Digital Terminal Data Module (DTDM) and a ISDN-BRI Asynchronous Data Module (ADM) share the port with their associated voice terminal. Each Data Line data module requires a port on a TN726B Data Line circuit pack.
  - — **7400A Data Module:** The 7400A Data Module may be used as an endpoint data module, or instead of a MTDM when using the combined Modem Pooling feature.

- — **7400B Data Module:** The 7400B Data Module can be used to provide voice and data communications to 7400D series voice terminals and the 602A1 CALLMASTER Digital Voice terminal that have connections to a data terminal or PC. The 7400B does not support synchronous communication or Hayes interface.
- — **Data Line Data Module** Each TN726B Data Line circuit pack port connects to an Asynchronous Data Unit (ADU) that provides an RS-232C interface to the switch.

- **510D or 515 BCT:** Each 510D or 515 BCT requires one port on a TN754B/TN7400A Digital Line circuit pack for shared use of voice and data.
- **7400D Series or CALLMASTER Digital Voice Terminals:** Each voice terminal requires one port on a TN754B/TN7400A Digital Line circuit pack for shared use of voice and data. The 7403D and 7405D voice terminals require an optional Digital Terminal Data Module. The 7404D requires an optional messaging cartridge, the 7406D requires an optional 703A Data Stand, and the 7407D requires an optional 702A DSU for connection to associated data terminals. In addition, a 7400B Data Module may be used to provide all 7400D series voice terminals a connection to data terminals and a common DCP interface to the switch.
- **7500D Series Voice Terminals:** Each voice terminal requires one port on a TN556 ISDN-BRI Line circuit pack for shared use of voice and data. The 7505D, 7506D, and 7507D require an optional ADM (Asynchronous Data Module) for connection to associated data terminals. For ISDN-BRI applications, a TN778 Packet Control circuit pack is also required to provide ISDN-BRI connectivity. The Packet Control circuit pack provides ISDN signaling links with Link Access Protocol for the D-channel. See also the "Asynchronous Data Module" section in this chapter.
- **Modems:** Each modem requires one port on a TN742, TN746B, or TN769 Analog Line circuit pack. (Administration designates the modem as a 2500-series voice terminal and assigns an extension number. A modem is connected to the port instead of a voice terminal. Access is through the assigned extension number.)
- **Modem Pooling:** A TN758 Modem Pool circuit pack, or one digital port associated with a Trunk Data Module (either TDM or MTDM) and one analog port with analog modem, is required for each conversion resource.

Keyboard Dialing to off-premises data endpoints requires the use of a TN748C Tone Detector circuit pack. Extensive use of features and services using tone detection may necessitate adding additional TN748C circuit packs (several features also use a TN748C).

Data Hot Line

Provides for automatic nondial placement of a data call to an endpoint when the originator goes off-hook.

Administration

To implement this feature, complete the following forms.

Form	Field
Abbreviated Dialing	All
Station	Data Module form AD List Special Dialing Option Hot Line Destination AD Dial Code
Data Modules: Data Line MPDM, MTDM System Access Port 7500B X.25	AD List1 Special Dialing Option

- Abbreviated Dialing Form—Complete an Abbreviated Dialing (AD) form and enter the hot line dial string beside an appropriate AD Dial Code field.
- Station Forms—Complete the station's associated Data Module form. Assign the AD List per the AD form completed above (such as, ''p'' for personal, ''g'' for group, etc.). Enter ''hot-line'' in the Special Dialing Option field, and enter the appropriate AD Dial Code (code number on AD form that contains the hot line dial string) in the AD Dial Code field.
- Data Module Forms—Assign the AD List per the AD form completed above (such as, ''p'' for personal, ''g'' for group, etc.). Enter ''hot-line'' in the Special Dialing Option field, and enter the appropriate AD Dial Code (code number on AD form that contains the hot line dial string) in the AD Dial Code field.

Hardware Requirements

See Data Call Setup.

Data Modules

The following provides administration information for equipment requiring a data module interface to the switch.

NOTE:
In addition to the equipment listed below, data module administration required for voice terminals is provided in the appropriate terminal coverage.

- Asynchronous EIA RS-232C compatible Data Terminal Equipment (DTE)
- AUDIX
- Call Detail Recording (CDR) output device
- Call Management System (CMS)
- CallVisor ASAI
- 3270 type data modules
- Data service unit associated with a private data line or the digital data system
- Data set
- Data terminal
- ISDN Gateway (CPN/BN)
- Local host computer
- Message Server Adjunct (MSA)
- On- or off-premises administration/maintenance terminal
- Other DEFINITY Systems, System 75s, System 85s, or enhanced AT&T DIMENSION® PBX nodes in a Distributed Communications System (DCS)
- System Printer

Figure 3-7 shows typical data module connections to the System.

NOTE:
The Administration Without Hardware Translation feature is usually paired with the Terminal Translation Initialization (TTI) feature. In the context of data modules, the TTI feature allows data modules that are administered without hardware translation to be ‘‘merged’’ with an appropriate data module connected to an unadministered port. The unadministered port is given TTI default translation which is sufficient to allow a terminal connected to the data module (which is connected to the port) to request a TTI merge with the extension of a data module administered without hardware translation. **TTI is not useful for Announcement and X.25 hardware.**

NOTE:
Administration Without Hardware Translation supports the PDM, Data-Line, Announcement, TDM, and X.25 data module types.

Administration

To implement this feature, complete the following forms.

Form	Field
Data Module	All

The ‘‘Type’’ field of this form assigns the data module type (such as, PDM, TDM, X.25, etc.) that brings up different fields based on the type of data module entered. The following discussions describe how to administer these data module types from the corresponding form that appears for that type (see Chapter 5 for examples).

- PDM/TDM Data Module Form—Complete one PDM/TDM Data Module form for each of the following data modules in your System:
  - 700A—Provides an interface to a Message Server Adjunct (MSA), CDR output device, an on-premises administration terminal, data terminal, or a local host computer. [Also known as a processor data module (PDM)].
  - 700B—Provides an interface to an CDR output device, a data set, or a data service unit associated with a private data line or the Digital Data System (DDS). [Also known as a trunk data module (TDM)].
  - 700C—Functions the same as a TDM-700B. Can be operated in a private line (PL) or switched network (SW) mode. For PL mode, use ‘‘tdm’’ in the Type field on this form; for SW mode, use the ‘‘Modem Pool’’ form described elsewhere in this chapter.
  - 700D—Functions similar to the PDM-700A. The MPDM can support a variety of data interface requirements. It provides RS-232C or RS-449 interfaces and an Automatic Calling Unit (ACU) RS-366 interface. [Also known as a module processor data module (MPDM)].

— 700E—A multipurpose data module configured that provides digital switch interface (RS-232C and RS-449) to support trunk data requirements. Can be operated in a private line (PL) or switched network (SW) mode. For PL mode, use ''tdm'' in the Type field on this form; for SW mode, use the ''Modem Pool'' form described elsewhere in this chapter. [Also known as a modular trunk data module (MTDM)].

— 7400A—May be used as a replacement for an MTDM in support of the combined Modem Pooling feature.

— 7400B—Instructions for administering a 7400B data module are provided in the appropriate voice terminal (7400D series, CALLMASTER digital voice terminal) coverage provided in Chapter 5.

— 7500D—Instructions for administering a 7500D data module are provided in the appropriate voice terminal (7500D series, CALLMASTER digital voice terminal) coverage provided in Chapter 5.

NOTE:
The 7500D Voice Terminals are digital, but not of the DCP-type.

- Recorded Announcement Data Module—Allows the System to transfer the recorded announcements file from the announcement board to the System disk/tape and vice versa.
- Data Line Data Module—Assign one form for each Asynchronous Data Unit (ADU) RS-232C DTE type interface. A port on a TN726B Data Line circuit pack is required for each ADU interface to be provided.
- Digital Terminal Data Module—Refer to the ''7403D Voice Terminal'' and ''7405D Voice Terminal'' coverage in Chapter 5 (the associated Data Module form, if required, is covered with each respective terminal's coverage).
- 3270 type Data Module Form—Complete one PDM/TDM Data Module form for each 3270-type Data Module to be provided an interface to the digital switch. The 3270 Data Module allows 3270-type terminals such as an IBM 3278 Information Display System to communicate with a host computer via the digital switch. A 3270 type data module allows connection to industry-type cluster controllers. A port on a TN754B/TN7400A Digital Line circuit pack is required for each 3270 Data Module interface provided.

- 7500B Data Module Form—Complete one 7500B Data Module form for each 7500B Data Module to be assigned. The 7500B Data Module connects data terminal equipment (DTE) such as a modem to the ISDN network. For additional information, refer to the ''7500B Data Module'' elsewhere in this chapter.
- X.25 Data Module Form—Complete one X.25 Data Module form for each X.25 Data Module to be assigned. An X.25 data module is the port on the PGATE board which is designed to act as a protocol converter and packet handler resource for the switching of data packets between data endpoints. With respect to X.25, PGATE provides protocol conversion between Mode 3 and X.25.

  There are four ports located on a PGATE board. Each port, in the physical level, uses an RS232-C physical (RS-449 electrical) interface to connect with endpoint. For TDM bus access to another Generic 3r, use a ''RS232'' or ''switched'' cable (PGATE form).

  A second page is added for X.25 version of form for setting up X.25 layer 2 and layer 3 parameters.

Hardware Requirements

A port is required on a TN754B/TN7400A Digital Line circuit pack for each MPDM, MTDM, or 7400A Data Module to be assigned. One TN754B/TN7400A provides eight ports.

A port is required on a TN726B Data Line circuit pack for each interface to be provided asynchronous EIA RS-232C compatible equipment. An ADU allows direct connection between the digital switch port on a TN726B Data Line circuit pack and EIA terminals, printers, and computer ports. One TN726B provides eight ports.

A port is required on a TN556 ISDN-BRI Line circuit pack for each 7500D data module to be assigned. Due to multipoint support, a port may be shared with another voice-only or data-only endpoint. The TN556 ISDN-BRI Line circuit pack provides 12 ports (or 24 stations or data modules).

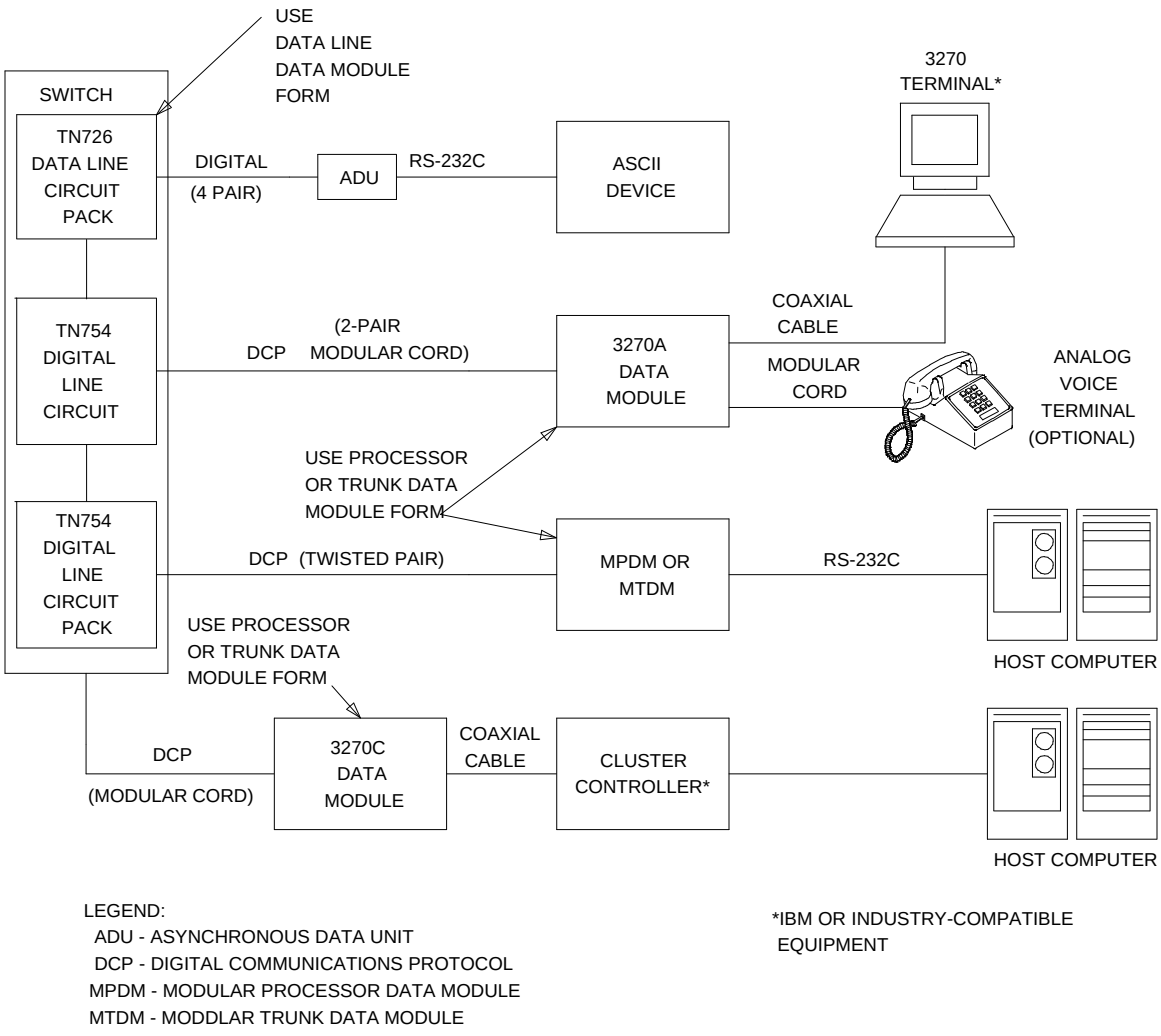


Figure 3-7. Typical Data Module Connections

Data-Only Off-Premises Extensions

Allows users to establish data calls to of from Data Terminal Equipment (DTE) that is located remotely from the System site using DATAPHONE® data communication service or other private line data facilities. A Data-Only Off-Premises Extension uses a Modular Trunk Data Module (MTDM) located on-premises. Communication with the remote data equipment is accomplished through the private line facility linking the on-premises MTDM and the remote data equipment.

Administration

To implement this feature, complete the following forms.

Form	Field
MPDM/MTDM Data Module	All

- MPDM/MTDM Data Module Form—Assign the associated data module port interface to the digital switch.

Hardware Requirements

Requires a Modular Trunk Data Module and one port on a TN754B/TN7400A Digital Line circuit pack.

Data Privacy

Protects analog or digital endpoints involved in a data connection from unwanted intrusion of tones, music, or voice which may be misconstrued as data. Data Privacy, when activated by a user, denies the system the ability to gain access to, or to superimpose tones, music, or voice onto, the protected call. **Administration**

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Data Privacy Access Code
Class of Service	Data Privacy (0–15)

- Feature Access Codes Form—Complete Data Privacy Access Code field.
- Class of Service Form—Verify Data Privacy field has the correct permission.

Hardware Requirements

None.

Data Restriction

Protects analog or digital endpoints involved in a data connection from unwanted intrusion of tones, music, or voice which may be misconstrued as data. Data Restriction, when administered to an extension number or trunk group, denies the system the ability to gain access to, or to superimpose tones, music, or voice onto, the protected call.

Administration

To implement this feature, complete the following forms.

Form	Field
Station	Data Restriction
Trunk Groups Access APLT CO CPE DID FX ISDN-PRI RLT Tandem Tie WATS	Data Restriction

- Station Forms—Complete Data Restriction field.
- Trunk Group Forms—Complete Data Restriction field.

Hardware Requirements

None.

Default Dialing

Enhances Data Terminal (Keyboard) Dialing by allowing a data terminal user to place a data call to a pre-administered destination by simply entering a return at the ''DIAL'' prompt. The user can still place calls to other destinations by entering the complete address after the ''DIAL'' prompt (normal Data Terminal Dialing with/without Alphanumeric dialing).

For the AT command interface supported by the 7400A Data Module, the ‘‘ATD’’ command may be entered instead of a return to dial the default destination.

Default Dialing can be assigned to any data endpoint that has Data Terminal Dialing capability.

Administration

To implement this feature, complete the following forms.

Form	Field
Abbreviated Dialing List	All
Data Module	Special Dialing Option
	Abbreviated Dialing List
	AD Dial Code

- Abbreviated Dialing List form—Enter the default destination on the appropriate Abbreviated Dialing List form for your terminal. This list can be a System, Group, Personal, or Enhanced List.
- Data Module form—Complete the following fields on appropriate Data Module forms (Data Line, MPDM) as follows:
  - Special Dialing Option—Enter ‘‘default’’.

    NOTE:
    The Default Dialing and the Data Hotline feature cannot both be assigned on the data Module form.

  - Abbreviated Dialing List—Enter the abbreviated dialing list type where the default destination is stored.
  - AD Dial Code—Enter the AD list number associated with the stored default destination.

Hardware Requirements

Refer to the ‘‘Data Call Setup’’ coverage elsewhere in this chapter for associated hardware requirements.

Demand Print

Allows the voice terminal user to print his/her own undelivered messages without calling the Message Center.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -print-msgs
Station	Security Code
Feature Access Codes	Print Messages Access Codes

- Station Forms—Assign Demand Print (print-msgs) feature buttons to multi-appearance stations. Assign 4-digit code in the Security Code field to enable retrieving Demand Print messages.
- Feature Access Codes Form—Assign Print Messages Access Codes.

Hardware Requirements

A Message Server Adjunct (MSA) such as a 3B2 equipped with appropriate Message Server software and associated printers. Refer to the ‘‘Message Server’’ implementation instructions for additional information.

Dial Plan

The Dial Plan is the system’s guide to digit translation. When a digit is dialed, the system must know what to expect, based on that digit. For example, if a voice terminal user dials a 4, the system must know how many more digits to expect before the call will be processed.

A feature access code cannot be assigned to a feature if it is not already defined and consistent with the Dial Plan.

Administration

To implement this feature, complete the following forms.

Form	Field
Dial Plan	All
Uniform Dialing Plan	Plan Number PBX Codes Local/Remote Indicator Node Numbers PBX IDs
Second Digit Table	All
Extension Number Portability	All
Extended Trunk Access	Call Screening Entry
Route Pattern	All
Trunk Group	Digit Treatment Digits
Feature Access Code	As required
Second Digit Table	All
Attendant Console	As required

- Dial Plan Form—Enter the HNPA (Area Code) and complete the ARS Prefix 1 Required field.

  Enter the ETA Node Number and/or the ETA Routing Pattern. These values determine which trunk (or pattern) to use when routing the call to the remote PBX. (Node Numbers are used when no Routing Patterns are assigned or for DCS.)

- Second Digit Table Form—To be provided.
- Uniform Dialing Plan Form—If the Uniform Dialing Plan (UDP) option is used, enter the number of digits in the plan (4 or 5) and the Extension Codes for non-home extensions in the ENP sub-network are node number routed.
- Extension Number Portability Form—If the Uniform Dialing Plan (UDP) option is used, associate the leading one or two digits of extensions in the ENP sub-network with a 3-digit ENP code, used to construct a 7-digit AAR-like ENP number.
- Extended Trunk Access Form—If the ETA Node Number field in the Dial Plan form is assigned an Node Number for a remote PBX from which calls can be attempted, enter those call strings that should be blocked in the Call Screening Entry fields.
- Route Pattern Form—If the ETA Node Number field in the Dial Plan form is assigned an Node Number for a remote PBX from which calls can be

attempted, associate a trunk group with this Node Number along with a FRL, a NPA, a Prefix Mark, a Toll List, and either insertion of digits or deletion of digits.

- Trunk Group Form—For AAR configurations, assign ‘‘inserted’’ in the Digit Treatment fields and the inserted digits in the Digits field.
- Feature Access Code Form—Assign Feature Access Codes as required for those features to which you wish to restrict access.
- Second Digit Table Form—Assign routing of the second digit.
- Attendant Console Form—Assign dial plan related buttons as required.

Hardware Requirements

None.

Dialed Number Identification Service (DNIS)

Provides a called party or answering position with a personalized identification of the service or product associated with the call. The system can be administered to detect and display the name of the product or service being called about.

For Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) calls, DNIS is the called party number in the associated call setup messages. No additional administration is required for these type calls.

For non-ISDN-PRI type calls, DNIS can be obtained from the network by subscribing to AT&T-COMM DNIS service. The connecting central office passes four digits (extension number) representing the dialed 800 number to the digital switch. The System then connects the call to an interim Terminating Extension Group (TEG), hunt group, phantom extension (see the Administration Without Hardware feature), Automatic Call Distribution (ACD) split, or VDN which immediately forwards the call to a dummy terminating extension. This dummy terminating extension can be either a station, hunt group, or ACD split. The interim extension is assigned the name of the product or service associated with the call. When the terminating extension answers the call, the user’s display-equipped voice terminal shows the name of the product or service being called. As a result, the user can answer the call accordingly.

Implementation of the switch for non-ISDN-PRI type calls can be accomplished in several ways.

NOTE:
The answering user requires a display-equipped station to identify the product or service being called.

Administration

DNIS via MEGACOM 800 Service Tie Trunk Group

To implement this feature, complete the following forms.

Form	Field
Tie Trunk Group	All
Hunt Group	All
or	
Station (phantom extension)	All
or	
Terminating Extension Group	All
or	
VDN	All
Call Coverage Paths	All

- Tie Trunk Group Form—A separate Tie trunk group must be assigned. Administer the Group Name field as ''MEGACOM'' or as required to identify the trunk group. Administer the Incoming Destination field as the interim extension. The extension can be a TEG, hunt group, phantom extension, or ACD split.
- Hunt Group Form—Administer same as for DID trunk group above. This hunt group is administered as an interim extension. The purpose of the hunt group is to send the call along with the name of the product or service being called to an answering (display-equipped) station. The hunt group will not have Group Member Assignments (that is, no members). Administer the Group Extension field as the 4-digit number representing the 800 number being called. Administer the Group Name field with the name of the product or service being called. Assign a coverage path in the Coverage Path field. The Coverage Path form will be administered to redirect the calls to the appropriate terminating extension. Optionally, the Hunt Group form can be administered as an ACD split (ACD field = ''y''), and if appropriate, the Measured field as ''internal'' (Basic Call Management System), ''external'' (Call Management System), or ''both'' to obtain measurement reports of the call activity associated with the product or service.
- Station Form—Administer same as for DID trunk group above. Administer the Extension field as the number representing the number being called. Administer the Name field with the name of the product or service being

called. Assign a coverage path in the Coverage Path field. The Coverage Path form will be administered to redirect the calls to the appropriate terminating extension. Enter ''x'' in the Port field. This permits the administering of a station form without having a port assigned and does not require a voice terminal.

- Terminating Extension Group Form—Administer same as for DID trunk group above. This form can be administered as the interim extension instead of the Hunt Group form. Administer the Group Extension, Group Name and Coverage Path fields as required for the Hunt Group form. Do not administer the Group Member Assignments fields.

  NOTE:
  When using a TEG as the interim extension or Call Coverage, measurement reports cannot be obtained.

- Call Coverage Paths Form—Administer same as for DID trunk group above. Assign the Coverage Path Number field per the path number entered on the interim extension form (that is, Hunt Group, VDN, ACD split, phantom extension, or TEG form). Assign the Coverage Criteria All field as ''y'' for both inside and outside calls. (If using coverage for an ACD split, use Cover on Busy.) Administer the Coverage Point 1 field as the terminating extension. This extension can be a station, hunt group, or ACD split.

Implementation Summary

The recorded announcements that a caller hears for the various methods of DNIS implementation are as follows:

- When the interim extension is a TEG or phantom extension and the final destination is a non-ACD hunt group, no announcements are heard by the caller, even if an announcement was administered via the hunt group.
- When the interim extension is a TEG or phantom extension and the terminating destination is an ACD split, one of two situations will occur. If a second announcement has been administered for the split, that announcement will be played for the caller. The first announcement will not be played. If a second announcement has not been administered, no announcement will be heard by the caller.
- When the interim extension is a hunt group or an ACD split and the final destination is a non-ACD hunt group, only an announcement administered at the interim extension could be played. This announcement must be administered as a forced first announcement at the interim extension.
- When the interim extension is a hunt group or ACD split and the final destination is an ACD split, a forced first announcement can be played for the interim extension (if administered) and the second announcement at the final destination (if administered) can be played.

Measurements

When the interim extension is an ACD split, measurement of DNIS calls can be made if calls are redirected via Call Forwarding; if not, they're redirected via Call Coverage. Call Forwarding must be activated for the interim split via the console or a station with console permissions. Then, a run-tape procedure must be performed for Call Forwarding data to be stored. Therefore, a count of how many calls reached the interim extension can be made. In order to obtain an accurate count of DNIS calls, it is essential that all such calls are routed to the interim extension first. If some DNIS calls are routed directly to the terminating extension, the measurements for calls reaching the split via the DNIS service will not be accurate.

The measurement facility (CMS for example) can also provide information on whether or not the forwarded call was connected or whether the caller abandoned the call. From this information, the number of calls terminated and abandoned can be determined.

Hardware Requirements

DNIS via MEGACOM 800 Service Tie Trunk Group

Requires a port on a TN760B Tie Trunk, TN722B or TN767 DS1 Tie Trunk circuit pack for each tie trunk to be administered.

DNIS via ISDN-PRI

Refer to the ''ISDN-PRI'' coverage elsewhere in this chapter for hardware requirements.

Digital Multiplexed Interface (DMI)

The Digital Multiplexed Interface (DMI) provides for digital trunk interfaces to the System. DMI supports high volume (high speed, high capacity) data transmission via DS1 digital facilities between; host computers, another PBX, or a private or public network and analog and digital data endpoints. When ISDN-PRI signaling is used, associated trunks can be connected to host computers, another PBX, or a private or public network.

Administration

Instructions for administering the DS1/DMI interface to the System are provided in DS1/DMI Interface Manual.

To implement this feature, complete the following forms.

Form	Field
DS1 Circuit Pack	All
DMI-BOS Trunk Group	All
ISDN-PRI Trunk Group	All
Synchronization Plan	All

- DS1 Circuit Pack Form—Complete all fields. Assign ports for each trunk member to be assigned on the associated Trunk Group form.
- DMI-BOS Trunk Group Form—Complete all fields as required when using Bit-Oriented signaling.
- ISDN-PRI Trunk Group Form—Complete all fields as required when using Message-Oriented signaling.
- Synchronization Plan Form—Complete all fields.

Hardware Requirements

A TN722B or TN767 DS1 Tie Trunk circuit pack must be provided for trunk assignments. The circuit pack must be assigned (via a DS1 Circuit Pack form) prior to administration of DMI-BOS or ISDN-PRI Trunk Groups. If ISDN-PRI signaling is used, a TN767 must be used in conjunction with a TN577 PGATE circuit pack. The TN722B or TN767 provides up to 24 independent trunks. When used with common channel or ISDN-PRI signaling, 23 trunks are available for data and one trunk is used for signaling purposes.

A port is required on a TN754B/TN7400A Digital Line circuit pack if a Long Haul DCS is used with a high speed modem, Data Service Unit, a DATAPHONE® II data set, or a Local Area Data Set.

Direct Department Calling

Allows direct inward access to an answering group other than the attendant even if the system does not have the Direct Inward Dialing (DID) feature.

A Direct Department Calling (DDC) answering group can consist of voice terminals and individual attendants.

Administration

To implement this feature, complete the following forms.

Form	Field
Recorded Announcements	As Required
Recorded Announcement Data Module	All
Call Coverage Paths	All
Hunt Groups	All
Trunk Groups (all	Incoming Destination Night Service

- Recorded Announcements Form—Assign recorded announcement extension numbers, if used.
- Recorded Announcement Data Module Form—Complete all fields.
- Call Coverage Paths Form—Verify or assign Call Coverage Path for the group, if used.
- Hunt Groups Form—Complete all fields.
- Trunk Group Forms—If this feature is to be provided via DID, the assigned hunt group extension number must be accessible via DID. Enter the extension number assigned to the hunt group in the trunk group Incoming Destination and/or Night Service fields.

Hardware Requirements

Requires one port on a TN742, TN746B, or TN769 Analog Line circuit pack for each Auxiliary Queue Warning lamp. A ''beehive'' indicator lamp may be used as a warning lamp. This lamp operates on ringing voltage and can be mounted in any convenient location.

Each delay announcement requires announcement equipment (integrated announcement circuit pack on external announcement and a port on a TN742, TN746B, or TN769 Analog Line circuit pack.) If music is to be provided after the delay announcement, a music source and a port on the TN76C Auxiliary Trunk circuit pack is also required. The announcement and music equipment are not provided as part of the System equipment.

Refer to the ''Recorded Announcements and Trunk Groups'' coverage elsewhere in this chapter for additional administration and hardware requirements.

Direct Inward Dialing

Connects calls from the public network directly to the dialed extension number without attendant assistance.

Administration

To implement this feature, complete the following forms.

Form	Field
Direct Inward Dialing Trunk Group	All

- Direct Inward Dialing Trunk Group Form—Verify or complete all fields.

Hardware Requirements

Each Group Member Assignment (DID trunk) in the DID Trunk Group requires a port on a TN753 DID Trunk circuit pack. A TN753 provides eight ports.

Direct Outward Dialing

Allows voice terminal users by use of a Trunk Access Code to access the public network without attendant assistance.

Administration

To implement this feature, complete the following forms.

Form	Field
Dial Plan	Identification/Number Of Digits for: -Local CO Trunk Group -Foreign Exchange Trunk Group -WATS Trunk Group
Trunk Groups: CO FX WATS	All

- Dial Plan Form—Verify trunk access codes for local Central Offices, Foreign Exchange offices, ISDN-PRI trunk groups, and/or outward Wide Area Telecommunications Service (WATS).
- Trunk Group Forms—Verify or complete all fields for the applicable outgoing Central Office, Foreign Exchange, or WATS Trunk Group form.

Hardware Requirements

Requires a port on a TN747B Central Office Trunk or TN767 DS1 Interface circuit pack for each trunk to be assigned in the trunk group. Each TN747B provides eight ports and each TN767 provides 24 ports.

Distinctive Ringing (Alerting)

Helps voice terminal users and attendants distinguish between various types of incoming calls.

Distinctive Ringing is a standard feature. No administration is required to activate it. However, Distinctive Ringing can be disabled for single-line voice terminals if required.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (single-line)	Distinctive Audible Alert
Station	Redirect Notification
Miscellaneous-Related System Parameters	Distinctive Alerting

- Station Forms for 500, 2500, 7101A, 7102A, 7103A, and 7104A voice terminal—Complete Distinctive Audible Alert field.
- Station Forms—Enter ''y'' in the Redirect Notification field to provide a half ring at the voice terminal when calls to the terminal have been redirected (via Call Coverage or Call Forwarding).
- Miscellaneous-Related System Parameters Forms—Assign the number of rings used for distinctive alerting in the Distinctive Alerting field.

Hardware Requirements

Requires that a 500-type, 2500-type, or 7100-series voice terminal be assigned.

Distributed Communications System (DCS)

Allows a configuration (cluster) of two or more switches (nodes) to provide certain attendant and voice terminal features as if the cluster is a single large

System. This simplifies dialing procedures between locations, and also allows transparent use of some of the System's features between locations.

For detailed information on DCS, refer to *AT&T Network and Data Services Reference*, 555-025-201, and *AT&T System 75 Application Notes—Distributed Communications System*, 555-209-003.

Administration

NOTE:
The Distributed Communications System (DCS) and Uniform Dial Plan options must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
DS1 Circuit Pack	All
Synchronization Plan	All
Tie Trunk Group	All
ISDN-PRI Trunk Group	All
Dial Plan	All
Uniform Dial Plan	All
AAR Digit Analysis Table	All
AAR Digit Conversion Table	All
Routing Patterns	All
Node Number Routing	All
PGATE	All
Data Module (X.25)	All
Interface Links	Interface Links (assign DCS links)
Processor Channel Assignment	All Proc Chan fields to be assigned DCS
Signaling Group	All (for TSCs)
Gateway Channel	All (for TSCs over X.25)
Hop Channel Assignments	(as required)

- DS1 Circuit Pack Form—Complete form. This form must be completed if the tie trunk is used for DCS signaling.

- Synchronization Plan Form—Complete form. This form must be completed if the tie trunk is used for DCS signaling. Assign a secondary circuit pack that the System can use if the primary circuit pack fails.
- Tie Trunk Group Form—Provide data links (can be DS1 or tie trunks) and voice channels. If trunk group is used for voice, enter the required number. If the trunk group is used for DS1 signaling, enter one member in the trunk group. This one member is used to establish the link using a port on a DS1 circuit pack. Enter wink/wink in the trunk Type field and ''avd'' in the Comm Type field for DS1 signaling trunk groups.
- ISDN-PRI Trunk Group Form—Used to provide voice and data paths. Assign Service Type field as ''tie'', ''tandem'', or ''access'' as appropriate.
- Dial Plan Form—Complete all fields to assign a 4- or 5-digit number for DCS and complete all applicable fields for Uniform Dial Plan.
- Uniform Dialing Plan Form—Enter the Extension Codes for non-home extensions in the ENP sub-network are node number routed.
- AAR Digit Analysis Table Form—Assign routing patterns and destination Node Numbers.
- AAR Digit Conversion Table Form—Assign the replacements for all or part of a dialed digit string with a modified string and/or change of analysis type. The modified string represents an alternative equivalent address and results in the call being analyzed according to the network type. If the AAR Access Code is dialed, this table is accessed during call processing.
- Routing Patterns Form—Assign routing patterns and destination Node Numbers.
- Node Number Routing Form—Associate a routing pattern with each node in the Extension Number Portability (ENP) sub-network.
- Processor Channel Assignment Form—Enter the DCS link numbers and then assign associated channel numbers to each link. Complete all fields of the form as required.
- PGATE Form—Enter the board location and ''rs232'' as the cable type.
- Data Module (X.25) Form—Assign DTE/DCE as ''dte''.

  Assign a Baud Rate of 9600.

  Note that the second page protocol parameter defaults are appropriate for adjunct applications.
- Interface Links Form—Assign the DCS link numbers 1–8 for a multi-carrier cabinet System as required. Assign Link 1 if the Processor Interface jack (located on the back of the Control Cabinet) is used for the DCS interface to the switch. Assign links 1–4 for a single-carrier cabinet System as required. Complete all fields on the form as required. Enter a TAC or extension number in the Destination field when used to route DCS signaling data.

- Signaling Group Form—Complete the following fields:
  - — Max number of NCA TSC—Specifies the number of NCA-TSCs that will be supported in the Signaling Group. Valid entries are 0–256; default is 0.
  - — Max number of CA TSC—Specifies the number of CA-TSCs that will be supported in the Signaling Group. Valid entries are 0–400; default is 0.
  - — Trunk Group for NCA TSC—Specifies the ISDN-PRI trunk group whose Incoming Call Handling Table (ICHT) will be used to handle incoming NCA TSCs through this signaling group.

    Complete Pages 2–5 of the form as required to assign administered NCA-TSCs. Up to 64 NCA-TSCs may be administered as part of the Signaling Group form.
  - — Processor Channel Assignment Form—Complete the required fields on the form for the AUDIX interface.

    The entry in the Remote Port field must agree with an associated AUDIX port field (translated on AUDIX); the Local Port field must agree with the AUDIX Switch Port field. The entry in the Machine ID field must agree with the AUDIX field entry as translated on the AUDIX Data Link form (typically with just one AUDIX this entry is 1.
  - — Gateway Channel Form—Assign the signaling group/tsc-index pair, the processor channel to which it maps, and an indication of whether the mapping is for use as a DCS gateway or an AUDIX gateway.
  - — Hop Channel Assignments Form—Identify the link numbers and associated channels that are to be assigned as ‘‘hop’’ channels in the DCS. Complete all fields of the form as required.

NOTE:
To provide 4- or 5-digit dial plan among a group of switches, refer to the ‘‘Uniform Dial Plan’’ coverage elsewhere in this chapter and complete all forms as indicated.

Hardware Requirements

Requires a TN577 PGATE circuit pack. A DCS data link may be assigned to a vacant channel on a TN722B Tie Trunk or TN767 DS1 Interface circuit pack, a vacant port on TN754B/TN7400A Digital Line circuit pack, or an ISDN D-channel.

DCS Alphanumeric Display for Terminals

Allows calls to or from terminals on different nodes (switches) in a DCS equipped with alphanumeric displays to have transparency with respect to the display of call-related data.

Administration

To implement this feature, complete the following forms.

Form	Field
Tie Trunk Group (DCS TG)	Outgoing Display

- Tie Trunk Group Form—Enter ''n'' in the Outgoing Display field of the DCS Tie Trunk Group forms. This enables the called party's name to be displayed at the calling terminal.

Hardware Requirements

DCS interface hardware is required.

DCS Attendant Control of Trunk Group Access

Allows an attendant at any node in the DCS to exercise control over an outgoing trunk group at a different node in the cluster. This feature requires that there be a DCS Trunk Group between the local and remote switches, and that the trunks in that trunk group are not set up to insert digits on incoming calls. If digit insertion is needed on such trunks, it should be performed on the outgoing trunk, based on the dialed digits.

NOTE:
This feature is not available for trunk groups with 4-digit trunk access codes or for trunk members 100–999.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Feature Button Assignments -act-tr-grp -deact-tr-g -remote-tgs

- Attendant Console Form—Assign Attendant Control of Trunk Group Access Activate (act-tr-grp) and Attendant Control of Trunk Group Access Deactivate (deact-tr-g) buttons for each remote trunk group to be controlled. Assign a ''remote-tgs'' button for each remote trunk group to be controlled [Direct Trunk Group Select buttons 1–6 for the Basic Attendant Console (301A) or buttons 1–12 on the Enhanced Attendant Console (302A)].

Hardware Requirements

DCS interface hardware is required.

DCS Attendant Direct Trunk Group Selection

Allows attendants at one node to have direct access to an idle outgoing trunk at a different node in the DCS. This feature requires that there be a DCS Trunk Group between the local and remote switches, and that the trunks in that trunk group are not set up to insert digits on incoming calls. If digit insertion is needed on such trunks, it should be performed on the outgoing trunk, based on the dialed digits.

NOTE:
This feature is not available for trunk groups with 4-digit trunk access codes or for trunk members 100–999.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Direct Trunk Group Select Button Assignments -remote-tgs

- Attendant Console Form—Assign up to 12 ‘‘remote-tgs’’ buttons in the Direct Trunk Group Buttons (Access Code) field on Page 1 of the form if not already assigned. An additional 12 buttons can be assigned on Page 2 of the form if required. Assign the Trunk Access Code (TAC) used to access the remote switch and the TAC of the remote trunk group to be accessed.

Hardware Requirements

DCS interface hardware is required.

DCS Attendant Display

Provides some transparency with respect to the display of call-related information.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Display Module Button Assignments

- Attendant Console Form—Assign up to eight buttons in the Display Module Button Assignment field as required.

Hardware Requirements

DCS interface hardware is required.

DCS Automatic Callback

Allows a user at one node to make an automatic callback call to a user at another node in the DCS.

NOTE:
Automatic callback calls do not apply for Vector Directory Numbers.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	Automatic Callback—No Answer Timeout Interval
Feature Access Codes	Automatic Callback Activation Automatic Callback Deactivation
Station (multi-appearance)	Button/Feature Button Assignments -auto-cback
Class of Service	Automatic Callback (0–15)

- Feature-Related System Parameters Form—Specify callback time-out interval in the Automatic Callback—No Answer Timeout Interval (rings) field.
- Feature Access Codes Form—Verify Automatic Callback Activation and Deactivation fields have been assigned.
- Station Forms—Assign Automatic Callback (auto-cback) buttons to multi-appearance voice terminals, as desired.
- Class of Service Form—Verify Automatic Callback field has the correct permission.

Hardware Requirements

DCS interface hardware is required.

DCS Automatic Circuit Assurance

Allows a voice terminal user or attendant at a System node to activate or deactivate Automatic Circuit Assurance (ACA) referral calls for the entire DCS network. This transparency also allows the referral calls to be generated at a node other than the node that detects the problem.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	ACA Referral Calls
Attendant Console	Feature Button Assignments -aca call
Station (multi-appearance)	Button/Feature Button Assignments -aca call
Tie Trunk Group	ACA Assignment

- Feature-Related System Parameters Form—Determine if ACA referral calls are to be ‘‘local’’, ‘‘remote’’, or ‘‘primary’’.
  - — If administered as ‘‘local’’, referral calls are generated at the System node for the the System node.
  - — If administered as ‘‘remote’’, referral calls are generated at a remote node for the System node. In this case, the remote node PBX identification must also be entered. The remote PBX ID is the same PBX code as defined on the Dial Plan form.
  - — If administered as primary, referral calls are made at the System node for one or more remote nodes.
- Station (multi-appearance) Form—Assign ACA (aca-call) feature button if required.
- Attendant Console Form—Assign ACA (aca-call) feature button if required.
- Tie Trunk Group form—Complete the ACA Assignment and associated Long and Short Holding Time and Short Holding Threshold fields as required.

Hardware Requirements

DCS interface hardware is required.

DCS Busy Verification of Terminals and Trunks

Allows attendants and multi-appearance voice terminal users to make test calls to voice terminals and trunk groups that are located at other nodes within the DCS. This feature requires that there be a DCS Trunk Group between the local and remote switches, and that the trunks in that trunk group are not set up to insert digits on incoming calls. If digit insertion is needed on such trunks, it should be performed on the outgoing trunk, based on the dialed digits.

NOTE:
This feature is not available for trunk groups with 4-digit trunk access codes or for trunk members 100–999.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Feature Button Assignments -verify
Station (multi-appearance)	Button/Feature Button Assignments -verify

- Attendant Console Form—Assign a ‘‘verify’’ button.
- Station Forms—Assign a ‘‘verify’’ feature button on multi-appearance voice terminals.

Hardware Requirements

DCS interface hardware is required.

DCS Call Forwarding—All Calls

Allows all calls to an extension number to be forwarded to a selected extension number within the DCS network or to an external (off-premises) number. This feature is activated or deactivated by dial access code or by a Call Forwarding button. The feature can be activated or deactivated by voice terminal users within the DCS.

NOTE:
Calls can be forwarded to a Vector Directory Number (VDN) anywhere in the DCS network. An attendant cannot activate/deactivate Call Forwarding for a VDN.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Call Forwarding Activation Call Forwarding Deactivation
Station	Redirect Notification Button/Feature Button Assignments -call-fwd
Class of Service	Call Fwd-All Calls (0–15)

- Feature Access Codes Form—Verify Call Forwarding Activation and Deactivation field access codes have been assigned.
- Station Forms—Complete Redirect Notification field (which causes the forwarding terminal to receive a half ring on calls that forward). This field is common to Call Coverage and Call Forwarding.
- Station Forms—Assign a Call Forwarding (call-fwd) feature button.
- Class of Service Form—Verify Call Forwarding field has the correct permission.

Hardware Requirements

DCS interface hardware is required.

DCS Leave Word Calling

Enables System terminal users to leave preprogrammed ‘‘call me’’ messages at other terminals within the DCS network. Messages can be left by calling, called, or covering users.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	Max. Number Of Messages Per Station Stations With System-wide Message Retrieval Permission
Feature Access Codes	LWC Message Retrieval Lock LWC Message Retrieval Unlock LWC Send A Message LWC Cancel A Message
Station	LWC Reception LWC Activation AUDIX Name Message Server Name Button/Feature Button Assignments -lwc-store -lwc-cancel -aut-msg-wt (Ext:__) -msg-retr -delete-msg -lwc-lock -next -call-disp -cov-msg-rt
Attendant Console	Feature Button Assignments -cov-msg-rt -delete-msg -next -lwc-cancel -call-disp -lwc-store -aut-msg-wt (Ext:__)

- Feature-Related System Parameters Form—Complete the Maximum Number of Messages Per Station and Stations with System-wide Retrieval Permission fields.
- Feature Access Codes Form—Verify or assign the following access codes:
  - — Leave Word Calling Message Retrieval Lock field
  - — Leave Word Calling Message Retrieval Unlock field
  - — Leave Word Calling Send a Message field
  - — Leave Word Calling Cancel a Message field.

- Station Forms—Complete the ‘‘LWC Reception’, ‘‘LWC Activation’’, fields (which specify if the voice terminal can receive and/or activate LWC messages, respectively). Complete the AUDIX Name and Message Server Name fields (as entered on the User-Defined Adjunct Names form).
  - — Assign a Leave Word Calling (lwc-store) button, if desired
  - — Assign a Cancel (lwc-cancel) button, if desired, to allow a calling party to cancel a previously left message.
- Attendant Console Form or the Station Form—For each voice terminal or attendant console group that can retrieve LWC messages, optionally assign the following buttons:
  - — Message Retrieve (msg-retr) to access one’s own messages (voice terminals)
  - — Covr Msg Retrieval (cov-msg-rt) to access another user’s message
  - — Delete Message (delete msg) to remove a retrieved message
  - — Lock LWC (lwc-lock) displays locked or unlocked status of the Message Retrieval
  - — Next (to retrieve the next stored message)
  - — Cancel LWC (lwc cancel) to allow canceling a previously left message
  - — Message name or extension # (aut-msg-wt) used for voice terminal users who monitor another user’s messages.

NOTE:
Buttons can be assigned on the visual display module or in the ‘‘features area’’ of the terminal or console. If a Message Retrieval or a Coverage Message Retrieval button is specified, a Next Message and a Delete Message button should also be specified. These button assignments are covered in the Attendant Display and Voice Terminal Display features.

Hardware Requirements

DCS interface hardware is required.

DCS Over ISDN-PRI D-channel

Enhances the DCS feature by allowing access to the public network to provide DCS feature connectivity between DCS switch nodes. DCS features are no longer restricted to private facilities. A PGATE board is not needed for the DCS Signaling Link; signals are sent over the ISDN-PRI D-channel. The ISDN-PRI B-channel is used for voice communications, and the ISDN-PRI D-channel is used to transport DCS control information. The difference between DCS networks that do not use the DCS Over ISDN-PRI feature and those that do is in the

method of signaling. The DCS Over ISDN-PRI D-channel feature uses Temporary Signaling Connections (TSCs) to transport certain DCS control information.

A TSC provides a temporary signaling path through ISDN switches for exchanging user-user information. There are two types of temporary signaling connections: Call Associated Temporary Signaling Connection (CA-TSC) and Non-Call Associated Temporary Signaling Connection (NCA-TSC).

A Call Associated Temporary Signaling Connection (CA-TSC) refers to a service for exchanging USER INFORMATION messages that are associated with an ISDN B-channel connection by the call reference value of the call control data packets.

An NCA-TSC is a connection that is not related to any ISDN B-channel connections. It is an administered virtual connection established for exchanging USER INFORMATION messages on the D-channel for the DCS over ISDN-PRI D-channel application as well as for the DCS AUDIX application. Once an NCA-TSC has been administered and enabled it will be active for an extended period of time.

An as-needed administered NCA-TSC is established based on user request and the availability of TSC facilities. The connection will be dropped after an administered period of inactivity.

The System can transport DCS or DCS AUDIX messages over an ISDN-PRI D-channel and over BX.25 data links when functioning as a gateway between a PBX equipped with the DCS Over ISDN-PRI D-channel feature and a PBX equipped with traditional DCS using BX.25 data links. In this situation, the messages travel from the gateway through the NCA-TSCs or CA-TSCs to TSC-capable PBXs and from the gateway to PBXs that support traditional DCS via a BX.25 logical channel.

ISDN DCS Gateway Node

At least one PBX must be configured as an ISDN DCS Gateway node in a DCS network that consists of PBXs that support DCS+ and PBXs that do not support the feature. PBXs directly connected to AUDIX serve as Gateway nodes.

Examples of various DCS Network Configurations are provided later in this section. Administration necessary to configure the TSCs and other related parameters for the network is provided with the examples.

Administration

The ISDN-PRI option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

NOTE:
The following does not provide administration instructions associated with assigning an ISDN-PRI trunk group or administering a DCS network. Refer to the appropriate sections in the manual for related instructions.

To implement this feature, complete the following forms.

Form	Field
SIGNALING GROUP	Max number of NCA TSC Max number of CA TSC
Page 1 contains TSC-related fields.	
	Trunk Group for NCA TSC
Pages 2–5 contain Administered TSC-related fields.	
	Complete Administered ''NCA-TSC Assignment'' fields as needed.
	Service/Feature As-needed Inactivity Time-out (min)
ISDN TSC GATEWAY CHANNEL ASSIGNMENTS	All
ISDN-PRI TRUNK GROUP (Page 2 of form)	Used for DCS
	PBX ID DCS Signaling
	NCA TSC Signaling Group
ROUTING PATTERNS	TSC CA-TSC Request
PROCESSOR CHANNEL ASSIGNMENT	Appl

- Signaling Group Form—Complete the following fields:
  - — Max number of NCA TSC—Specifies the number of NCA-TSCs that will be supported in the Signaling Group. Valid entries are 0–256; default is 0.
  - — Max number of CA TSC—Specifies the number of CA-TSCs that will be supported in the Signaling Group. Valid entries are 0–400; default is 0.
  - — Trunk Group for NCA TSC—Specifies the ISDN-PRI trunk group whose Incoming Call Handling Table (ICHT) will be used to handle incoming NCA TSCs through this signaling group.

Complete Pages 2–5 of the form as required to assign administered NCA-TSCs. Up to 64 NCA-TSCs may be administered as part of the Signaling Group form.

— Service/Feature—Specifies the service type for all the administered NCA-TSCs in this signaling group. Valid entries are ''accunet'', ''i800'', ''inwats'', ''lds'', ''mega800'', ''megacom'', ''multiquest'', ''operator'', ''sdn'', ''sub-operator'', [user administered], and ''wats-max-bnd''; default is blank.

— As-needed Inactivity Time-out(min)—Specifies the inactivity time-out for as-needed NCA TSCs assigned in this signaling group. An as-needed administered TSC will be torn down. Enter a number between 10–90; default is blank.

- ISDN TSC Gateway Channel Assignment Form—Used to map administered NCA-TSCs to (BX.25) processor channels in an Integrated DCS Network. (Form required for PBX location serving as an ISDN Gateway in an Integrated DCS Network). Complete all fields as required.
- ISDN Trunk Group Form—Complete the following fields:

  — Used for DCS—Appears for ''access'', ''rlt'', ''tandem'', ''tie'', and ''isdn-pri'' trunk group types. This field determines if a trunk will send and receive messages via a DCS signaling link. (NOTE: This field does not appear for an ''isdn-pri'' trunk group with a service type of ''dmi-bos''.) For all other ''isdn-pri'' trunk group types, if ''y'' is entered in this field, then the dependent fields ''PBX ID'' and DCS Signaling'' appear.

  — PBX ID—Displayed when the ''Used for DCS'' field on the ISDN-PRI trunk group form is ''y''. Identifies the remote PBX within the network with which the trunk will communicate on a DCS signaling link. Valid entries are 1–63; default is ''1''.

  — DCS Signaling—Displayed when the ''Used For DCS'' field on the ISDN-PRI trunk group form is ''y''. The option ''bx.25'' is used to support the traditional DCS feature. The option ''d-chan'' is used to support the DCS Over ISDN-PRI D-channel feature. Enter ''d-chan''.

  — NCA-TSC Signaling Group—Specifies on which signaling group NCA-TSC calls routed to this trunk group are established. Valid entries are 1–166; default is blank. This number must match any entry in the ''Sig Grp'' column on the ''Trunk Group Member Assignments'' part of the Trunk Group form.

  NOTE:
  If there is no ambiguity in the ''Sig Grp'' column (that is, only one number has been entered for one or more group members), then, if this field is left blank, the system will fill in the field based on the information that was entered in the ''Trunk Brd'' column on Page 1 of the Signaling Group form. If there is ambiguity, then you must fill in this field.

- Routing Pattern Form—Complete the following fields:
  - — TSC—When a ‘‘y’’ is entered here, the ‘‘CA-TSC’’ field becomes writable (see ‘‘CA-TSC Request’’ below). Valid entries are ‘‘y’’ or ‘‘n’’ (default).
  - — CA-TSC Request—This field becomes writable when a ‘‘y’’ is entered in the ‘‘TSC’’ field. (See ‘‘TSC’’ above.) You must specify when a CA-TSC will be established if the call is routed through a particular preference of a routing pattern. Valid entries are ‘‘as-needed’’, ‘‘at-setup’’, and ‘‘none’’. The first two entries, ‘‘as-needed’’ and ‘‘at-setup’’ are meaningful for CA-TSCs. If the ‘‘as-needed’’ option is entered, a CA-TSC will be established when it is requested during a call. If the ‘‘at-setup’’ option is requested, then the CA-TSC will be established when the call is set up. Selection of the ‘‘none’’ option means that there will be no CA-TSC associated with this call. For an NCA-TSC, the ‘‘none’’ (default) option means that the NCA-TSC will be allowed if it is routed through this pattern in a tandem switch.
- Communications-Links Processor Channels Form—The ‘‘Appl’’ field specifies to which application channel this processor channel is connected. Enter ‘‘gateway’’ in the associated ‘‘Appl’’ field if the processor channel is used as one end of the gateway channel assigned in the ISDN TSC Gateway Channel Assignments form. The gateway node serves as the terminating node to the D-channel DCS network as well as the terminating node to the traditional DCS network.

  A PBX serving as an ISDN DCS Gateway node introduces some interesting situations when administering processor channels in an associated traditional DCS PBX. In a traditional DCS network, (bx.25 processor channel links) the ‘‘Remote Port’’ field in the Processor Channel Assignments form refers to the ‘‘Local Port’’ of the destination PBX. In an Integrated DCS network, the ‘‘Remote Port’’ field in the Processor Channel Assignments form refers to the ‘‘Local Port’’ of the Gateway PBX (if the destination PBX is an ISDN DCS PBX), NOT the destination PBX.

  On the contrary, the ‘‘Machine-ID’’ field in the Processor Channel Assignments form refers to the destination PBX, either an ISDN DCS PBX or a traditional DCS PBX. The Gateway PBX number MUST not be used in this field if the destination PBX is an ISDN DCS PBX.

DCS and AUDIX Networking Examples

DCS network configurations can be:

1. **Traditional DCS Network** — A DCS network configured of two or more PBXs[1] using BX.25 signaling for transporting DCS feature transparency information.
2. **D-channel DCS Network (Private Network Only)** — A DCS network that includes either Generic 1.2, Generic 3i, or Generic 3r (and subsequent releases) PBXs using the ISDN-PRI D-channel DCS feature transparency information (D-channel signaling). ISDN-PRI facilities with this type of network use only private line facilities.
3. **D-channel DCS Network (Public Network Access/Egress)** — A DCS network that includes either Generic 1.2, Generic 3i, or Generic 3r (and subsequent releases) PBXs using D-channel signaling. At least one of these ISDN-PRI facilities uses public network ISDN-PRI (usually via the AT&T Software Defined Network).
4. **Integrated DCS Network (Private Network Only)** — A DCS network that may contain a variety of PBXs using either BX.25 and/or D-channel signaling methods. At least one Generic 1.2, Generic 3i, or Generic 3r (and subsequent releases) PBX serves as an ISDN-PRI DCS Gateway node. This node can interwork DCS feature transparency information between a BX.25 connection and one of the ISDN-PRI user-to-user signaling methods over the D-channel and vice-a-versa.

   An ISDN-PRI DCS Gateway node provides backward compatibility to existing traditional DCS networks.
5. **Integrated DCS Network (Public Network Access)** — The same as #2 above but the D-channel of at least one ISDN-PRI facility uses public network ISDN-PRI.

ISDN User-to-User Services

User-to-user information (UUI) is usually not needed for call establishment but rather for call-related or value-added services. ISDN-PRI allows three ways to exchange UUI: Message Associated UUI (MA-UUI), Call Associated Temporary Signaling Connections (CA-TSCs), and Non Call Associated Temporary Signaling Connections (NCA-TSCs). Each of these methods are described in more detail in the following subsections.

1. For System 75s, release R1V2 or later; System 85s, release R2V1 or later; and any Generic 1 or Generic 2.

MA-UUI Refers to the ability to carry UUI within a Q.931 call control message[2] when a call is established or cleared. This additional information is contained in one of several optional information elements (IEs). MA-UUI exchange does not necessitate additional Q.931 layer 3 message exchange, rather, additional IEs may be piggy-backed on other messages.

CA-TSC Refers to the ability to exchange UUI either during and/or after the establishment of an ISDN-PRI circuit switched call. Once a CA-TSC is established, the UUI is carried in a special Q.931 message known as a user information message (UIM). This message is not considered a call control message. The UIM and its contents are associated with an existing ISDN-PRI call by using the same Call Reference Value (CRV) as the existing call. A CA-TSC can be requested either at setup time (where an indication is included in the Network Specific Facility (NSF) IE contained in the SETUP message), or after setup time (where the switch needing to send a UIM first establishes a CA-TSC by sending an appropriately encoded FACility message). In both cases, the recipient of the request acknowledges the successful establishment of a CA-TSC by returning an appropriately encoded FACility ACKnowledge message. Once the CA-TSC is established, either end of the connection can begin sending UIMs. The CA-TSC remains active until the associated circuit switched call is terminated.

If any intervening switch or the recipient of the CA-TSC request cannot establish a CA-TSC, a FACility REJect message is returned and no UIMs are exchanged.

NCA-TSC Refers to the capability to exchange UUI not associated with any current B-channel connection. A NCA-TSC is established using procedures similar to that of a circuit switched call, but the SETUP message specifies a packet connection on the D-channel rather than selecting any B-channel. The resulting connection can be thought of as a virtual D-channel connection.

Once the NCA-TSC is established, either end of the interface can exchange UUI by encoding a UIM. NCA-TSCs remain active until explicitly torn down.

2. A message needed to establish or clear a call. A Generic 1.2, Generic 3i, or Generic 3r may send an MA-UUI in the SETUP, ALERTing, CONNect, and first clearing message DISConnect, RELease, or RELease COMPlete.

D-channel Signaling For DCS/AUDIX

The BX.25 signaling link used in a traditional DCS network is no longer needed when D-channel signaling is used. Rather, the DCS feature transparency information is carried by one of the ISDN-PRI UUI exchange methods. Different DCS features take advantage of the user-to-user method that most efficiently matches the signaling needs of the specific feature.

The contents and even layout of the DCS feature transparency information using D-channel signaling is the same as a traditional DCS network. In a D-channel signaling network, the DCS feature transparency messages are encoded in a DCS-IE. Then, depending on the user-to-user signaling method being employed, the DCS-IE is then carried in either a Q.931 Layer 3 UIM[3] or in an appropriate Q.931 Layer 3 call control message (e.g., SETUP, ALERTing, etc.).

D-channel Signaling MA-UUI Example

In a D-channel signaling network, basic DCS distinctive alerting and name and number transparency provide an example of features that use MA-UUI signaling. For example, when a DCS call is originated, the DCS distinctive ringing information and the calling party name information is available at the time the call is being established. In a D-channel signaling network, this information is carried via DCS-IEs as MA-UUI in the SETUP message used to initiate the call. Similarly, the called party name information is available at the time the terminating switch begins to alert the called extension. As such, this information is returned via a DCS-IE as MA-UUI in the returned ALERTing message.

DCS Over the D-channel CA-TSC Example

Activation of LWC while alerting an extension on a remote switch in a D-channel signaling network provides an example of a feature that uses CA-TSC signaling. If after the called party is alerted and the calling party is listening to ringback, the calling party activates the DCS leave word calling (LWC) feature, there are no waiting call control messages to convey this feature activation. Here, since there exists an active B-channel connection, a CA-TSC is used to accomplish the LWC activation. If the CA-TSC was not established at call setup time, an attempt is made to establish it when the LWC feature is first activated. Assuming the TSC is successfully established, the DCS request to activate LWC is carried in a DCS-IE in a UIM over the CA-TSC. Based on the Call Reference Value of the UIM, the terminating switch can associate the feature activation with the active

3. If either a CA-TSC or NCA-TSC is being used.

B-channel connection and hence determine the intended recipient of the LWC activation. Further, the terminating switch can also use the same CA-TSC to acknowledge the successful (or unsuccessful) activation of the ringing LWC feature.

D-channel Signaling NCA-TSC Example

Activation of pre-indication LWC toward a user on a remote switch in a D-channel signaling network provides an example of a feature using NCA-TSC signaling. If a user dials either the LWC feature access code or presses the LWC feature button prior to dialing the extension of a remote user, there is no need to attempt to establish a circuit switched voice connection. Rather, all that is necessary is for the originating switch to inform the destination switch that a given user has activated LWC for a specific user on the destination switch and that the destination switch acknowledges the feature activation. Since there is no active B-channel connection, this message exchange is accomplished via a NCA-TSC. The originating switch selects, and if necessary, establishes the NCA-TSC, and conveys the DCS request to activate LWC in a DCS-IE in a UIM over the selected NCA-TSC. The acknowledgement and subsequent messages associated with this feature activation also use the same NCA-TSC.

Administered NCA-TSCs

For the correct operation of non-call associated features, every switch in a DCS network requires a dedicated connection to every other switch. In a traditional DCS network, individual processor channels are assigned for each remote PBX in the network.[4] In a D-channel signaling network, each switch requires an administered NCA-TSC to every other switch in the network. An administered NCA-TSC has an administered *NCA-TSC endpoint* and a *NCA-TSC*. The administered NCA-TSC endpoint defines a local extension, a destination PBX ID, and a destination extension[5] or digits for the administered NCA-TSC. As an analogy, the administered NCA-TSC endpoint is like a station originating/terminating a packet-like data call while the NCA-TSC is like a trunk carrying the data call.

NOTE:
A NCA-TSC can tandem through an intermediate PBX. Additional detail on routing NCA-TSCs appears later.

An administered NCA-TSC is a virtual connection over a D-channel in that it does not consume any physical hardware. Administered NCA-TSCs do, however, consume memory and extension numbers and are limited.

4. Several processor channels can share a single BX.25 link and these connections can hop through 1 or 2 intermediate nodes.
5. As well as other associated administration described earlier.

D-channel Signaling Method Summary

Table 3-4 provides a summary of each DCS feature and the user-to-user signaling method used in a D-channel signaling network.

Table 3-4. ISDN-PRI D-channel Signaling Method Used For DCS Features

DCS Feature	D-channel Signalling Method		
	MA-UUI	CA-TSC	NCA-TSC
DCS Alphanumeric Display for Terminal	y	n	n
DCS Attendant Call Waiting	y	y	n
DCS Attendant Control of Trunk Group Access	n	n	y
DCS Attendant Direct Trunk Group Selection	y	n	n
DCS Attendant Display	n	y	n
DCS Automatic Callback	y	n	y
DCS Automatic Circuit Assurance	n	n	y
DCS Busy Verification of Terminals and Trunks	n	y	n
DCS Call Forwarding All Calls	n	n	y
DCS Distinctive Ringing	y	n	n
DCS Leave Word Calling	n	y	y
DCS Multi-Appearance Conference/Transfer	n	y	n

Administration Overview of ISDN-DCS and ISDN-DCS AUDIX Networks

This section discusses new forms and new fields on existing forms applicable to ISDN-DCS. Translating a simple D-channel signaling network requires:

- Coordinated Uniform Dialplan Administration

  For a D-channel signaling network, coordinated UDP administration remains unchanged from a traditional DCS network. As with prior versions of DCS, all nodes in the DCS network must be part of a four or five digit Uniform Dialing Plan. For Generic 3i, this administration is translated on the dialplan form on each PBX in the network. For correct operation of DCS features, the remote PBX ID on page 2 of the dialplan must be associated with the unique prefix for each PBXs block(s) of extensions. For Generic 3r, this administration is translated on the universal-dialplan form on each PBX in the network. The extensions on this form map directly into node numbers or into UDP codes which are mapped into node numbers by the AAR analysis table. For DCS, these node numbers are the same as remote PBX IDs.

- ISDN-PRI Link Administration

  A D-channel signaling network requires ISDN-PRI connectivity between the switches using this feature. D-channel signaling does not require any additional or special administration of the ISDN-PRI link.

- DCS Trunk Group Administration, trunk-group form

  NOTE:
  Although the System limit is 4-digits, DCS Trunk Groups in this application can only use 3-digit Trunk Access Codes (TACs).

  When an ISDN-PRI trunk group is marked as Used for DCS, two additional fields appear. The PBX ID contains the node number of the remote PBX with which the trunk communicates. For a trunk to the SDN/SDDN network, this field should be blank. A DCS Signaling Method field also appears since DCS signaling is now possible via an BX.25 link or via the D-channel. Enter ''d-chan'' for all ISDN-DCS trunk groups signifying that DCS signaling for voice calls carried by this trunk group will be over the ISDN-PRI D-channel associated with the signaling group of the trunk member used to carry the call.[6] This field should be ''BX.25'' when this trunk communicates with a node that is not part of the ISDN-DCS subnetwork, and uses BX.25 signaling to achieve feature transparency (such as the trunk group of a gateway node connected to a non ISDN-DCS switch).

  The new NCA-TSC Signaling Group field appears on page 2 of the trunk group form. This field is relevant at a node which tandems an NCA-TSC setup request and should contain the number of the signaling group through which the NCA-TSC setup request is tandemed-out. When an NCA-TSC setup request arrives at the tandem node and the tandem node determines that the destination is non-local, standard routing is performed. A routing pattern is chosen which should have as its 1st preference the trunk group that specifies the signaling group used to tandem the NCA-TSC setup request to the destination switch.

- TSC Administration

  Pages 2–5 of the signaling group form are used for TSC administration. Up to 64 Administered NCA-TSCs per signaling group can be administered. Page 1 specifies the maximum number of CA and NCA-TSCs that can be established over that signaling group. The Max. CA-TSC field specifies the maximum number of CA-TSCs (typically the number of ISDN-PRI trunk group members controlled by that signaling group). Such a strategy guarantees a CA-TSC resource for each B-channel call associated with this signaling group.

6. Trunk members in a given trunk group can be associated with different signaling groups

All signaling groups used to carry DCS information must have CA-TSC and NCA-TSC resources associated with them. If this is not done, those DCS features that require CA-TSCs or NCA-TSCs will not work. There are times however, when even those DCS features that only use MA-UUI will not work,[7] so it is highly recommended that both CA and NCA-TSC facilities are available for all signaling groups represented on the trunk group form of ISDN-DCS trunk groups.

- To achieve feature transparency, ISDN-DCS calls should be routed via a routing pattern that has an ISDN-PRI Used for DCS trunk group as its first preference. The new TSC field on the routing pattern form must be ''y'' to allow incoming NCA-TSC requests to be tandemed out and to allow CA-TSCs associated with B-channel connections of that preference to be established. If this field is ''y'', the CA-TSC Request Method field appears. Entering ''none'' here disallows the establishment of CA-TSCs associated with B-channel connections of the current preference (tandeming NCA-TSC setup requests are still allowed). ''at-setup'' causes a CA-TSC to be established at the same time as the initial B-channel connection. That is, a CA-TSC is setup for each B-channel call whether or not that CA-TSC is needed. ''as-needed'' does not establish a CA-TSC with the B-channel call. If a CA-TSC is needed, it is established at that time and remains active during the entire call.

  NOTE:
  ''as-needed'' causes a minor delay in the invocation of the Call Associated feature. This delay is not present for ''at-setup'' since the CA-TSC is already established.

- Gateway Channel Administration

  A Generic 3 can act as a gateway node by being positioned between the part of the network that supports ISDN-DCS and the part that does not. The gateway node maps DCS messages from ISDN-PRI protocol to BX.25 protocol and vice versa. NCA-TSCs that carry ISDN-PRI DCS messages are mapped to BX.25 processor channels on the gateway channel form.

  NOTE:
  The Host PBX-AUDIX link is a BX.25 link. Gateway channel administration is applicable to the AUDIX Host PBX for PBXs with remote AUDIX.

7. Such as where a non-ISDN switch is connected to the gateway node and PRI interworking takes place, the ISDN message flow does not allow MA-UUI, and those DCS features that normally use MA-UUI are implemented via CA-TSCs.

The Gateway Channel form allows up to 64 entries where each entry consists of a signaling group/tsc-index pair, the processor channel that it maps to and an indication of whether the mapping is for use as a DCS gateway or an AUDIX gateway.

The Processor Channel form assigns those processor channels that function as the gateway.

NOTE:
Refer to *Generic 1 and Generic 3—Installation and Test* (555-230-104) for complete instructions on Gateway administration.

Graphical Notations

The following symbols are used in the design examples (refer to Figure 3-8):

Signaling Switching Functions — Show how a TSC or a logical channel can be switched through an intermediate switch (Tandem, Hop, or Gateway).

Communication Interface Links — Show how a communication link is connected from one switch to an another switch (BX.25 Link and D-channel). For D-channel signaling networks, the communication interface link numbers should match the signaling group number at each end to help coordinate assignments and aid in troubleshooting.

Signaling Methods — Show the transport mechanism used to carry DCS messages between two DCS nodes [TSC and logical channel (BX.25)].

Other Notations —

TSC x/y	Administered NCA-TSC Index y belonging to signaling group x
m <--> n	A connection between PBX m and PBX n
m <--> n for z	An Administered NCA-TSC exists between PBX m and ‘‘gateway’’ PBX n to establish a connection between PBX m and PBX z (a non-TSC capable PBX)
Link a/b	Logical channel b on interface link a
hop(a/b : c/d)	A hop channel exists between interface link a - logical channel b and interface link c - logical channel d
PBX ID	Node number assigned to each switch in DCS
RNX	Home RNX assigned

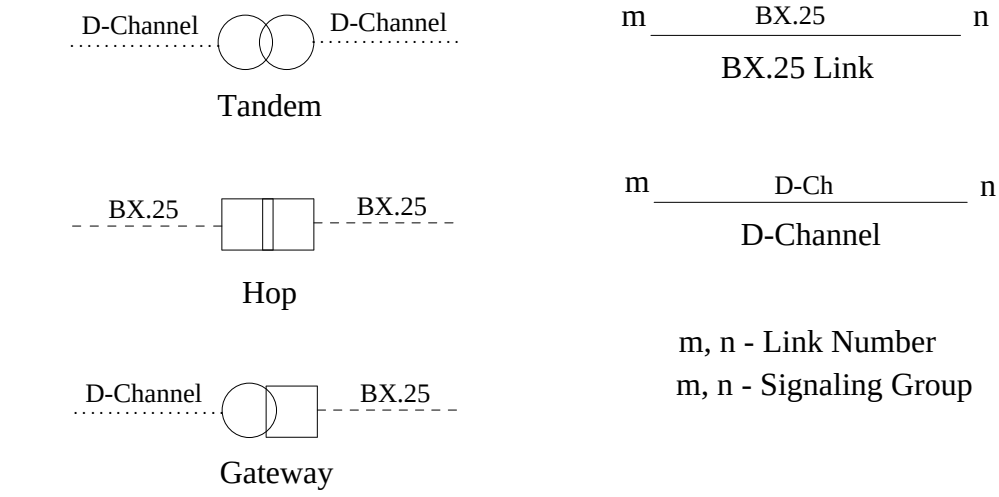


Figure 3-8. Symbols and Meanings

Figure 3-9 is a sample DCS Network configuration where PBXs 1, 2, and 3 are TSC Capable PBXs that support D-channel signaling; PBXs 4 and 5 do not support D-channel signaling but use traditional DCS.

SAMPLE DCS NETWORK CONFIGURATION

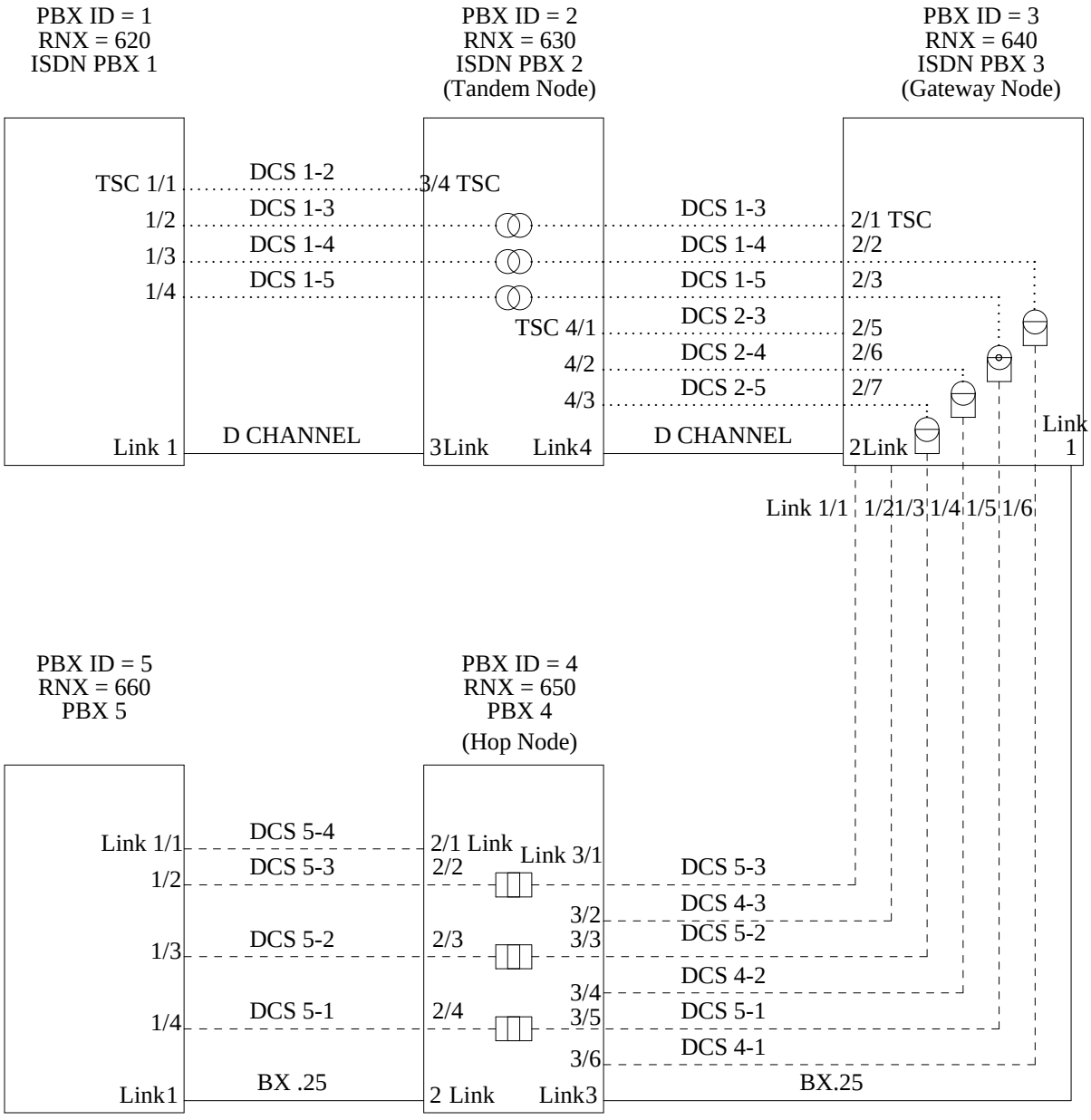


Figure 3-9. Sample Mixed DCS Network

Figure 3-10 is a D-channel DCS AUDIX configuration.

ISDN-PRI D-CHANNEL DCS AUDIX CONFIGURATION

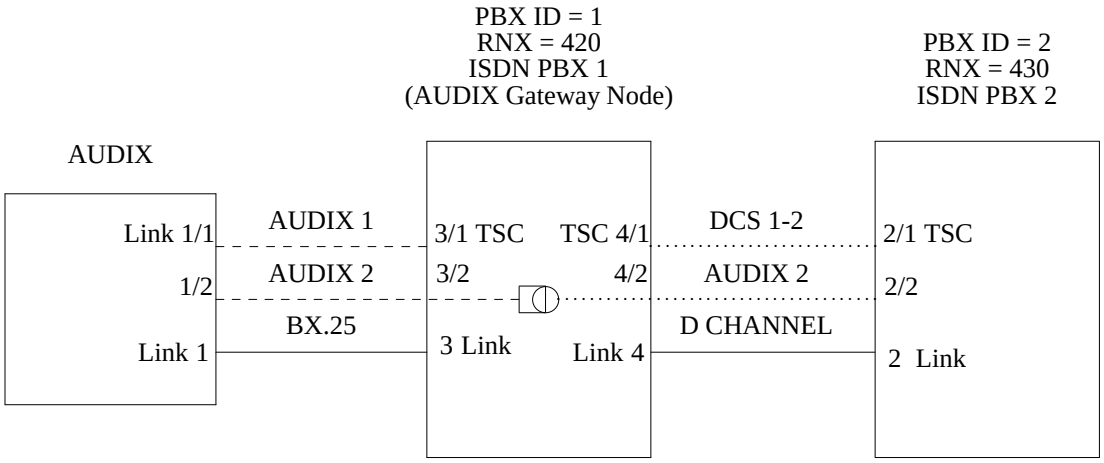


Figure 3-10. Sample DCS AUDIX Network

Design Example (using Figure 3-11)

In the following example, to show the differences in the types of calculations that may be required, two types of intercom distribution are assumed. Node 2 is assumed to have equal intercom distribution to the other nodes in the cluster. This could be the case for all of the nodes in the cluster.

Step 1—Determine Intercom CCS Generated by Each Node

Traffic studies must be done to determine the average intercom traffic generated by each station in each node. By multiplying the average intercom CCS/station by the number of stations in the node, the total intercom CCS/node is found (see Table 3-5).

Table 3-5. Finding the Total Intercom CCS Per Node

Node Number	Stations in Node	CCS/Station	Intercom CCS
1	800	2	1600
2	400	2	800
3	600	3	1800
4	500	1	500
		TOTAL	4700

Step 2—Determine Intranode Intercom CCS Generated by Each Node

Consult with the customer to determine the percentage of intercom traffic generated in each node that stays within the node. These percentages are as follows:
Node 1—40% Stays Within Node
Node 2—Equal Distribution to Stations in the Cluster
Node 3—60% Stays Within Node
Node 4—50% Stays Within Node.
Determine the intranode intercom CCS by multiplying these percentages by the total intercom CCS generated by each node (Step 1). Since calls for Node 2 are distributed equally among all stations in the DCS cluster, the fraction that stays within Node 2 is determined by taking the ratio of stations in Node 2 to the total number of stations in the cluster.

Table 3-6. Intercom CCS Within Node

Intranode CCS = *Intercom CCS* **times** *% CCS Within Node*

Intranode 1 CCS	=	1600 **times** 0.40
	=	640 CCS
Node 2 Ratio	=	*N2 Stations* **over** *Total Stations in Cluster*
	=	400 **over** 800+400+600+500
	=	400 **over** 2300
	=	0.174
Intranode 2 CCS	=	*800 CCS* **times** 0.174
	=	139 CCS
Intranode 3 CCS	=	*1800 CCS* **times** 0.60
	=	1080 CCS
Intranode 4 CCS	=	*500 CCS* **times** 0.50
	=	250 CCS

Record the results from the preceding calculations in the table below.

Step 3—Determine Internode Intercom CCS for Each Node in the Cluster

This value is calculated by subtracting the intercom CCS that stays within the node from the total intercom CCS generated by the node. (See table below.)

Table 3-7. Internode Intercom CCS for Each Node in the Cluster

Node Number	Intercom CCS	Percent Intranode Intercom	Intranode Intercom CCS	Internode Intercom CCS
1	1600	0.40	640	960
2	800	0.174	139	661
3	1800	0.60	1080	720
4	500	0.50	250	250
TOTAL	4700		2109	2591

Step 4—Determine Internode Traffic Distribution From Each Node in the DCS Cluster to Other Nodes in the DCS Cluster

Calculate this value by determining the ratio of stations for each node (other that the node being analyzed) compared to the total stations for all nodes (other than the node being analyzed).

Multiply the ratio for each node by the total outgoing intercom CCS leaving the node being analyzed to get the CCS distribution to each node.

The following equations use values obtained from Steps 1 and 3.

Table 3-8. Node 1 Outgoing Intercom Distribution

Node 2 Ratio	=	*N2 Stations* **over** *N2+N3+N4 Stations*
	=	400 **over** 1500
	=	0.267
Node 3 Ratio	=	*N3 Stations* **over** *N2+N3+N4 Stations*
	=	600 **over** 1500
	=	0.400
Node 4 Ratio	=	*N4 Stations* **over** *N2+N3+N4 Stations*
	=	500 **over** 1500
	=	0.333
Intercom CCS From Node 1 to Node 2	=	*N2 Ratio* **times** *Outgoing CCS N1*
	=	0.267 **times** 960
	=	256 CCS
Intercom CCS From Node 1 to Node 3	=	*N3 Ratio* **times** *Outgoing CCS N1*
	=	0.400 **times** 960
	=	384 CCS
Intercom CCS From Node 1 to Node 4	=	*N4 Ratio* **times** *Outgoing CCS N1*
	=	0.333 **times** 960
	=	320 CCS

Table 3-9. Node 2 Outgoing Intercom Distribution

Node 1 Ratio	=	*N1 Stations* **over** *N1+N3+N4 Stations*
	=	800 **over** 1900
	=	0.421
Node 3 Ratio	=	*N3 Stations* **over** *N1+N3+N4 Stations*
	=	600 **over** 1900
	=	0.316
Node 4 Ratio	=	*N4 Stations* **over** *N1+N3+N4 Stations*
	=	500 **over** 1900
	=	0.263
Intercom CCS From Node 2 to Node 1	=	*N1 Ratio* **times** *Outgoing CCS N2*
	=	0.421 **times** 661
	=	278 CCS
Intercom CCS From Node 2 to Node 3	=	*N3 Ratio* **times** *Outgoing CCS N2*
	=	0.316 **times** 661
	=	209 CCS
Intercom CCS From Node 2 to Node 4	=	*N4 Ratio* **times** *Outgoing CCS N2*
	=	0.263 **times** 661
	=	174 CCS

Node 3 and Node 4 Outgoing Intercom Distribution:
Use the same method as the one used for computing Node 1 outgoing intercom distribution to compute Node 3 and Node 4 outgoing intercom distribution.

Step 5—Summarize Data

Using results from Step 2 (intranode intercom CCS) and Step 4 (internode CCS), develop a summary table and a DCS intercom traffic distribution diagram (Figure 3-11).

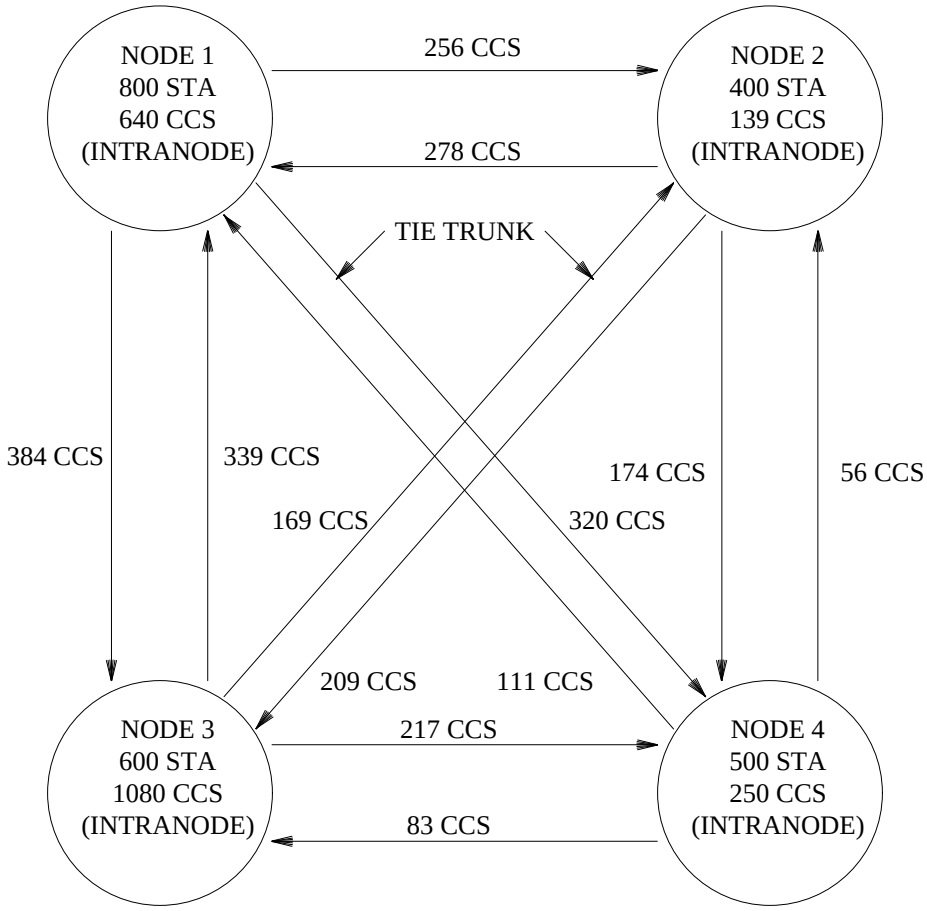


Figure 3-11. DCS Intercom Traffic Distribution

Step 6—Check Calculations

The total intercom CCS from Step 1 and the total intranode and internode intercom CCS values obtained from the summary table in Figure 3-12 should agree. For this example, the intranode intercom CCS is 2109 CCS, and the internode intercom CCS is 2596 CCS for a total of 4705 CCS. The total intercom CCS from Step 1 is 4700 CCS. This five CCS difference is due to rounding.

The CCS values obtained by completing Step 4 (internode intercom CCS) when combined with the incoming and outgoing loads to/from the cluster are used to configure the internode tie trunk configuration. See ‘‘Tie Trunk Requirements’’ elsewhere in this section for determining the tie trunk requirements for the cluster.

Internode Tie Trunk Requirements

Tie trunks must be provided between all nodes in a DCS cluster (see Figure 3-12). The object of DCS tie trunk engineering is to provide the customer an acceptable service level with a minimal number of tie trunks.

Service levels are generally measured by the percent of demands for service that fail to receive service (expressed as percent blocking). A term synonymous with percent blocking is a mathematical expression, such as P.01 that states the probability (P) of an attempt being blocked is one percent (One percent blockage = P.01). The service level must be determined by the customer. A recommended service level for DCS tie trunks is P.02 (two percent blockage). The Retrial Capacity Tables, 788-100-140, can be used to determine the number of trunks required between each node in a DCS cluster.

Example

With the required offered load given, the number of two-way tie trunks required between nodes for two percent blockage can be determined using the following steps:

1. Determine the required offered traffic load between the two nodes. For example in Figure 3-12, the total estimated traffic between Node 1 and Node 2 is 534 CCS (256 CCS + 278 CCS).
2. Since the desired blocking objective is two percent, go to Figure 3-12 (Table 2) and read down the offered load column (OFFD CCS) to 534 CCS, or in this case, 546 CCS—the next offered load above 534 CCS.

RETRIAL CAPACITY TABLES WITH NO DAY-TO-DAY VARIATION ADJUSTMENTS

	TABLE .01		TABLE .02		TABLE .03		TABLE .04	
GROUP SIZE	OFFD CCS	CRRD CCS	OFFD CCS	CRRD CCS	OFFD CCS	CRRD CCS	OFFD CCS	CRRD CCS
1	0.2	0.2	0.5	.05	0.7	0.7	1.0	1.0
2	4.7	4.7	6.8	6.7	8.4	8.4	9.9	9.8
3	14.8	14.8	19.3	19.2	22.7	22.5	25.5	25.2
4	29	29	36	36	41	40	45	44
5	46	46	55	55	62	61	67	66
6	65	65	77	76	85	84	91	90
7	86	85	99	99	109	108	116	115
8	108	107	123	122	134	133	143	141
9	131	130	148	147	160	159	170	168
10	154	154	174	173	187	185	198	195
11	179	178	200	199	215	212	226	223
12	203	203	227	225	243	240	255	252
13	230	229	254	253	271	269	285	281
14	256	255	282	280	300	297	314	310
15	283	282	310	308	330	326	344	340
16	309	308	339	337	359	356	375	370
17	336	335	368	365	389	385	406	400
18	364	362	397	394	419	415	437	431
19	392	391	426	424	450	445	468	462
20	420	418	456	453	480	476	499	493
21	448	447	486	483	511	506	531	524
22	477	475	516	513	542	537	562	555
23	506	504	546	543	573	568	594	587
24	535	533	577	573	604	599	626	618
25	564	562	607	603	636	630	658	650

Trunks Required

Offered Load = 546 CCS (next offered load above 534 CCS)

USAGE NOTES:
1) "TABLE NUMBER" is the ratio of overflowed peg count to total peg count. The TABLE NUMBER multiplied by 100 gives the percent blocking
2) True offered load (OFFD CCS) is the amount of traffic that would be served if all requests for service were immediately accommodated.
3) Carried load (CRRD CCS) is a measure of server occupancy, expressed in CCS.
4) "GROUP SIZE" is the number of working servers (trunks) in the group.

Figure 3-12. Retrial Capacity Table With No Day-to-Day Variation Adjustments

3. Read horizontally across the table to find the number of servers (trunks) listed for 546 CCS, in this case 23.

   If a PI link is provided between the two nodes, an additional data link must also be provided. See ''PI Link Connectivity'' for PI link requirements elsewhere in this section.

Table 3-10. Intercom Traffic Summary

From Node	To Node	Intranode Intercom CCS	Internode Intercom CCS
1	1	640	
1	2		256
1	3		384
1	4		320
2	1		278
2	2	139	
2	3		209
2	4		174
3	1		339
3	2		169
3	3	1080	
3	4		217
4	1		111
4	2		56
4	3		83
4	4	250	
TOTAL			2109

BX.25 Link Connectivity

DCS nodes connected to BX.25 links use DCIU circuit packs on System 85, Generic 2, and Dimension. Generic 1 and Generic 3i use a Processor Interface (PI). Generic 3r uses a Packet Gateway (PGATE).

When designing a DCS cluster, the following constraints must be observed:

- One DCIU, PI, or PGATE is provided per DCS node.
- Each PI can support four links, including DCS, AUDIX, and CMS. While a medium cabinet Generic 1 or Generic 3i can house two PI circuit packs, System 75 R1 and Generic 1 or Generic 3i XEs only have one PI pack.
- Each DCIU supports 8 links on a Generic 2 or System 85 R2 while only 4 links are available on a System 85 R1 or Dimension.

- Each PGATE can support four links and a Generic 3r can support four PGATE circuit packs.
- Only a maximum of two ‘‘hops’’ between DCS nodes is supported for BX.25 links.

Due to the high facilities cost of data links, the number of links in multi-site DCS arrangements is minimized by using message hopping.

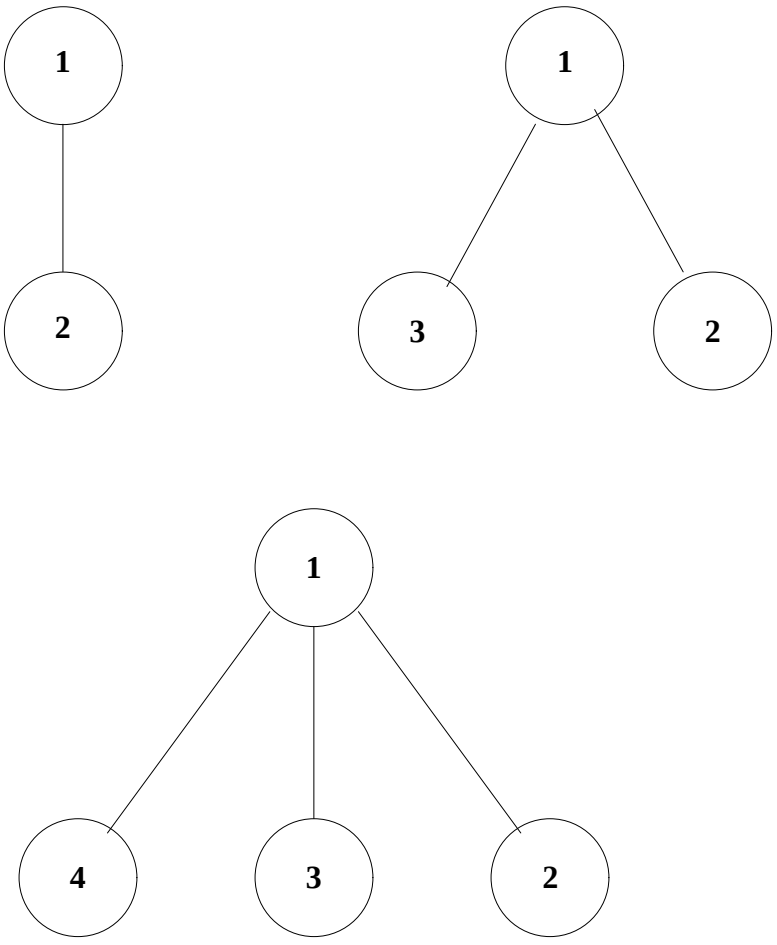


Figure 3-13. Interconnecting DCS Nodes

Figure 3-14 shows schemes for interconnecting three and four nodes in a DCS cluster with BX.25 links. This figure does not show logical channel assignments at each node; only physical BX.25 links are shown. In the 3-mode configuration, BX.25 messages from Node 2 to Node 3 tandem through Node 1. In the 4-mode configuration, all BX.25 messages tandem through Node 1.

A totally connected configuration does provide one advantage over a configuration with message hopping. For example in the 3-node configuration, if the link between Nodes 1 and 3 goes down, feature transparency is lost between Nodes 2 and 3 is lost as well as between Nodes 1 and 3. In a fully interconnected configuration, only the feature transparency between Nodes 1 and 3 is lost.

Recommended Design of UDP

All nodes within the DCS network must be assigned compatible and unique dial plans. It is recommended that:

- All feature access codes be identical
- Routing patterns are designed consistently at each node to make outward dialing transparent

However, the Uniform Dial Plan (UDP) must be used for extension assignment for Generic 3, Generic 1.2, or System 75.[8] The UDP design has to be coordinated among the switches in the DCS network to obtain a common 4 or 5 digit dial plan. A 4 digit dial plan can accommodate about 8,000 extensions while a 5 digit dial plan can support about 80,000 extension numbers.

Generic 3i and Generic 3r differ dramatically in the UDP area. Generic 3i's UDP is the same as that for Generic 1, while Generic 3r offers full extension number portability and different forms of routing.

Generic 3i UDP

When a UDP is designed, a list of PBX codes and corresponding RNX codes are assigned to each switch. PBX codes are the first 1,2,3 or 4 digits of the extension numbers assigned to the switch. Each PBX code is also uniquely administered as either local or remote to the switch. It is possible that the PBX code could be the same as a local extension number. In this case, the UDP PBX code overrides the extension number at the local switch. However, it is recommended that the PBX code does not match extension numbers at the local switch to avoid potential problems.

When a user dials an UDP extension, the system checks to see if the first digit(s) of the extension is an assigned PBX code. If it is an assigned PBX code, the system maps the PBX code into the administered RNX and converts the dialed number to a 7 digit number in the form RNX-XXXX. In a 4-digit UDP, the number created is the RNX plus the 4 extension digits originally dialed. Normally, in a 5-digit UDP, the number created is the RNX plus the last 4 extension digits dialed.

8. Generic 2, System 85, or Dimension switches use either AAR for dial plan routing or Main/Satellite for Trunk Access Code Routing.

The following table illustrates a basic 5 digit UDP design for a 4 node DCS network. In this example, first two digits of the extension numbers assigned to the local switch are used as PBX codes.[9] When designing the UDP for a network it is recommended to take into consideration the following:

- Future network expansions
- Number portability (see below)

Table 3-11. UDP Design of a 4-node DCS Network

Network UDP Summary				
Node	PBX ID	PBX Code	Home Extensions	Home RNX(s)
1	1	20	20XXX	620
		21	21XXX	621
		22	22XXX	622
2	2	30	30XXX	630
		31	31XXX	631
		32	32XXX	632
3	3	40	40XXX	640
		41	41XXX	641
		42	42XXX	642
4	4	50	50XXX	650
		51	51XXX	651
		52	52XXX	652

Generic 3i Number Portability

A small number of stations at each DCS node may be allowed to have extension number portability. That is, a station can be moved from one node to an another node and retain the same extension number. If a 4 digit UDP is used, then a particular station can be made completely portable since UDP steers calls based on the first one to four digits of the extension number (PBX code). If a 5 digit UDP is used, then extension numbers in groups of ten can be made fully portable. For an example, extensions 50110 through 50119 can be made fully portable with proper administration. However, every node in the network must be re-administered to accommodate this change.

Digit steering for UDP calls including number portability is administered on pages 2 through 6 of the Dial Plan form. A total of 240 fields are provided for PBX codes some of which can be used to make extension numbers portable among

9. It is also possible to assign variable length PBX codes which can vary between 1 to 4 digits.

the nodes. For an example, a DCS cluster has two nodes with extensions 2XXX on node 1 and extensions 3XXX on node 2. At least two "PBX codes" are required in the UDP list to route calls between the two nodes. The remaining 238 codes are available to make extension numbers portable between the nodes.

The administration required to move an extension number is a complex process. Suppose in the previous example, that for some reason extension 2222 on PBX 1 needs to be moved to PBX 1. In this case PBX 1 must be administered as follows:

1. Remove extension 2222
2. To the UDP, add "PBX CODE" = 2222, "LCL" = n, "RNX" = (RNX assigned for PBX 2), "PBX ID" = 2.

PBX 2 must be administered as follows:

1. Add extension 2222
2. To the UDP, add "PBX CODE" = 2222, "LCL" = y, "RNX" = (RNX assigned for PBX 2), "PBX ID" = 2.

Obviously, for a larger number of nodes, each node has to be re-administered thus requiring much greater amount of administrative work to move a station.[10]

Generic 3r UDP

The Generic 3r UDP is distinct from the local dialplan form and more versatile and larger than that of Generic 1 or Generic 3i. Whereas in Generic 3i, a PBX code match chooses an RNX and PBX-ID, in Generic 3r such a match can choose one of five different types of treatment which identify the RNX and PBX-ID in different ways. Additionally, each extension is matched first against the local extension translation and then against the UDP, so if an extension is administered to be on the local node, even though a matching UDP pattern exists, dialing it will reach the local extension and the call will not be routed off the node.

The Generic 3r UDP consists of 50,000 patterns that may match all the digits of the dialed extension.[11] These patterns consist of digits and a trailing wildcard "x" pattern, thus entires can be conserved by using wildcards. For example "20xxx" would match and route all entries beginning with "20". More exact matches take precedence over less, so the extension 20100 would match the entry "201xx" before it matched "20xxx".

10. This limitation does not exist for System 85, Generic 2, Generic 3r, or Dimension where number portability to the unit digit is supported.
11. Even though there are 100,000 possible extensions in a 5-digit UDP, only 50,000 entries are allowed.

Once a pattern is matched, one of five different routing treatments are applied. UDPCode and NodeNum below would be the most likely routing treatments used in a DCS network.

- Intercept (or blank) — intercept treatment is given to the caller. The call is not routed anywhere.
- HomeExt — reorder treatment. This is used on the old home of a station while it is being moved.
- AARCode — an AAR location code is specified with this type. This code is prefixed to the last 4 digits of the extension and the resulting digit string is given to AAR. In Generic 3r, AAR performs digit conversion and/or analysis. There are two tables, the aar digit conversion and aar digit analysis tables. The best match may be in either one. Conversion matches take precedence over analysis matches only to break a tie (identical matching digits). Conversion matches can form a new number and send the digit string to ARS, through AAR again, or back to UDP. Eventually, analysis is used to route the call.
- UDPCode — a UDP code is also specified with this type. This is identical to AARCode, except that no digit conversion is ever performed (the call must route via AAR).
- NodeNum — a node number is also specified. This number can range from 1–999, but for use in a DCS network it must be limited to the range from 1–63. This node number is the PBX-ID for DCS. Another table, the node-number-routing form will map this node number into a routing pattern for routing the call. A third table, the enp-number-plan form, provides the information to convert the extension into a 7 digit number, in a manner similar to the UDPCode. A difference here is that the AAR analysis table is never used in this form of routing.

Using this example, the following shows the information required for the various Generic 3r forms on node 1 of the DCS network. Node 2 will use UDPCode routing, while NodeNum routing will be used for nodes 3 and 4.

Uniform Dialing Plan

Extension Codes	Type	Node Number/Location Code
20xxx	HomeExt	
21xxx	HomeExt	
22xxx	HomeExt	
30xxx	UDPCode	630
31xxx	UDPCode	631
32xxx	UDPCode	632
40xxx	NodeNum	003
41xxx	NodeNum	003
42xxx	NodeNum	003
50xxx	NodeNum	004
51xxx	NodeNum	004
52xxx	NodeNum	004

Once the UDPCode is determined from the UDP table, the AAR digit analysis table (one per PGN) is used to route the call and/or identify the node number (PBX-ID). In this example, routing pattern number 100 is used to identify the trunk group over which the call should be routed.

AAR Digit Analysis

Dialed String	Total Min	Total Max	Route Pat	Call Type	Node Number
630	7	7	100	aar	2
631	7	7	100	aar	2
632	7	7	100	aar	2

For NodeNum routing, the routing pattern used to route the call is identified by the following table (one per PGN).

Node Number Routing

Node Number	Route Pattern
3	101
4	102

For NodeNum routing, the 7 digit number is formed with information from the following table.

Extension Number Portability Numbering Plan	
Pattern	ENP Code
40	640
41	641
42	642
50	650
51	651
52	652

Because 7 digit numbers are used throughout this network, when they arrive at a node, they must be converted back into an extension to identify a station or route further. These 7 digit numbers can arrive from neighbor nodes with the AAR access code prepended (performed in routing pattern of neighbor node) or the AAR access code can be prepended by the local node (performed by digit insertion by the trunk group). The following table is then used to convert the 7 digit numbers.

AAR Digit Conversion						
Matching Pattern	Min	Max	Del	Replacement String	Net	Conv
620	7	7	3	2	ext	n
621	7	7	3	2	ext	n
622	7	7	3	2	ext	n

If the neighbor nodes are only sending 5 digit extensions, with no AAR access code prepending, then the previous table need not be used. The 5 digit extensions will be interpreted directly as if they were dialed on the local node. Sending the 5 digit extensions requires the neighbor nodes to use the routing pattern to replace the UDP (or ENP) codes with the appropriate digit (e.g., 621 with 2 for node 1).

Generic 3r Number Portability

Since Generic 3r allows the specification of the routing of individual 5 digit extensions,[12] full number portability is realized. The only restriction is that only 50,000 patterns can exist in the UDP table.

12. Four digit UDPs are also possible with Generic 3r, though no example was shown.

Recommended Design of TSC

The following basic steps are required for implementing the D-channel signaling feature using SDN:

1. Determine the number of TSCs required at each location.
2. Determine the number of TSC message transfers expected.
3. Verify that the overall TSC requirement for each node per D-channel does not exceed the system capacity.

To determine the number of TSCs required, one has to know the DCS network configuration. However, the maximum number of CA-TSCs required at each SDN location is equal to the number of trunks accessing the SDN. This method can be used to estimate CA-TSCs required at any given location when cost is not a factor (e.g., private network).

Number of CA-TSCs required = Number of Trunk group members accessing SDN

In addition to CA-TSCs, NCA-TSCs are also required between each pair of switches.

Number of NCA-TSCs required = Number of connections between each switch and every other switch

Total Number of TSCs = CA-TSCs + NCA-TSCs

For an example, if a location has one PRI access to SDN, the maximum number of CA-TSCs required at that location is 23. However, the actual number of TSCs (CA-TSCs and NCA-TSCs) required may be some what less (see the following example), since some incoming and outgoing calls might not be DCS calls (for example if some callers are not provided with DCS features through COR).

⚠ CAUTION:
A node needs to be provided with enough TSCs to accommodate those initiated by itself as well as initiated by the other end, **and any tandemed TSCs**.

For an example, consider the case of adding a remote node to a DCS network using SDN. In this case, it is possible to calculate the number of TSCs required with the following assumptions.

1. Average line size of the system is 400.
2. Average call rate generated or received by a station is 3 CCS (medium traffic).
3. 15% of the traffic load is internode outgoing DCS calls.

With the above assumptions, the total internode outgoing DCS traffic load is 180 CCS (400x3x0.15). TSCs must be established between all nodes to provide the DCS features over SDN. The objective of determining the number of TSCs required at each SDN location is to provide the customer an acceptable service level with a minimal cost. Service levels are generally measured by the percent of demands for service (in this case D-channel signaling feature) that fail to receive service (expressed as percent blocking). The service level for D-channel signaling feature has to be determined by the customer. Assuming two percent blocking, Retrial Capacity Tables can be used to determine the number of TSCs required at each SDN location. For the above example, 11 TSCs are required at the remote DCS node to implement the D-channel signaling feature using SDN. Since the customer can only subscribe in steps of 16 TSCs, in this case, 16 TSCs (or 1 unit of 16 TSCs) are needed to meet the service level. In this case, 5 remaining TSCs (16-11) can be used as NCA-TSCs to other SDN locations.

TSC Messages Usage

The first step in analyzing the TSC messages usage is to evaluate the number of TSC messages involved in each successful DCS feature activation. The following tables summarize the TSC messages required for each feature operation.

D-channel signaling

	Feature	No. of TSC messages
1	Alphanumeric Display of Terminals	MA-UUI
2	Attendant Call Waiting	1
3	Attendant Control of Trunk Group Access	N/A*
4	Attendant Direct Trunk Group Selection	N/A*
5	Attendant Display	2
6	Automatic Callback	2
7	Automatic Circuit Assurance	2
8	Busy Warning Indication	no. of nodes
9	Busy Verification of Terminals and Trunks	N/A*
10	Call Forwarding	2 (activ.) 1 (use)
11	Call Waiting-Termination	1
12	Conference/Transfer	6 (Max.)
13	Distinctive ringing	MA-UUI
14	Leave Word Calling	3 (pre) 2 (post)
15	Priority Calling	MA-UUI

* These features are not supported over SDN.

ISDN-PRI D-channel DCS AUDIX

	Feature	No. of TSC messages
1	Direct Access to AUDIX	1 (retrieval)
2	Redirected Calls to AUDIX	1
3	LWC store to AUDIX	2
4	Call Transfer into AUDIX	1
5	Call Conference into AUDIX	1
6	Call Transfer Out Of AUDIX	1

Table 3-12. TSC Messages For Successful Feature Activation

Other Maintenance Messages

	Function	No. of TSC messages
1	TSC Heart Beat Test	2/hour
2	Audit From AUDIX	2 (as requested)
3	MW Status Request	1/station

The above tables show that on the average, most DCS features use only one TSC message. However, most DCS calls do not require a transfer of TSC messages. For an example, when a DCS call is initiated over SDN, display information and distinctive ringing feature information are carried over as MA-UUI messages which are already included in the call setup charges. However, if the user activate another DCS feature after initiating this call, then an appropriate TSC message is transferred over the SDN.

Assuming an average of one TSC message transfer per DCS call, it is possible to estimate the number of TSC messages transfers per month. For the example mentioned in TSC design section, the first step is to estimate the number of outgoing DCS calls generated per hour. Assuming an average call duration of 180 seconds, this can be calculated as 180 x 100/180 = 100 BH calls/hr. Assuming 20 working days each handling 5 busy hour (5 hr is used instead of 8 to average out the busy hour traffic) traffic load per month, the messages transfers per month can be estimated as 100 x 1 x 5 x 20 = 10,000. This can be used in ‘‘TSC Tarriff’’ elsewhere in this section to estimate the expected service charge for subscribing to AT&T SDN services.

The following table summarizes an estimated "billable" TSC messages usage for a given location.

Table 3-13. TSC Message Usage

"Billable" TSC Messages Usage	
Location Size (lines)	Number of TSC messages (per month)
100	2,500
500	12,500
1,000	25,000
8,000	200,000

DCS/AUDIX Gateway

A Generic 3 or later can serve as an interface between PBXs that support the D-channel signaling feature and those that do not support this feature. The switch providing this interface is known as the ISDN-DCS Gateway node and serves to provide backward compatibility to existing traditional DCS networks. It does so by maintaining a mapping between processor channels and Administered NCA-TSCs. When a DCS D-channel message arrives on an Administered NCA-TSC that is acting as a gateway, it is converted to a traditional DCS message and sent out through the processor channel that has been administered to map to this Administered NCA-TSC. This administration is done on the ISDN Gateway Channel form described in ''Overview of Administration for ISDN-DCS/ISDN-DCS AUDIX Network'' elsewhere in this section. Likewise, when a traditional DCS message arrives at the gateway node on a processor channel that is acting as a gateway, it is converted to a DCS D-channel message and sent out through the Administered NCA-TSC that has been associated with this processor channel on the ISDN Gateway Channel form.

A Generic 3 can also serve as an ISDN AUDIX Gateway by acting as a conduit for AUDIX messaging between the AUDIX and remote switches in the D-channel DCS network. The AUDIX Gateway node is directly connected to the AUDIX via a BX.25 link and to the remote switch(es) via Administered NCA-TSC's. AUDIX messages destined for remote switches arrive at the gateway node on processor channels administered as gateways, are repackaged in Q.931 format, and are sent out via the appropriate Administered NCA-TSC also administered as a gateway. In the reverse direction, Q.931 AUDIX messages from remote switches arrive at the gateway node on Administered NCA-TSCs, are repackaged in the traditional (BX.25) fashion, and are sent out to the AUDIX through the appropriate processor channel. If one of the remote switches does not support D-channel DCS then not only must the host Generic 3 act as an ISDN AUDIX Gateway, but the Generic 3 connected to the non D-channel DCS switch must also act as an ISDN-DCS Gateway.

In summary, a gateway is required whenever a transition is being made from BX.25 signaling to D-channel signaling. When this transition takes place at a

switch acting as an AUDIX host we call that switch an ISDN AUDIX Gateway. When the transition takes place at a switch that sits between that part of the network that supports D-channel DCS and that part that does not, we call that switch an ISDN-DCS Gateway. A DCS/AUDIX network consisting entirely of switches that support D-channel DCS will never require an ISDN-DCS Gateway because none of the switches require "translation" to/from BX.25. However, such a network will still require an ISDN AUDIX Gateway because AUDIX still "speaks" BX.25 and in this sense is like a switch that does not support D-channel DCS.

The number of processor channels at a node is limited to 64 in Generic 3i and 128 in Generic 3r, and a switch acting as a gateway may have to allocate a large number of processor channels to this activity. Figure 11 shows how processor channels can be quickly consumed at a gateway node. In order for the ISDN-DCS sub-network (which uses administered temporary signaling connections to transport DCS information) to communicate with the BX.25 subnetwork (which uses special BX.25 links to transport DCS information), the gateway node must map administered TSCs to processor channels administered as X.25 links. One processor channel is consumed for each such mapping. The formula for the number of processor channels consumed by gateway functionality at a gateway node is simply m **times** n, where m is the number of nodes in the ISDN-DCS sub-network and n is the number of nodes in the BX.25 subnetwork. If processor channel capacity is exhausted, the simple solution is to split the gateway functionality between two gateway nodes. Since retranslating an entire network to use a second gateway node can require an extensive amount of translation changes, this formula should be taken into consideration when first engineering the network.

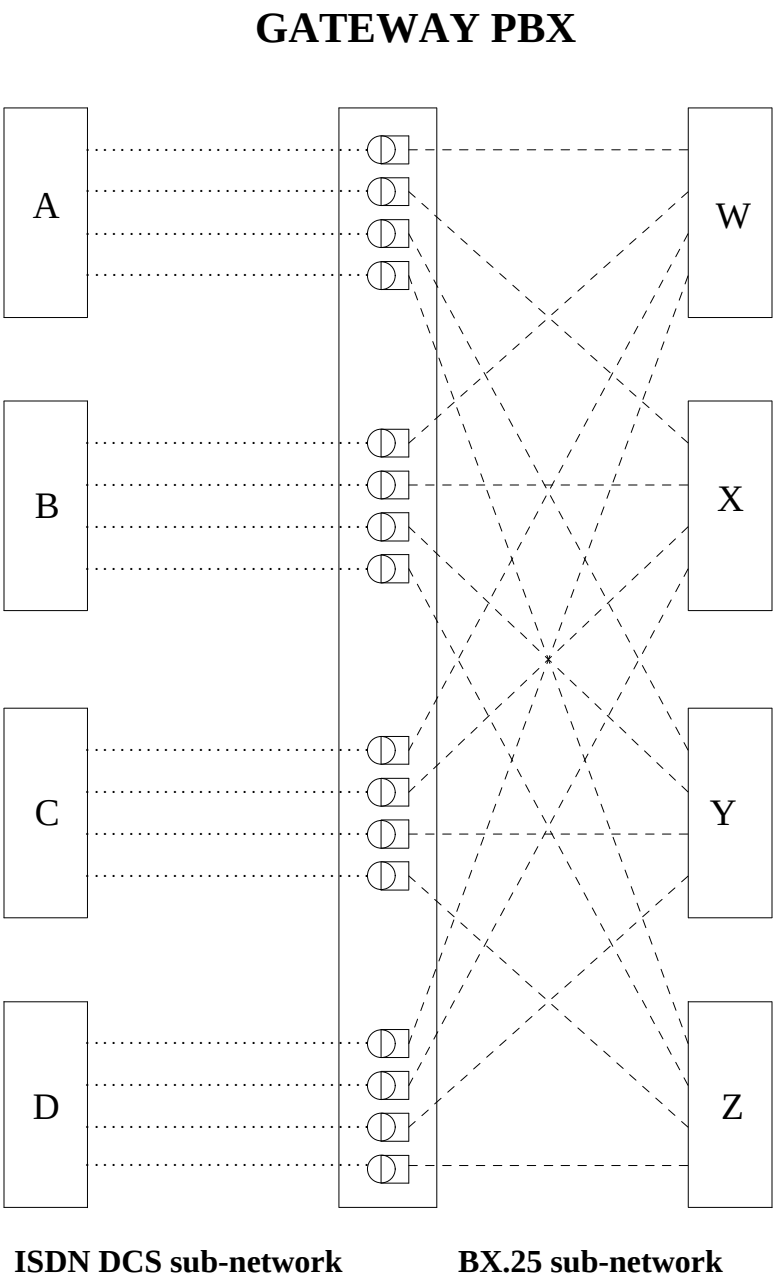


Figure 3-14. Use of Processor Channels for Gateway Functionality

Further examples of DCS/AUDIX gateways as well as sample administration can be found in subsequent sections.

Recommended Design of Synchronization

Synchronization design considerations are the same as when installing ISDN-PRI links.[13] Since each switch can transmit at a rate determined by its internal clock, information will be lost if the digital network is not synchronized to a single clock. Furthermore, one switch should be selected as the master and all others should obtain slave-timing from it. Since synchronization issues affect all network nodes, a network synchronization plan must be developed, deployed, and verified to be installed correctly.

The primary objective of synchronization design is to minimize the slip rate. The impact of slips on a customer varies with the service used. For an example, voice services are insensitive to slips. However, data services are much more sensitive to slips since each bit of data is a discrete piece of information. For data applications, a slip requires retransmission of data, thus adversely degrading the performance of data transmission facilities. However, it is important to note that even if all network nodes are synchronized, slips can still occur due to transmission impairments.

The AT&T network synchronization plan[14] specifies a hierarchy of synchronization nodes of stratum 1 to 4, where stratum 1 is the most accurate clock. Figure 3-15 shows the synchronization hierarchy and the node's internal clock stratum level.

13. See *DS1/DMI/ISDN-PRI Reference* (555-025-101).
14. AT&T PUB 60110, "Digital Network Synchronization Plan", December 1983.

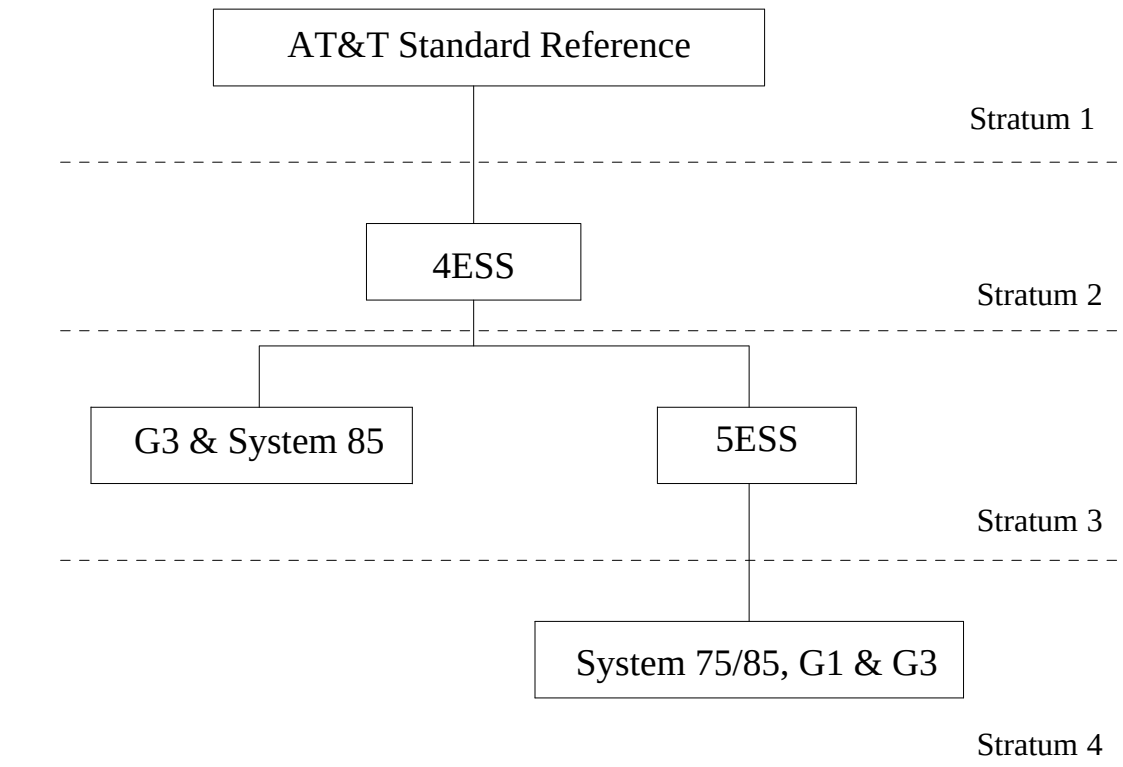


Figure 3-15. Synchronization Hierarchy

Each node is compelled to take its timing form the following:

1. A higher stratum level
2. A node equal to its own stratum level
3. A free-running timing clock (generated internally) that meets or exceeds the requirements for its level

Large private networks require[15] stratum 4 type I synchronization. PBXs may someday be required by EIA and ANSI to support stratum 3 operation as well.

15. AT&T PUB 62411, "ACCUNET T1.5 Service Description and Interface Specification", August 1988.

Generic 1.2 offers stratum 3 clock as an option for large networks where synchronization performance may be vitally important.

Interactions with CBC Trunk Groups

Recall that a Call-by-Call trunk group is one that can carry calls to many network services or facilities, such as SDN, MEGACOM, MEGACOM 800, etc. The only network service that currently supports Temporary Signaling Connections is SDN. As such, if a CBC trunk group is being used to carry ISDN-DCS information over the public switched network, then the service being requested (on the routing pattern form) must be SDN otherwise a partial or complete loss of feature transparency may occur.

Also, for those signaling groups being used to establish NCA-TSCs over the public network, the service/feature field on the 2nd page of the signaling group form should be filled in with the appropriate network service/feature (currently only SDN).

Processor Performance Considerations

Processor occupancy is the percent of time, averaged over the busy hour, that the call processor performs call processing and scanning. Since some processing time must be reserved for maintenance and other tasks, maximum occupancy is always less than 100%. Similarly, Generic 2 or System 85 processor is always designed with processor occupancy less than 85%.

The maximum percentage allowed depends on the call mix and the number of nodes in the DCS cluster. Some calls, especially those involving the attendant or those across nodes, require a large amount of processor time for processing complicated instructions during part of the call.

For a DCS network, processor occupancy is increased to process DCS messages between nodes. For ISDN-DCS, the increase is slightly smaller than that for a traditional DCS network, but for all practical purpose, the increase in the 2 cases can be regarded as the same.

Maximum processor occupancy depends on calling patterns, the number of stations and nodes in the network. For private network ISDN DCS, reduce the BHCC for a private network without ISDN-DCS by 1/3 to account for DCS and ISDN additional load on the processor.

D-channel Performance Considerations

A D-channel is used for exchanging ISDN messages, ISDN-DCS and Look-Ahead-Interflow. For Generic 3i, a limit of 400 trunks and 1600 stations exists so the traffic generated for D-channel is not a concern.

For Generic 3r, up to 479 B-channels can be administered to a single D-channel. It is not expected that this maximum configuration will reach the capacity limit of the D-channel, i.e., the D-channel will be able to handle signaling for the maximum number of B-channels if this is the only use of the D-channel. However, if other applications (such as DCS or Network Services for telemarketing applications) are assigned to the D-channel on top of trunk signaling, such configurations may overrun the capacity of the D-channel. While this unlikely, the designer should avoid such configurations.

Provisioning of TSCs in the Public Network

This information is preliminary, and will be updated when final details are available. Customers who currently have ISDN-DCS can use the information to collect data for planning purposes.

Provisioning of TSC

TSCs are offered as an "ISDN feature" filed under an ISDN tariff and SDN, SDDN services (but not including GSDN) at the present time. TSCs are supported over CBC trunks with service type SDN. TSCs may be offered with SDS (but not including Switched Digital International) at a later time. Information in this section are applicable to SDN/SDDN only.

Both PBX ends have to subscribe to SDN/SDDN service.[16] When provisioning ISDN-PRI and SDN/TSC services, the user must specify the number of TSC options (or unit of service) up to 16 for a D-channel. Each option allows 16 TSC connections, with no distinction between NCA and CA-TSCs. A maximum of 16 units (for a total of 256 TSCs) can be obtained for each D-channel. There is also a limit of 511 for the combined total of B-channels and simultaneous TSCs per D-channel. This limit affects NFAS capacity on DEFINITY.[17] For D-channel back-up, each D-channel must be identically provisioned, i.e. the user must subscribe to the same number of TSCs on both D-channels and incur the subscription charge for both. This however does not provide the user with additional capacity. A billing number for TSC messages (separate from the D-channel billing number) will be issued. Each channel will have a unique TSC billing number. Subscription is done through network service representative.

16. A TSC cannot be established to non-subscribed facility. A CA-TSC request will be dropped when off-net overflow is invoked.

17. NFAS on DEFINITY allows 20 PRIs to share 1 D-channel, i.e., 479 B-channels can share a D-channel. This D-channel then can only be provisioned for 2 TSC options, i.e., 32 TSCs.

TSC Tariff (preliminary)

The proposed TSC billing procedure in the Public Network involves an installation charge, and a monthly TSC subscription charge which is proportional to the number of simultaneous TSCs the user has requested from AT&T service. For a subscription fee, a user is entitled to 25,000 free messages transfers per month per TSC option with a maximum of 480,000[18] message transfers per month for the D-channel. Customers who exceed the free message limit will be charged on usage sensitive basis. There is also an one-time installation charge.

The TSC charge, which is based on the number of messages sent/ received on each D-channel, is totaled (summing all NCA and CA-TSC messages) and billed to the user monthly. There is no distinction between NCA and CA-TSCs calls. Customer is not charged per TSC established. For DCBU, each D-channel has its own free messages, and is billed separately.

The messages, both sent and received for NCA-TSCs are charged to the originating end of the connection. MA-UUI messages sent/received for unsuccessful establishment of NCA-TSCs (for examples due to destination switch problem, D-channel switching or network congestion) are counted as long as the release is originated by the user.

The messages, both sent and received for CA-TSCs are charged to the side of the connection that originates the associated circuit switched connection regardless of which side of the connection initiated the TSC. MA-UUI transferred in a call control message for a CA-TSC is treated as MA-UUI transferred in the circuit switch connection, and thus is recorded in the associated circuit switch called billing record and not in the TSC billing record. Therefore, there is no charge for unsuccessful CA-TSC attempts.

TSC subscription charge and any usage charge will be sent to the user as part of their ISDN bill, not with the SDN bill.

Technical Plan

TSCs enable users to exchange packets of user-defined information over the excess signaling capacity of ISDN-PRI and Common Channel Signaling 7 (CCS 7) network facilities.

When the PBX requests the network to establish a TSC, the network will check to see if the service is subscribed to, whether the request is within subscribed capacity, and whether the network is capable of accepting the request. The network will send a reject message with appropriate cause value to the PBX if the

18. These numbers are based on AT&T network's D-channel node message handling capacity.

requested TSC cannot be established. When the TSCs are up, and the network becomes congested, the network will send a CONgestion CONtrol message with "receiver not ready" to DEFINITY switch, which will hold off sending their messages for 5 seconds, or until it receives a CONgestion CONtrol message with "receiver ready", before attempting to send messages again.[19] The network also implements a flow control strategy to prevent any single TSC to monopolize network resources as follow. A congestion message is sent to the PBX when a window of 8 unacknowledged UIMs is exceeded. If the window of unacknowledged message transfers exceeds 8 for a single TSC, additional messages are processed until the window exceeds 16. All additional message transfer requests beyond the 16th are discarded. When the unacknowledged message transfer rate is reduced to 4, the network issues a message to the PBX to allow further message transfer.

If the TSC cannot be established, information relating to it will be dropped, but the circuit switched connection request will still be processed. In this case, the call might be established, but application using TSC, in this case the DCS feature, will not be successful.

CA-TSC will be taken down when the circuit switch connection is terminated. NCA-TSC will be taken down when requested from either the originating or destination PBX end. In the event of a D-channel back-up switch over, all TSCs are torn down amd must be reestablished. Therefore any data transfer capability through TSCs will be lost during and after switchover before TSCs are reestablished on the new D-channel. For NCA-TSC, the 4ESS will initiate normal call clearing to the PBXs at both ends, but CA-TSCs cannot be cleared independently of the call. If the PBX sends a UIM during or after switchover when the TSC has not been reestablished, the message is lost, and the PBX will get a message to this effect. DEFINITY will try to reestablish the torn down TSCs.

When the access and egress switches have multiple D-channels with TSCs, for example when they are part of multiple DCS networks, TSCs can be spread over the D-channels on the originating side. However, on the destination side, the network places the TSC request on the D-channel signaling for the first B-channel of the first TSC in the appropriate Routing Data Block (RDB), regardless of whether it is busy or idle. For problems associated with this restriction, the network will provide customer specific configuration planning.

19. Remember that DEFINITY does not implement initiation of PBX congestion message to the network.

SDN service might require (if so provisioned) that an authorization code be entered by the caller before the call is allowed to be completed. Since the prompt for entering authorization code is a voice announcement and digits are collected using DTMF signaling, this authorization code collection will not work for SDN data calls or for NCA-TSCs. Customer who wishes to place data calls or NCA-TSCs should place them only for SDN number which do not require collection of authorization code.

The Transaction Center (TC) in the network provides administrative control for provisioning and maintenance of ISDN circuits. This includes receiving user trouble reports, verifying troubles, sectionalizing the troubles, referring troubles out to the appropriate center or group for further isolation and repair, coordinating trouble tracking, closing user trouble reports, and initiating user rebates.[20] Techniques for finding and isolating troubles are primarily monitoring and nondisruptive testing.

The TC is also responsible for preservice testing, which validates 4ESS provisioning before service is turned over to user.

TSC troubles should be reported to the TC. Contact your network account representative for the appropriate number to call.

Recommendations

In light of the information above, it is recommended that:

1. NCA-TSCs are translated as "as needed" instead of "permanent". This way, charge would be distributed more evenly to both ends.
2. For DCBU, exercise D-channel switching on a periodic basis to make use of the free messages on both D-channels.
3. To obtain 100% DCS transparency, subscribe to multiple of 16 TCSs to cover all NCA-TSCs to the switch, plus one for each trunk member in the DCS trunk group.
4. If 100% DCS transparency is not required, or cost is a consideration, then subscribe to enough TSCs to cover all NCA-TSCs to the switch, plus a portion of trunk members in the DCS trunk group. Translate CA-TSCs as "as needed" instead of "at set-up". This way calls that do not need CA-TSCs will not hog available facility. This has to be balanced against slower response, since it takes time for CA-TSCs to be established when they are needed.

   Also users can be partitioned into different COR, with some whose calls will be routed over the DCS network, and others whose calls are not routed over the DCS network. As TSC usage data is collected, more

20. Not applicable to TSC service.

users can be added to the service if the usage is less than the free usage allowed per month.

Examples of ISDN-DCS and ISDN-DCS AUDIX Networks

Recommended general design steps are:

1. Draw a network configuration diagram using the graphical notations described earlier in this section. Label PBX IDs, TSCs and BX.25 links to the nodes.
2. Design a network with required number of trunks among the nodes, using information from the ‘‘DSC Networks Design’’ earlier in this section.
3. Administer the required Dial Plan, Communication Links, DS1 circuit packs and synchronization. This is required before ISDN-DCS can be superimposed.
4. Administer the Signaling Group, Trunk Group, Routing Pattern, Gateway Channel, Processor Channel forms using the proper dial plan numbers for the TSCs. Administer page 2 of Feature-Related System Parameters for the desired CDR format.
5. Check for consistency.
6. If facilities are available, load the translations on an actual network and perform basic functionality checks as outlined in ‘‘Maintenance and Troubleshooting’’ elsewhere in this section to verify the proper working of the feature.

2-Node Private Network with AUDIX

Figure 3-16 shows a 2 node DCS/AUDIX D-channel network. In this configuration, DCS feature transparency is achieved exclusively through the exchange of user-to-user information on the D-channel using one of the three methods discussed earlier - MA-UUI, CA-TSCs or NCA-TSCs. Although NCA-TSCs are nothing more than virtual connections on the D-channel, they are shown as independent entities in the diagram for the purposes of clarity. Administered TSC 2/1 (i.e., the first Administered NCA-TSC of signaling group 2) of Switch A is connected to TSC 4/1 of Switch B. This virtual connection is used in the exchange of user-to-user information for DCS features not associated with any current B-channel connection.

Notice that for AUDIX, a BX.25 data link is no longer required between the host switch and the remote switch(es).[21] AUDIX messages between the AUDIX and the remote switch will use the AUDIX Gateway functionality of the host switch

21. A BX.25 link is still required between the AUDIX and the host switch

and will be transported to the remote switch via an NCA-TSC. Specifically, AUDIX messages destined for Switch B will arrive at Switch A on Link 1, Channel 2 (processor channel 57), be converted to ISDN-PRI Q.931 format and sent out via Administered NCA-TSC 2/2. This is accomplished by administering processor channel 57 as a gateway and mapping it on the gateway form to Administered NCA-TSC 2 of signaling group 2 which is also administered as a gateway.

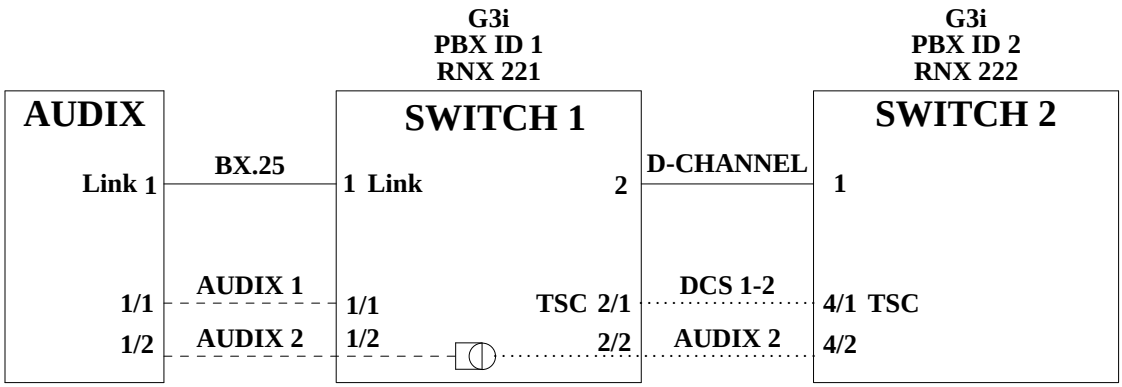


Figure 3-16. 2-Node Private Network

Sample Administration

- AUDIX Administration

AUDIX Translations

Switch Number	AUDIX Port	Switch Port *	Logical Channel	Data Link
1	1	59	1	1
2	2	57	2	1

* Switch Port refers to the processor channel that is used for AUDIX in the PBX.

Administration for Switch A

- Dialplan Administration

Dialplan Form

First Page			Second Page			
Start Dig.	**Len**	**Usage**	**Code**	**Local**	**RNX**	**PBX ID**
4	4	ext	4	y	221	1
5	4	ext	5	n	222	2

- AAR Analysis Administration

AAR Analysis Table

Dialed String	Min	Max	Route Pat	Call Type
221	7	7	-	haar
222	7	7	2	hnpa

- Signaling Group Administration

Signaling Group Form (signaling group 2)

TSC Index	Local Ext.	Enabled	Establish	Dest. Ext.	Far-end PBX-ID	Appl.
1	4900	y	permanent	5900	2	dcs
2	4901	y	permanent	5901	-	gateway

- Trunk Group Administration

Trunk Group Form

Group #	Grp Type	Used for DCS?	DCS Sig. Method	PBX ID
2	isdn-pri	y	d-chan	2

- Routing Pattern Administration

Routing Pattern Form

Routing Pattern #	Trunk Group #	FRL	Del	TSC	CA-TSC Request
2	2	0	3	y	at-setup

- Gateway Channel Administration

Gateway Channel Form

Signaling Group	TSC Index	Processor Channel	Application
2	2	57	audix

- Processor Channel Administration

Processor Channel Form

Proc. Channel	Application	Inter. Link	Channel	Remote Proc. Channel	PBX ID
57	gateway	1	2	2	-
59	audix	1	1	1	1

Administration for Switch B

- Dialplan Administration

Dialplan Form

First Page			Second Page			
Start Dig.	Len	Usage	Code	Local	RNX	PBX ID
4	4	ext	4	n	221	1
5	4	ext	5	y	222	2

- AAR Analysis Administration

AAR Analysis Table

Dialed String	Min	Max	Route Pat	Call Type
221	7	7	1	hnpa
222	7	7	-	haar

- Signaling Group Administration

Signaling Group Form (signaling group 4)

TSC Index	Local Ext.	Enabled	Establish	Dest. Ext.	Far-end PBX-ID	Appl.
1	5900	y	permanent	4900	1	dcs
2	5901	y	permanent	4901	-	audix

- Trunk Group Administration

Trunk Group Form

Group #	Grp Type	Used for DCS?	DCS Sig. Method	PBX ID
1	isdn-pri	y	d-chan	1

- Routing Pattern Administration

Routing Pattern Form

Routing Pattern #	Trunk Group #	FRL	Del	TSC	CA-TSC Request
1	1	0	3	y	at-setup

3-Node Public/Private Network with AUDIX

The D-channel signaling feature expands the domain of DCS networks by supporting configurations that include public network ISDN facilities utilizing network services including Software Defined Network (SDN). By eliminating the need for dedicated private line facilities, this feature allows geographically dispersed DCS networks to be cost effective. Figure 3-17 shows a 3 node network.

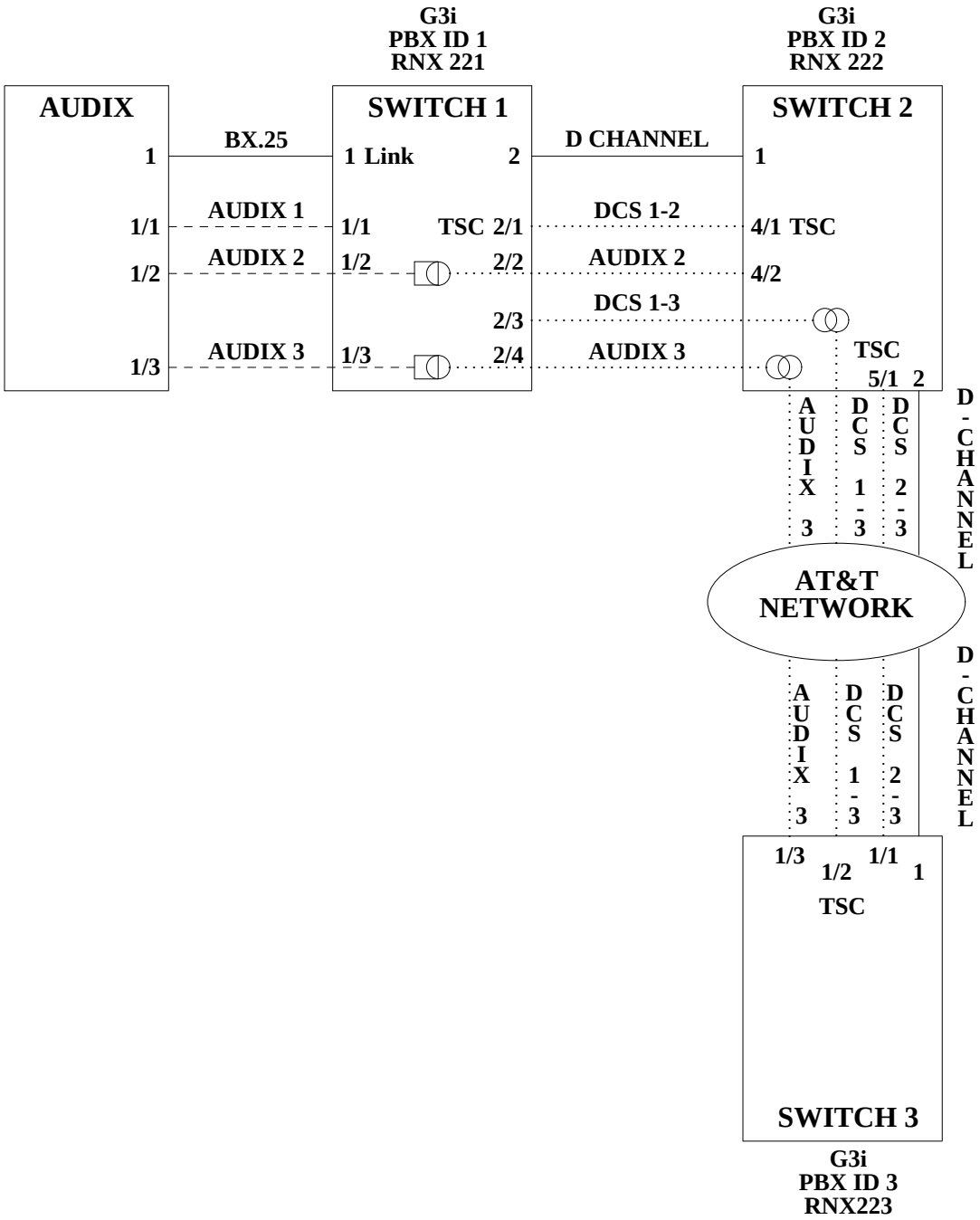


Figure 3-17. 3-Node Public/Private Network

- Adjunct Name Administration

  Since multiple AUDIXes are supported, they are named on this form, and their name can then be used on other forms, specifically, the signaling group and processor channel forms in this example.

Adjunct Name Form

AUDIX Name
audixA
audixB

- Signaling Group Administration

  Because Generic 3r can support multiple AUDIXes, the Adj. Name column is required for the AUDIX application to tell for which of the many AUDIXes this TSC is used.

  Note that the destination number is not passed through a routing pattern on the sending node (i.e. the node where this signaling group is translated), so no digit manipulation can occur on a routing pattern, but it will go through the incoming call handling table (ICHT) of the incoming trunk group on the neighboring, receiving node. For this reason, either the receiving node's ICHT should do no digit manipulation or the destination extension should be administered to take any such manipulation into account. In this example no such manipulation is performed.

  If the destination is not on the neighboring node, the neighboring node will tandem it further and digit manipulation on one of the neighboring node's routing patterns will take place.

Signaling Group Form (signaling group 4)

TSC Index	Local Ext.	Ena-bled	Establish	Dest. Ext.	Appl.	Adj. Name	Mach. ID
Max NCA TSC: 7							
1	29901	y	permanent	49901	dcs		3
2	29902	y	permanent	59901	dcs		4
3	29903	y	permanent	49902	gateway		
4	29904	y	permanent	59902	gateway		
5	29905	y	permanent	49903	gateway		
6	29906	y	permanent	59903	gateway		
7	29907	y	permanent	49904	audix	audixB	2

- Trunk Group Administration

Trunk Group Form

Group #	Grp Type	Used for DCS?	DCS Sig. Method	PBX ID
202	isdn-pri	y	bx.25	2
203	isdn-pri	y	d-chan	3

- Processor Channel Administration

  Processor channels in Generic 3r are distinct from the Local Port (unlike Generic 1 and Generic 3i). The rule is that, for a channel between two nodes, the local port on one node must match the remote port on the other and the remote port on the one node must match the local port on the other. If Generic 3r were the same as Generic 3i, the Local Port column would always match the Processor Channel column. This distinction was made, because Generic 3r supports more than 64 processor channels, yet local port numbers in the BX.25 protocol cannot be larger than 64, and all other adjuncts and PBXs do not allow translation of a remote processor channel (port) number larger than 64.

Processor Channel Form

Proc Chan	Appli-cation	Interface Link	Interface Chan	Local Port	Remote Port	Adjunct Name	Mach. ID
10	dcs	2	10	10	10		2
11	gateway	2	11	11	11		
12	gateway	2	12	12	12		
59	audix	1	1	59	1	audixA	1
60	gateway	1	3	59	3		
61	gateway	1	4	59	4		

- Gateway Channel Administration

Gateway Channel Form

Signaling Group	TSC Index	Processor Channel	Application
4	3	11	dcs
4	4	12	dcs
4	4	60	audix
4	5	61	audix

Administration for Node 3

- Dialplan Administration

Dialplan Form

Start Dig.	Len	Usage
2	5	ext
3	5	ext
4	5	ext
5	5	ext
8	1	fac

- Uniform Dialing Plan Administration

Uniform Dialing Plan

Extension Codes	Type	Node Number/Location Code
2xxxx	NodeNum	001
3xxxx	UDPCode	630
4xxxx	HomeExt	
5xxxx	UDPCode	650

- AAR Analysis Administration

AAR Digit Analysis

Dialed String	Total Min	Total Max	Route Pat	Call Type	Node Number
630	7	7	601	aar	2
650	7	7	604	aar	4

- AAR Digit Conversion Administration

AAR Digit Conversion

Matching Pattern	Min	Max	Del	Replacement String	Net	Conv
640	7	7	3	4	ext	n

- Node Number Routing Administration

Node Number Routing

Node Number	Route Pattern
1	601

- Extension Number Portability Numbering Plan Administration

Extension Number Portability Numbering Plan

Pattern	ENP Code
2x	620

- Routing Pattern Administration

Routing Pattern Form

Routing Pattern #	Trunk Group #	FRL	Del	Repl	TSC Request	CA-TSC
601	201	0	0	8	y	as-needed
604	204	0	3	5	y	as-needed

- Adjunct Name Administration

Adjunct Name Form

AUDIX Name
audixA
audixB

- Signaling Group Administration

  Since node 3 is a tandem node for NCA-TSCs, the values for the Max NCA TSC fields in the signaling group forms will be larger than the number of administered NCA-TSCs. This accommodates the tandemed NCA-TSCs.

Signaling Group Form (signaling group 1)

TSC Index	Local Ext.	Ena-bled	Establish	Dest. Ext.	Appl.	Adj. Name	Mach. ID
Max NCA TSC: 7							
1	49901	y	permanent	29901	dcs		1
2	49902	y	permanent	29903	dcs		2
3	49903	y	permanent	29905	audix	audixA	1
4	49904	y	permanent	29907	gateway		

Signaling Group Form (signaling group 2)

TSC Index	Local Ext.	Enabled	Establish	Dest. Ext.	Appl.	Adj. Name	Mach. ID
Max NCA TSC: 4							
1	49905	y	permanent	59905	dcs		4

- Trunk Group Administration

Trunk Group Form

Group #	Grp Type	Used for DCS?	DCS Sig. Method	PBX ID
601	isdn-pri	y	d-chan	1
604	isdn-pri	y	d-chan	4

- Processor Channel Administration

Processor Channel Form

Proc Chan	Appli-cation	Interface Link	Interface Chan	Local Port	Remote Port	Adjunct Name	Mach. ID
127	gateway	1	2	59	2		
128	audix	1	1	59	1	audixB	2

- Gateway Channel Administration

Gateway Channel Form

Signaling Group	TSC Index	Processor Channel	Application
1	4	127	audix

AUDIX-A Administration

AUDIX-A Translations

Switch Number	AUDIX Port	Switch Port*	Logical Channel	Data Link
1	1	59	1	1
2	2	50	2	1
3	3	59	3	1
4	4	59	4	1

* For Generic 3i Switch Port refers to the processor channel that is used for AUDIX in the PBX.
For Generic 3r it refers to the local port which is administered as part of the processor channel.

AUDIX-B Administration

AUDIX-B Translations

Switch Number	AUDIX Port	Switch Port	Logical Channel	Data Link
1	2	59	2	1
2	1	59	1	1

DCS Trunk Group Busy/Warning Indication

Provides attendants with a visual indication that the number of busy trunks in a remote group has reached an administered level. A visual indication is also provided when all trunks in a trunk group are busy. This feature requires that there be a DCS Trunk Group between the local and remote switches, and that the trunks in that trunk group are not set up to insert digits on incoming calls. If digit insertion is needed on such trunks, it should be performed on the outgoing trunk, based on the dialed digits.

NOTE:
This feature is not available for trunk groups with 4-digit trunk access codes or for trunk members 100–999.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Direct Trunk Group Select Button Assignments (1–6) for 301A Basic or (1–12) for the 302A Enhanced Attendant Console.
Trunk Group (all)	Busy Threshold

- Attendant Console Form—Trunk group must be assigned to one of the first six Direct Trunk Group Button Assignments (Access Codes) fields on the console. Refer to the ''Attendant Direct Trunk Group Selection'' coverage elsewhere in this chapter for additional information.
- Trunk Group Forms—Assign Busy Threshold (Warning) field.

Hardware Requirements

DCS interface hardware is required.

Do Not Disturb

Allows guests, attendants, and authorized front desk voice terminal users to request that no calls, other than priority calls, terminate at a particular extension number until a specified time. At the specified time, the system automatically deactivates the feature and allows calls to terminate normally at the extension.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Feature Button Assignments -dn-dst -ext-dn-dst -grp-dn-dst
Station (multi-appearance)	Button/Feature Button Assignments -dn-dst -ext-dn-dst -grp-dn-dst
Feature Access Codes for Hospitality Features	Voice Do Not Disturb Access Code
Feature-Related System Parameters	Controlled Termination Restriction (Do Not Disturb)

- Attendant Console Form—Assign do not disturb feature buttons.
- Station Forms—Assign dn-dst, ext-dn-dst, and grp-dn-dst feature buttons as required to appropriate voice terminals.

- Feature Access Codes for Hospitality Features Form—Assign a feature access code to the Voice Do Not Disturb Access Code field.
- Feature-Related System Parameters Form—Assign the type of intercept treatment (intercept tone, recorded announcement, call coverage, or attendant) the caller will receive when the call is placed to a termination restricted (Do Not Disturb active) voice terminal.

Hardware Requirements

A TN725B Speech Synthesizer circuit pack is required if voice prompting is used. Each circuit pack has four ports to provide voice prompting.

DS1 Tie Trunk Service

Provides a set of digital trunks that support voice and data communications.

Refer to Chapter 4 for additional information on DS1 Tie Trunk Services including a listing and description of each type of trunk supported.

Administration

To implement this feature, complete the following forms.

Form	Field
DS1 Circuit Pack	All
Trunk Group	
Access	All
APLT	All
DMI-BOS	All
ISDN-PRI	All
RLT	All
Tandem	All
Tie	
Synchronization Plan	All

- DS1 Circuit Pack Form—Assign the circuit pack to the System before the administration of the associated trunks
- Trunk Group Forms—Associate trunk members to groups, as required.
- Synchronization Plan Form—Complete all fields.

Hardware Requirements

A TN767 (for B-channels) or TN464C (for B- or D-channels) DS1 circuit pack must be used when supporting ISDN-PRI services. One TN722B, TN767, or TN464C DS1 Tie Trunk circuit pack is required for every 24 DS1 tie trunks when using Robbed Bit Signaling or for every 23 trunks when using Common Channel or ISDN-PRI signaling. A TN768 Tone Clock circuit pack (or a TN722B, TN767, or TN464C) is required to provide synchronization for the DS1 tie trunks.

Duplication

To be provided.

EIA Interface

Provides an alternative to Digital Terminal Data Modules (DTDMs) and Modular Processor Data Modules (MPDMs) within the System hardware, for interconnection between RS-232 compatible Digital Terminal Equipment (DTE) and the System. The EIA Interface consists of a Data Line circuit pack port and an Asynchronous Data Unit (ADU).

Figure 3-19 shows a typical EIA interface connection.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -data-ext (Ext:__)
Data Line Data Module	All

- Station Forms—Assign Data Extension (data-ext) buttons to multi-appearance voice terminals.
- Data Line Data Module Form—Assign a vacant port and complete the Capabilities and Options fields.

The following permissions can be administered on a data line port to allow DTEs to be used.

- Keyboard Dialing (KYBD)—Must be set to allow data endpoints to receive and send text during data call origination or termination. Text prompts are provided.
- Configuration—Must be set to allow DTEs to change their data module options; that is, examine and change options, such as speed, from the DTE. Keyboard Dialing permission must be granted first.
- Busy Out—Should be set for DTEs that are members of a hunt group, and to allow ‘‘busy out’’ (when DTE turns power off) so that calls will not terminate on that DTE.

The following options can be examined and changed from the DTE if the ‘‘configuration’’ permission has been granted:

- Speed—All speeds (up to 19.2-kbps) at which the DTE can operate are selectable, including Autoadjust. Autoadjust is the capability of the data line port to determine what speed and parity the associated DTE is transmitting at and match it for terminal dialing and/or text feedback purposes.
- Parity—All choices of parity (even, odd, mark, or space) can be selected.
- Permit Mismatch—The EIA Interface may be operated at a higher transmission speed rate than the rate between the Data Line circuit and the far end data module. This allows for calls between digital endpoints with different speeds without changing the speed of the DTE.
- Dial Echoing—Can be set to echo typed characters back to the DTE during dialing.
- Disconnect—Set the signal to indicate ‘‘disconnect’’. Choices are one break greater than 2 s or two breaks within 1 s.
- Answer Text—Can be selected when DTE is an intelligent device, to allow text messages to be delivered to the DTE when a call is being answered; also, applies to text generated by the data line circuit and received from the System. The following call progress messages may be answered:
  - INCOMING CALL
  - PLEASE ANSWER
  - TRANSFER
  - FORWARDED
  - ANSWERED
  - ABANDONED
  - DISCONNECTED
  - OTHER END

- Connected Indication—Can be set to allow the text ‘‘CONNECTED SPEED= XXXX’’ to be sent to the DTE when the data call has been established.
- Other Characteristics—The Data Line circuit always operates in automatic answer (provided the DTE is on), asynchronous, and full duplex modes. The ‘‘Loss of Carrier Disconnect’’ is set to off; that is, the Data Line circuit, unlike other data modules, does not disconnect upon loss of EIA updates in the previous 4 s.

Hardware Requirements

Requires an ADU and a port on a TN726B Data Line circuit pack for each interface to be provided. A TN726B provides eight ports.

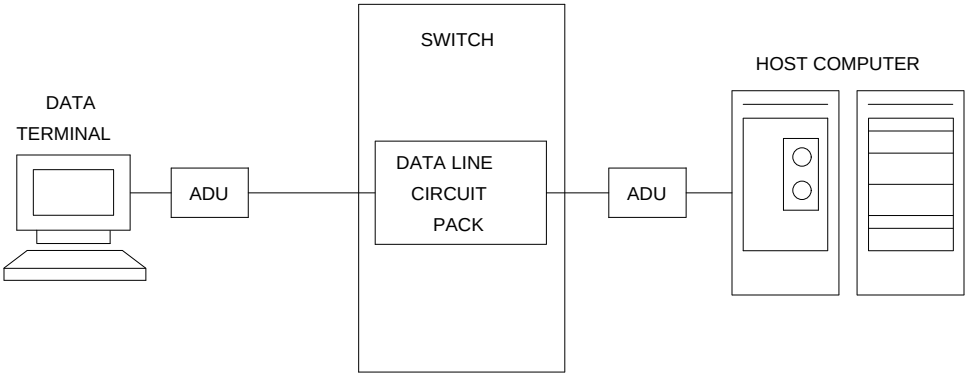


Figure 3-19. Typical EIA Interface

Emergency Access to the Attendant

Provides for emergency calls to be placed to an attendant. These calls can be placed automatically by the system or can be dialed by system users. Such calls can receive priority handling by the attendant.

Administration

The Emergency Access to Attendant option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

NOTE:
At least one attendant console must be administered before activating this feature.

Form	Field
Class of Service	Off-Hook Alert
Feature-Related System Parameters	Emergency Access Queue Length Time Before Off-Hook Alert Redirection Extension on Full Emergency Access Queue
Hospitality-Related System Parameters	Time of Scheduled Emergency Access Activity Report Extension of Journal/Schedule Printer
Attendant Console	Feature Button Assignments -em-acc-att
Feature Access Codes for Hospitality Features	Emergency Access To Attendant Access Code

- Class of Service Form—Assign correct permission to access Off-Hook Alert.
- Feature-Related System Parameters Form—Assign the number of calls that can go in the emergency queue. Assign the time, in seconds, a voice terminal with an off-hook alert class of service can remain off-hook before an emergency call for the voice terminal is sent to the attendant. Assign the extension number where emergency queue overflow will redirect.
- Hospitality-Related System Parameters Form—Assign time for scheduled emergency access activity report.
- Attendant Console Form—Assign emergency access feature button (em-acc-att).
- Feature Access Codes for Hospitality Features Form—Assign access code to the Emergency Access To Attendant Access Code field.

Hardware Requirements

Requires a 301A Basic or 302A Enhanced Attendant Console if a unique Emergency tone is required at the console, otherwise, normal ringing is heard for an emergency call and the attendant display flashes.

Enhanced Terminal Administration

Provides for the administration of new terminals that are not supported by the System's software. Administration information associated with terminals that are supported (MET sets, 7100 series, 7400D series, etc.) is provided at the end of this chapter. For any new terminal types, the Enhanced Terminal Administration (ETA) feature allows the new terminal to be ''mapped'' to an existing or supported type. The mapping does not guarantee set compatibility. It does allow non-supported types to be administered and tracked by their own unique names. The administration commands that are used to display station set types and to obtain help messages will include the new set types.

The administrator must refer to customer set-type documentation for supported types and terminal manuals for non-supported types to avoid set type mismatches between the new terminal and the supported set-type. In particular, the protocol used by the new terminal (such as, analog, DCP, hybrid) must match the protocol used by the terminal to which it is mapped. For example DCP type terminals (such as, 7400D series) must be matched to existing DCP set types.

Administration

To administer a new voice terminal-type not supported by a system form, complete the following forms.

Form	Field
Alias Station	All

Hardware Requirements

None.

Extended Trunk Access (ETA)

Extended Trunk Access permits a switch to send any unrecognized number (such as, an extension not administered locally) to another switch for analysis and routing. Such unrecognized numbers can be Facility Access Codes, Trunk Access Codes, or Extensions that are not defined locally. The ''form'' of these unrecognized numbers must be administered on the either the First Digit Table (on the Dial Plan Record form) or the Second Digit Table For Digit X form.

CAUTION:

When administering ETA on separate switches, care must be taken to not create a circular ETA call setup otherwise all trunk members being used for ETA will be tied up until the calling party releases the call. What is meant by this is that, if PBX A routes calls to the PBX B and the PBX B has been administered to route calls to PBX A, then any time an invalid set of digits is dialed all trunk members being used for ETA will be busied in an attempt to route the ETA call. Since both switches point to each other, an infinite loop has been administered. Care should be taken not to have a receiving PBX administered with ETA when the switch it attempts to route to is in fact the sending PBX.

This does not rule out chaining PBXs together using ETA, that is, PBX A points to PBX B which points to PBX C, etc.

NOTE:

When Trunk Access or Facility Access Codes are dialed, users must wait for the Remote Switch to generate dial tone before entering additional digits.

Administration

NOTE:

The Uniform Dialing Plan option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Dial Plan	ETA Routing Pattern **and/or** ETA Node Number ETA Pattern
ETA Call Screening Table	Call Screening Entry

- Dial Plan Form—Enter the ETA Node Number and/or the ETA Routing Pattern. These values determine which trunk (or pattern) to use when routing the call to the remote PBX. (Node Numbers are used when no Routing Patterns are assigned or for DCS.)

- ETA Call Screening Table Form—Enter the digit strings that cannot be routed to the remote PBX (blocked strings). Wildcards can be used (such as 45x) to block any dialed string beginning with those digits (such as 451, 452, etc.).

Hardware Requirements

None.

Extension Number Portability (ENP) Numbering Plan

The Extension Number Portability (ENP) Numbering Plan feature converts a 4- or 5-digit Uniform Dialing Plan (UDP) extension to an AAR-like 7-digit ENP number. Conversion of a 5-digit UDP extension is done by prepending a 3-digit ENP code to the last four digits of the extension; the conversion of a 4-digit UDP extension is done by prepending a 3-digit ENP code to the UDP extension. UDP extensions are converted to ENP numbers if node number routing is specified for the extensions in the UDP table. The 3-digit ENP conversion codes are specified by ENP Numbering Plan administration. The ENP Numbering Plan specifies which 3-digit ENP code is to be used with each extension starting with the same one or two leading digits. ENP codes are different from AAR location codes because they are location-independent within the ENP sub-network. That is, each 3-digit ENP code is administered to be home on every node within the ENP sub-network (on the AAR Digit Conversion Table).

This feature allows extensions to be moved across PBXs while retaining the original extension number, as long as these PBXs are part of the ENP subnetwork.

NOTE:
Though up to 100 3-digit ENP codes can be used, only one ENP code is required for a 4-digit ENP subnetwork; 5-digit UDP requires one ENP code for each leading digit of extensions used within the ENP sub-network.

DCS message signaling links are not required to support ENP. As a result, many multiple switch configurations are possible with ENP. Typically the ENP network will be a subnetwork of a UDP or ETN network.

Administration

NOTE:
The Uniform Dialing Plan option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
AAR Digit Conversion	All
ENP Numbering Plan	All
Node Number Routing	All
Uniform Dialing Plan	Ext Code

- AAR Digit Conversion Form—Assign all 3-digit ENP codes as home, and if using a 5-digit UDP, associate the ENP codes with a leading 10 thousands digit.

  NOTE:
  ENP Codes are distinguished from AAR location codes because ENP Codes are home on every node within the ENP sub-network, and ENP Codes are administered in the ENP Numbering Plan table as well as in the AAR Analysis table. Since ENP Codes are home on every node, they cannot be used as AAR location codes.

- ENP Numbering Plan Form—Associate the leading one or two digits of extensions in the ENP sub-network with a 3-digit ENP code, used to construct a 7-digit AAR-like ENP number.
- Node Number Routing Form—Associate a routing pattern with each node in the ENP sub-network.
- Uniform Dialing Plan Form—Enter the number of digits in the plan (4 or 5) and the Extension Codes for non-home extensions in the ENP sub-network are node number routed.

Hardware Requirements

None.

Facility and Non-Facility Associated Signaling

Facility Associated Signaling (FAS) allows an ISDN DS1 Interface D-channel to carry signaling information for those B-channels located on the same DS1 facility (circuit pack) as the D-channel.

Non-Facility Associated Signaling (NFAS) allows an ISDN DS1 Interface D-channel (signaling channel) to convey signaling information for B-channels (voice and data channels) on ISDN-PRI DS1 facilities other than the one containing the

D-channel. As a result, a D-channel can carry signaling information for numerous B-channels located on different DS1 facilities.

In addition, to improve reliability in the event of a signaling link failure, a signaling channel (D-channel Backup) may be administered. If a signaling link failure does occur, a switch to a backup signaling channel (D-channel) can be implemented.

D-channel Backup requires that one D-channel be administered as the Primary D-channel and that a second D-channel be administered as the Secondary D-channel. These assignments ensure that at certain times during the D-channel back-up process, that each switch at each end of the interface select the same D-channel. In these cases, the Primary D-channel is given precedence over the Secondary D-channel.

Immediately following the administration instructions, an example is provided for administering a FAS/NFAS interface.

Administration

Refer to the ‘‘ISDN-PRI’’ coverage elsewhere in this chapter for a complete listing of forms and fields on forms to be completed for ISDN-PRI applications.

The following provisioning and administration must be considered when implementing FAS, NFAS, and D-channel backup. Coordinate the following with the far-end switch for the DS1 facilities to be used:

- Decide which DS1 facilities will use FAS
- Decide which of the remaining DS1 facilities will carry D-channel signaling information on the 24th channel. For those channels that have a D-channel Backup, D-channel pairs must be allocated.
- Define Signaling Groups (1–166). Each Signaling Group must be designated as either a FAS or NFAS Signaling Group.
  - — A FAS Signaling Group must contain all the ISDN B-channels on the DS1 interface associated with the group’s D-channel, and cannot contain B-channels from any other DS1 circuit pack. Some of the DS1 ports may use in-band (robbed-bit) signaling and be members in a tie trunk group rather than an ISDN trunk group. These tie trunks cannot be members of a Signaling Group.
  - — There is no restriction on which DS1 ports can belong to a NFAS Signaling Group. Normally, an NFAS Signaling Group would consist of one or two D-channels and several complete DS1 interfaces as shown in Figure 3-20.

NOTE:
If a Signaling Group contains only a subset of a DS1's B-channels (ports 1–12 for example), it is considered an NFAS Signaling Group, not a FAS Signaling Group. The remaining B-channels on the DS1 would then be assigned as members of another NFAS Signaling Group.

- An Interface ID must be assigned to each DS1 facility in a NFAS Signaling Group. For example, if the B-channels in a Signaling Group span three DS1 facilities, a unique Interface ID must be assigned to each of the three DS1 facilities.
- D-channel Backup involves two or more ISDN-PRI DS1 facilities that interconnect the switch to another PBX or to the network. Two D-channels must be present on the facilities. One of the D-channels is designated as Primary and the other as Secondary. This designation must be agreed upon by both sides of the interface and administered prior to initialization. The purpose of this designation is to resolve glare situations between the two D-channels.

To implement FAS/Non-FAS and/or D-channel Backup, the following form must be completed:

Form	Field
Signaling Group	All

- Signaling Group Form—Up to eight Signaling Groups (forms) can be assigned. Complete all fields as required.

NOTE:
The use of the DS1 circuit pack form and other related ISDN-PRI forms for implementation of an ISDN-PRI interface are described in the ISDN-PRI feature coverage.

Hardware Requirements

Refer to the ‘‘ISDN-PRI’’ coverage elsewhere in this chapter.

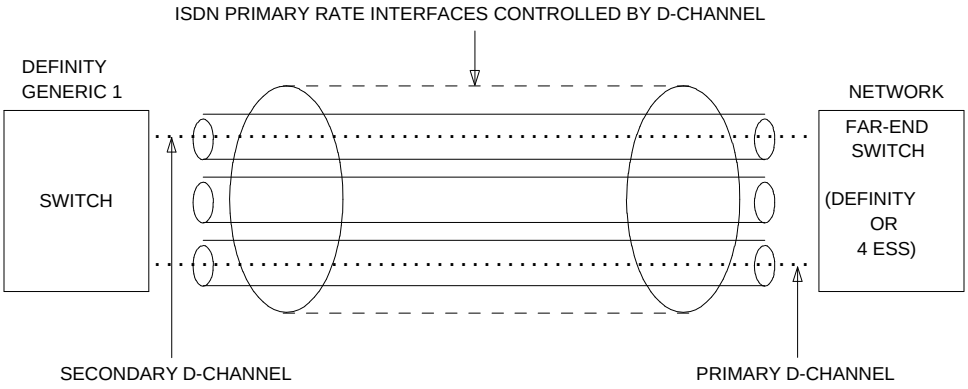


Figure 3-20. Example D-channel Backup With Three ISDN-PRIs

The following examples describe the DS1 interface configuration shown in Figure 3-21 for NFAS. The examples make use of key forms associated with implementation of the ISDN-PRI feature described elsewhere in this chapter in addition to the use of the Signaling Group form. Refer to the ‘‘ISDN-PRI’’ coverage elsewhere in this chapter for additional information associated with implementing ISDN-PRI. When implementing FAS and NFAS, the DS1 form must be submitted first, followed by the Interface Link and associated forms followed by the ISDN-PRI trunk group form.

The Interface Link and associated forms may be administered at any time after the DS1 forms have been administered, with the following restrictions:

- A D-channel cannot be assigned on a Signaling Group form unless the associated link is disabled
- A trunk member cannot be assigned unless its associated Signaling Group has been administered.

For each DS1 circuit pack, the Signaling Mode must be specified. Currently the options are ‘‘common-channel’’ (default), ‘‘robbed-bit’’, or ‘‘isdn-pri’’.

Next, Signaling Groups are administered using Signaling Group forms.

```
                          SIGNALING GROUP                    Page 1 of 1

Group Number : 1     Associated Signaling? n          Max number of NCA TSC: 0

                        Primary D-channel: 1B1524     Max number of CA TSC: 0
                      Secondary D-channel: 1B1624  Trunk Group for NCA TSC: __

     Trunk Brd    Interface ID        Trunk Brd    Interface ID
  1:   1B15          _1            11.   _____          __
  2:   1B16          _2            12.   _____          __
  3:   1B17          _3            13.   _____          __
  4:   _____         __            14.   _____          __
  5:   _____         __            15.   _____          __
```

Signaling Group Form (Group 1)—D-channel Backup, Three DS1 Interfaces

```
                          SIGNALING GROUP                    Page 1 of 1

Group Number : 2    Associated Signaling? n          Max number of NCA TSC: 0
                       Primary D-channel: 1B1824     Max number of CA TSC: 0
                     Secondary D-channel: _______  Trunk Group for NCA TSC: __

     Trunk Brd    Interface ID        Trunk Brd    Interface ID
  1:   1B17          17            11.   _____          __
  2:   1B18          18            12.   _____          __
  3:   _____         __            13.   _____          __
  4:   _____         __            14.   _____          __
  5:   _____         __            15.   _____          __
```

Signaling Group Form (Group 2)—No D-channel Backup, Two DS1 Interfaces

```
                          SIGNALING GROUP                 Page 1 of 1

Group Number : 3     Associated Signaling? y       Max number of NCA TSC: 0
                        Primary D-channel: 1B1924   Max number of CA TSC: 0
                                                  Trunk Group for NCA TSC: __
```

Signaling Group Form (Group 3)—Facility Associated Signaling

In the three previous screen displays:

- Signaling Group 1 B-channels on DS1 circuit packs (boards) B15 and B16 are signaled by D-channel pair B1524 (see Primary D-channel field) and B1624 (see Secondary D-channel field).
- Signaling Group 2 B-channels on board B18 are signaled by D-channel B1824.
- Board B17 has no D-channel. The B-channels on board B17 can be signaled by either D-channel pair B1524/B1624 (Signaling Group 1) or D-channel B1824 (Signaling Group 2).
- The DS1 interface on board B19 (Signaling Group 3) is a Facility Associated Signaling case.

NOTE:
The Secondary D-channel and Trunk Board/Interface ID fields are not displayed when the Associated Signaling field is ‘‘y’’.

The following two communications-interface forms must be completed for the ISDN-PRI interface:

- Interface Links Form—Used to create an association between the D-channel on a DSI circuit pack and the port on a TN577 PGATE circuit pack used for this link.
- Processor Channels Form—Used to assign processor channels to the link administered on the Interface Links form.

Finally, trunk ports are added to the ISDN-PRI trunk group and to Signaling Groups.

```
GROUP MEMBER ASSIGNMENTS                                    Page 3 of 9

     Port        Name              Night        Sig Grp
 1: 1B1501___   ____________      _________      _
 2: 1B1523___   ____________      _________      _
 3: 1B1601___   ____________      _________      _
 4: 1B1623___   ____________      _________      _
 5: 1B1701___   ____________      _________      1
 6: 1B1709___   ____________      _________      1
 7: 1B1716___   ____________      _________      2
 8: 1B1724___   ____________      _________      2
 9: 1B1801___   ____________      _________      _
10: 1B1823___   ____________      _________      _
11: 1B1901___   ____________      _________      _
12: 1B1923___   ____________      _________      _
13: _________   ____________      _________      _
14: _________   ____________      _________      _
15: _________   ____________      _________      _
```

ISDN-PRI Trunk Group Form—Trunk Members with Required Signaling Group Numbers Shown

The Sig Grp column on the above trunk group form is completed as follows:

- If a DS1 interface appears in only one Signaling Group, then the Sig Grp field may be left blank.
- If a DS1 circuit pack appears in more than one Signaling Group, then the Signaling Group numbers must be entered in the appropriate fields before submitting the form.

For FAS and NFAS implementation, the following signaling/configurations are supported for far-end 4 ESS switch and DEFINITY Communications System Generic 2 switches:

- FAS <--------> 4ESS Simplex
- NFAS (no Secondary D-channel) <--------> 4ESS Simplex
- NFAS (with Secondary D-channel) <--------> 4ESS Duplex
- FAS <--------> DEFINITY Generic 2 FAS (no D-channel Group assigned)
- FAS <--------> DEFINITY Generic 2 NFAS (D-channel Group with no backup)
- NFAS (no Secondary D-channel) <--------> DEFINITY Generic 2 NFAS (no D-channel Group assigned)

- NFAS (no Secondary D-channel) <--------> DEFINITY Generic 2 NFAS (D-channel Group with no backup)
- NFAS (with Secondary D-channel) <--------> DEFINITY Generic 2 NFAS (D-channel Group with backup)

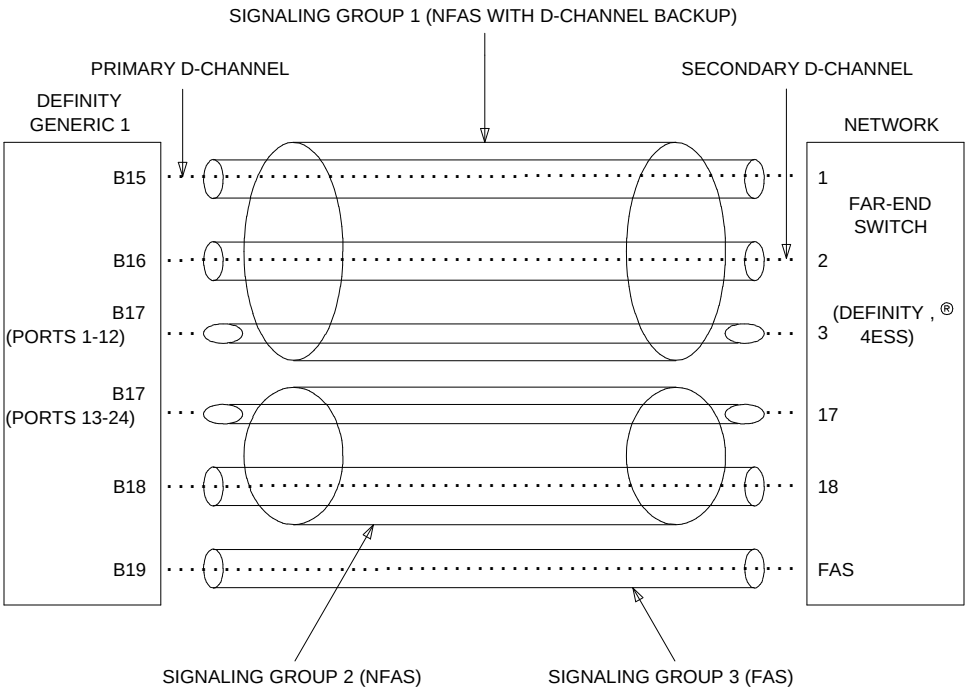


Figure 3-21. Example FAS/NFAS Interface Configurations With Interface IDs

Facility Busy Indication

Provides multi-appearance voice terminal users with a visual indication of the busy or idle status of an extension number, a trunk group, terminating extension group, a hunt group (Direct Department Calling or Uniform Call Distribution group), or any loudspeaker paging zone, including all zones. The Facility Busy Indication button provides the voice terminal user direct access to the extension number, trunk group, or paging zone.

NOTE:
The Facility Busy lamp indication for a VDN is always off (dark). The associated button may be used to place a call to a VDN.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -busy-ind
Attendant Console	Feature Button Assignments -busy-ind

- Station Forms—Assign ‘‘busy-ind’’ to a voice terminal button.
- Attendant Console Form—Assign ‘‘busy-ind’’ feature button.

Hardware Requirements

None.

Facility Restriction Levels and Traveling Class Marks

Provides up to eight levels of restriction for users of the Automatic Alternate Routing (AAR) and/or Automatic Route Selection (ARS) features.

Administration

The Private Networking and Automatic Route Selection (ARS) options must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	FRL
Routing Patterns	FRL (0–7)

- Class of Restriction Form—Assign originating FRLs.
- Routing Patterns Form—Assign terminating FRLs.

FRL and TCM Guidelines and Examples

The examples given here are designed to help understand FRLs and to illustrate some of the practical aspects of FRLs. Each System must be administered to meet individual needs.

FRLs on the terminating end of a call are not checked unless the terminating facility is a trunk group. This simplifies assignments. At each switch, the trunk groups available to handle a given call must be listed in the preferred order within the Routing Pattern. The most-preferred choice must be at the top of the list. Up to six choices can be specified. Access to each of the listed trunk groups must be determined. This, of course, is specified via an FRL. On a scale of 0–7, the relative value is determined and assigned. Decisions are normally based on the cost of using the facility, although other criteria can be used. The same FRL value can be assigned to more than one trunk group if there is no reason to prefer one trunk group over the other.

If some users within the System are not allowed to make outside calls, use a value other than 0 as the value for the first-choice trunk group. By assigning these users an FRL of 0, none of the trunk groups can be accessed (since all trunk group FRLs will be greater than 0). Such calls are denied.

Each Routing Pattern must be individually constructed. The same trunk group can be used in more than one pattern. The associated FRL is assigned within the pattern and is not associated with the trunk group itself. The same trunk group can have a different FRL in a different pattern.

Be consistent in FRL assignments. Do not use a range of 0–5 in one pattern and a range of 2–7 in another pattern if all users can access the first-choice route. Admittedly, the trunk group with an FRL of 2 may be more expensive than the trunk group with an FRL of 0, but there is no real reason to assign a 2 to a trunk group that everyone can access. For ease of assignments, always use a 0 for such a trunk group.

At least one class of restriction (COR) should be established for each FRL used in a Routing Pattern. The appropriate COR is then assigned to the users who can access the routes restricted by the FRL value. For example, a middle executive might be able to access all routes with an FRL of 5 or lower, whereas the president can access all routes. In this case, the executive is assigned a COR with an FRL of 5 and the president is assigned a COR with an FRL of 7.

Remote Access users can access the System's features and services the same as an on-premises user. FRL assignment is via Remote Access Barrier Codes and/or Authorization Codes. Up to 10 Barrier Codes, each with its own COR (and FRL), can be assigned. Although the COR defines other restrictions, 10 Barrier Codes are enough to also provide a range of FRL assignments. Assignment of Barrier Code FRLs is the same as if the user were on-premises. The

simplest way to assign these FRLs is to duplicate the on-premises FRLs, and then merely relate the appropriate Barrier Code to those that will be using Remote Access.

FRLs apply only on ARS and AAR calls. If CDR 15-digit account codes are used, the FRL field in the CDR record is overwritten.

The following is an example of how FRLs can be assigned:

- **FRL0**—No outgoing calls.
- **FRL1**—Local calls.
- **FRL2**—FRL1 plus the home area code calls using WATS.
- **FRL3**—FRL2 plus the use of local lines for all calls in the home area code.
- **FRL4**—FRL3 plus the calls to all the U.S.A., using WATS.
- **FRL5**—FRL4 plus the calls to all the U.S.A., using local lines.
- **FRL6**—FRL5 plus the international calls.
- **FRL7**—Reserved for a spare.

Hardware Requirements

None.

Facility Test Calls

Provides a voice terminal user with the capability of making test calls to access specific trunks, touch-tone receivers, time slots, and system tones. The test call is used to make sure the facility is operating properly. A local voice terminal user can make a test call by dialing an access code. An Initialization and Administration System (INADS) terminal user can also make test calls.

NOTE:
AT&T has designed the Facility Test Calls feature incorporated in this product that, when properly administered by the customer, will enable the customer to minimize the ability of unauthorized persons to gain access to the network. It is the customer's responsibility to take the appropriate steps to properly implement the features, evaluate and administer the various restriction levels, protect access codes and distribute them to individuals who have been advised of the sensitive nature of the access information. Each authorized user should be instructed concerning the proper use and handling of access codes.

In rare instances, unauthorized individuals make connections to the telecommunications network through use of test call features. In such event, applicable tariffs require that the customer pay all network charges for traffic. AT&T cannot be responsible for such charges, and will not make any allowance or give any credit for charges that result from unauthorized access.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Facility Test Calls Access Code
Class of Restriction	Facility Access Trunk Test
Station (multi-appearance)	Button/Feature Button Assignments -trk-ac-alm

- Feature Access Codes Form—Assign the ‘‘Facility Test Calls Access Code’’.
- Class of Restriction Form—Enter ‘‘y’’ in the Facility Access Trunk Test (FAT) field to allow FAT calls from facilities assigned the associated COR.
- Station (Multi-appearance) Form—Assign a ‘‘trk-ac-alm’’ feature button if required. The associated status lamp lights when a successful FAT call has occurred. Pressing the button when the status lamp is lighted will turn off all trk-ac-alm lamps administered in the System.

Hardware Requirements

None.

Fiber Link

To be provided.

Forced Entry of Account Codes

Requires users to dial an account code when making certain types of outgoing calls.

Administration

The Forced Entry of Account Codes option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

For All Toll Calls via ARS or a Trunk Access Code (TAC):

Form	Field
CDR System Parameters	Forced Entry of Account Codes for Calls Marked on Toll Analysis Form
	CDR Account Code Length
Toll Analysis	Dialed String, Min, Max, CDR FEAC

- CDR System Parameters Form—Enter ''y'' in the Forced Entry of Account Codes For Calls Marked on Toll Analysis field to indicate that an account code must be entered when making a call. Complete the CDR Account Code Length field.
- Toll Analysis Form—Complete entries for the Dialed String, Min, and Max fields if the Dialed String is not already on form and enter ''x'' in the CDR FEAC field for each dialed string to be marked as a call associated with the Forced Entry of Account Code feature.

For Toll Calls Made By A Particular Group of Users (via ARS or a TAC):

Form	Field
Class of Restriction	Forced Entry of Account Codes
Call Originating Facility (such as, station, data module, etc.)	COR
Toll Analysis	Dialed String, Min, Max, CDR FEAC

- Class of Restriction Form—Assign ‘‘y’’ to the Forced Entry of Account Codes field on each appropriate COR form.
- Call Originating Facility Forms—Assign the appropriate COR (Forced Entry of Account Codes field = ‘‘y’’) to each station, data module, etc., form as required.
- Toll Analysis Form—Complete appropriate lines on the form for each dialed string to be associated with the Forced Entry of Account Code feature. For each line, complete the Dialed String, Min, and Max fields if the Dialed String is not already on form and enter ‘‘x’’ in the CDR FEAC field for each dialed string to be marked as a call associated with the Forced Entry of Account Code feature.

For All Calls Routed Over A Particular Trunk Group (TAC calls):

Form	Field
Class of Restriction	Forced Entry of Account Codes
Trunk Group	COR

- Class of Restriction Form—Assign ‘‘y’’ to the Forced Entry of Account Codes field on each appropriate COR form.
- Trunk Group Forms—Assign the appropriate COR (Forced Entry of Account Codes field = ‘‘y’’) to each Trunk Group form as required.

Hardware Requirements

None.

Foreign Exchange (FX) Trunk Group

A Foreign Exchange (FX) Trunk Group provides for trunk connections between the System and a distant central office.

Administration

To implement this feature, complete the following forms.

Form	Field
Foreign Exchange Trunk Group	All
Digit Absorption	All

- Foreign Exchange Trunk Group Form—Complete all fields.
- Digit Absorption Form—If required, complete this form when the far-end central office is a step-by-step office. The Digit Absorption List field on the Foreign Exchange trunk group must reference the Digit Absorption List number entered on the form.

Hardware Requirements

A port is required on a TN747B CO Trunk or TN767 DS1 Interface circuit pack for each trunk to be assigned. A TN747B provides eight ports and a TN767 provides 24 ports.

Generalized Route Selection

Enhances the AAR and ARS features by providing additional parameters to be considered in the routing decision. Optimal routing of voice and data calls is supported.

Refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201.

Administration

The ISDN-PRI and the Automatic Route Selection options must be enabled on the System-Parameters Customer-Options form before associated forms or fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Routing Patterns	IXC BCC Service/Feature Band
Trunk Group Access CO FX ISDN-PRI Tandem Tie	BCC

- Routing Patterns Form—Complete the IXC, BCC, Service/Feature, and Band fields as required.
- Trunk Group Forms—Complete the BCC field where required for all trunk groups with ‘‘avd’’ in the Conn Type field.

Hardware Requirements

None.

Go to Cover

Allows users, when making a call to another internal extension, to send the call directly to coverage.

NOTE:
Go to Cover cannot be activated for calls placed to a Vector Directory Number extension.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -goto-cover

- Station Forms—Assign a Go to Cover (goto-cover) button.

Hardware Requirements

None.

Hold

Allows terminal users to disconnect from a call temporarily, use the voice terminal for other call purposes, and then return to the original code.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Answer Hold-Unhold

- Feature Access Codes Form—Assign an access code to the Answer Hold-Unhold field.

Hardware Requirements

None.

Hold, Automatic

Automatic Hold allows attendants and Multi-Function station set users to alternate easily between calls by merely selecting call appearances. For example, depressing a second call appearance button automatically puts the active call on hold (without pressing the HOLD button) and makes the second call appearance

the active call; pressing the first call appearance places the second call on hold and makes the first call appearance the active call. If the Automatic Hold feature is disabled, this same action drops the active call appearance.

The Held Call Timed Reminder Timer works in conjunction with this feature to ringback calls placed on hold after the specified period of time. (This timer does not apply to conference calls.)

This feature is enabled or disabled on a system-wide (not individual) basis.

Administration

To implement this feature, complete the following forms.

Form	Field
Miscellaneous-Related System Parameters	Auto Hold

- Miscellaneous-Related System Parameters form—Enable Auto Hold by entering ‘‘y’’ in the Auto Hold field.

  NOTE:
  This button should be assigned to the same physical position for all sets.

Hardware Requirements

None.

Hospitality Services

A System with the Hospitality option enabled and Hospitality Parameter Reduction disabled on the System-Parameters Customer-Options form provides all System capabilities and supports all types of customers. A System with both the Hospitality and Hospitality Parameter Reduction options enabled provides reduced System parameters that have a major impact on essential System features used by non-lodging customers. The Hospitality features set (Auto Wakeup, Do Not Disturb, PMS) is the same on both packages.

The parameters that are reduced when the Hospitality Parameter Reduction option is enabled is shown in Table 3-14. The Standard or Current Package and reduced (New Package) and associated maximums with each parameter are shown.

Table 3-14. Hospitality Parameter Reduction

Parameter	Standard Package	Reduced Package
Trunks	4000	50
Hunt Groups	99	5
Pickup Groups	400	5
Call Coverage Paths	600	5

Administration

Both Hospitality and Hospitality Reduced Parameters options must be enabled on the System-Parameters Customer-Options form for a Reduced Parameters System. In addition, associated hospitality parameters must be administered on the Hospitality-Related System-Parameters form (instructions provided in Chapter 5).

Hardware Requirements

None.

Hot Line Service

Allows single-line voice terminal users, by simply lifting the handset, to automatically place a call to a preassigned extension number, public or private network telephone number, or feature access code.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (single-line)	Hot Line Destination Number and Dial Code Abbreviated Dialing (List 1, 2, 3)
Abbreviated Dialing 7103A List	Dial Code (hot line destination)
Abbreviated Dialing System List	Dial Code (hot line destination)
Abbreviated Dialing Group List	Dial Code (hot line destination)
Abbreviated Dialing Personal List	Dial Code (hot line destination)
Abbreviated Dialing Enhanced List	Dial code (hot line destination)
Data Modules Data Line MPDM/MTDM System Access Port PGATE	Special Dialing Option Hot Line Destination AD List

- Station Forms—On associated Voice Terminal forms, complete the Hot Line Destination field to specify the list entry containing the Hot Line Destination. Complete Abbreviated Dialing List 1, 2, 3 field.
- Abbreviated Dialing List Forms—Assign the Hot Line Destination to the Abbreviated Dialing list.
- Data Module Forms—Complete the Special Dialing Option field as ‘‘hot-line’’ where required. Complete the Hot Line Destination Abbreviated Dialing Code field.

Hardware Requirements

None.

Hunting

Checks for the active or idle status of extension numbers in one or more ordered groups. If all members of a group are active, the call can route to another group through Call Coverage or can wait in a queue for an available group member, if a queue is provided.

Refer to ''Automatic Call Distribution (ACD)'', ''Direct Department Calling'', ''Uniform Call Distribution'', or ''Call Coverage'' elsewhere in this chapter. Hunting is implemented via these features, either singularly or in combination with each other.

Inbound Call Management

Provides automated handling of incoming calls to Automatic Call Distribution (ACD) splits to increase ACD agent efficiency and tracking. ACD agent terminal displays can provide information on new and transferred calls and assist calls to a supervisor. Incoming call information such as Dialed Number Identification Service (DNIS) and, with ISDN-PRI, Calling Party Number (CPN) and Billing Number (BN) may be displayed on the terminal. Calls can terminate on an Inbound Call Management (ICM) adjunct such as a CONVERSANT® voice system, and using ASAI third-party call capabilities, route the call appropriately. Or, for example, the adjunct can perform a data base search on the caller information (CPN/BN) and retrieve caller data to display on a selected agent's screen based on that information.

An Adjunct/Switch Applications Interface (ASAI) link between the ICM adjunct and the switch allows the adjunct to control incoming call processing such as: who should receive the call.

Administration

The Automatic Call Distribution, ASAI, and appropriate ASAI Capability Groups options must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered. In addition, if Call Vectoring is to be used with this feature, the Vectoring (Basic) and/or Vectoring (Prompting) options must also be enabled.

In addition to the following administration requirements, refer to the ''Automatic Call Distribution'', ''Call Vectoring'', ''Call Prompting'', and ''Adjunct/Switch Applications Interface'' features in this chapter for associated administration requirements. Figure 3-1 (provided with the Adjunct/Switch Applications Interface feature coverage) shows the system connections required for an ICM interface link.

To implement this feature, complete the following forms.

Form	Field
Trunk Group (ISDN-PRI)	Per Call CPN/BN
Hunt Group	Group Type Message Center ACD Queue Queue Length
Class of Restriction	All
Call Vector	All
Station (agents)	All

- **Trunk Group Form**—Administer the Per Call CPN/BN field on the appropriate ISDN-PRI trunk group. Valid entries are ''cpn-only'', ''cpn-pref'', ''bn-only'', and ''bn-pref''. The corresponding information will be sent with a call offered event report to the adjunct. If the field is blank, no CPN/BN information is sent to the adjunct.
- **Hunt Group Form**—Complete a form for each split to be controlled by the ICM adjunct. Specific entries are:
  - — Group Type—''ucd'' is usually preferred.
  - — Message Center—''none'' is typical entry.
  - — ACD—Enter ''y''.
  - — Queue—Enter ''y''.
  - — Queue Length—Assign a Queue Length.
- COR Form (Optional)—Administer appropriate class of restrictions (CORs) for incoming agent calls.
- **Call Vector Form**—If Call Vectoring is to be used, insure that a Call Vector form has been completed. An ASAI link interface extension number is required for an ''adjunct routing'' command entered on the form. This extension is the same as that entered on the station form.
- **Station Forms**—On the appropriate station forms, complete all fields as required to administer agent voice terminals. Queue status feature buttons may be assigned (status lamps are functional after agent login).

Hardware Requirements

Additional hardware requirements for the ASAI port interface are described in ''Adjunct/Switch Applications Interface'' elsewhere in this chapter.

Individual Attendant Access

Allows users to access a specific attendant console. Each attendant console can be assigned an individual extension number.

Administration

To implement this feature, complete the following forms.

Form	Field
Dial Plan	First Digit Table
Attendant Console	Extension and Name
Console Parameters	COR and COS

- Dial Plan Form—Ensure that the First Digit Table Assignments include extension numbers to be assigned individual attendants.
- Attendant Console Form—Enter attendant extension and name. Assign optional Coverage and Make Busy feature buttons for Hunting and Centralized Attendant Service (CAS) Backup feature button for status indication.
- Console Parameters Form—Assign Class of Restriction (COR) and Class of Service (COS).

Hardware Requirements

None.

Information System Network (ISN) Interface

The AT&T ISN is a packet switched local area network that links mainframe computers, minicomputers, word processors, storage devices, personal computers, printers, terminals, and communications processors into a single system. The interface to the System is via an Asynchronous Data Unit (ADU).

Figure 3-22 provides a typical ISN interface connection to the System using a port on a TN726B Data Line circuit pack.

Administration

To implement this feature, complete the following forms.

Form	Field
Data Line Data Module	All

- Data Line Data Module Form—Complete all fields.

Hardware Requirements

One TN726B Data Line circuit pack is required for each eight ISN interfaces.

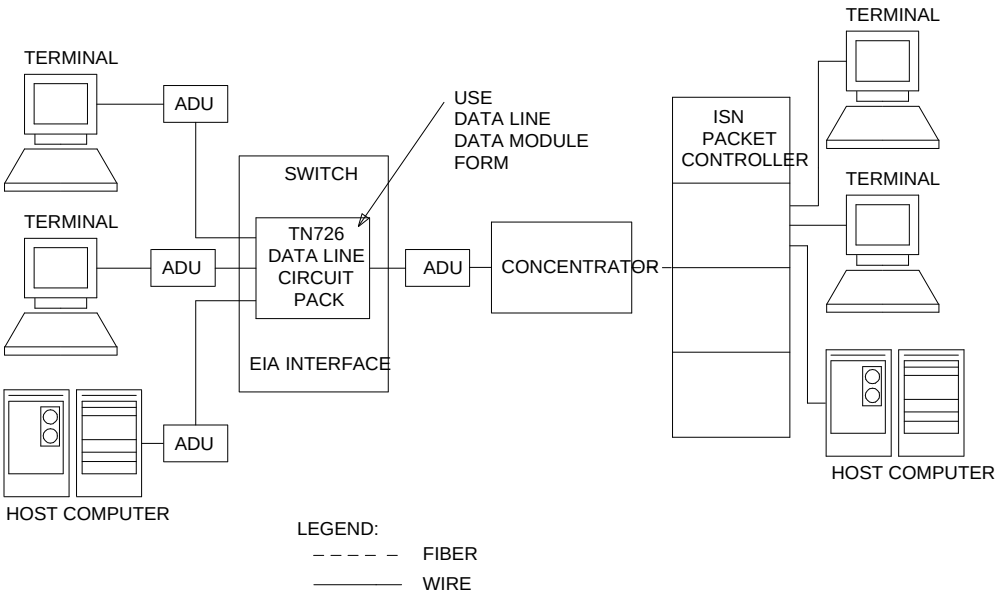


Figure 3-22. Typical ISN Connection to the System

Integrated Directory

Allows internal System users with display-equipped terminals to access the System data base, use the touch-tone buttons to key in a name, and retrieve an extension number from the System directory. The directory contains an alphanumeric listing of the names and extension numbers assigned to all voice terminals administered in the System.

NOTE:
The use of Vector Directory Number names and extensions are not supported for this feature.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (Associated Display Module Form)	Display Module Button Assignments -directory -next -call-disp
Attendant Console	Feature/Display Button Assignments -directory -next -call-disp
7404D Voice Terminal (Associated Data Module Form)	All

- Station Forms—Enter ‘‘y’’ in the Display Module field. Assign an Integrated Directory (directory) display button.
- Display Module Form—Assign one Integrated Directory (directory) display feature button, if desired. If an Integrated Directory button is assigned as a feature button, you cannot assign an Integrated Button on the Display Module, or vice versa. Assign Next and Return Call (call-disp) buttons also.
- Attendant Console Form—Assign one Integrated Directory display feature button. Assign Next and Return Call (call-disp) display buttons also.
- 7404D Station Form—Assign a ‘‘y’’ to the Display field if a 7404D Messaging Cartridge is attached to the voice terminal. Complete an associated 7404D Data Line Data Module form.
- 7404D Station Form—Assign a ‘‘y’’ to the Data Module field if a 7404D Messaging Cartridge is attached to the voice terminal. Complete an associated Data Module form.

Hardware Requirements

The 7404D voice terminal requires an optional Messaging Cartridge if the terminal is to be connected to an associated data terminal. (The data terminal provides display capabilities for the 7404D.)

Integrated Services Digital Network—Basic Rate Interface

Allows connection of the system to an Integrated Services Digital Network (ISDN) by using a standard ISDN frame format called the Basic Rate Interface (BRI).

An ISDN provides end-to-end digital connectivity and uses a high-speed interface which provides service-independent access to switched services. Through internationally accepted standard interfaces, an ISDN provides circuit- or packet-switched connectivity within a network and can link to other ISDN-supported interfaces to provide national and international digital connectivity. Two types of ISDN interfaces are currently defined: the Primary Rate Interface (PRI) and the Basic Rate Interface (BRI). This description focuses on ISDN-BRI. (For details on ISDN-PRI, refer to the ''Integrated Services Digital Network-Primary Rate Interface'' sections in Chapters 4 and 5.

The term "endpoints" is used whenever statements apply to both ISDN-BRI voice terminals and ISDN-BRI data modules.

The ISDN-BRI is a 192-kbps interface that carries two 64-kbps "B-channels," which transport voice and/or data, and one 16-kbps "D-channel," which transport data, signaling, and other bits for framing.

An ISDN-BRI device (most commonly a terminal) operates at 192-kbps, and provides bearer service over two 64-kbps B-channels for voice and/or data. An ISDN-BRI device also has one 16-kbps D-channel for signaling and/or data. Although ISDN-BRI supports data transmission on the D-channel, DEFINITY Generic 1.2 does not support this capability, and only provides signaling on this channel. ISDN-BRI provides much of the same functionality that is provided with the Digital Communications Protocol (DCP).

With ISDN-BRI, there are two possible configurations: passive bus ''multipoint'' and ''point-to-point''. In the passive bus multipoint configuration, the system supports two ISDN-BRI endpoints per port. The ISDN-BRI supports two endpoints per port. In this multipoint configuration, you can have:

- two voice-only endpoints per port
- two data-only endpoints per port
- one data-only endpoint and one voice-only endpoint per port

In each of the multipoint configurations, each endpoint has its own ISDN-BRI interface. In these multipoint configurations, both endpoints use the same wire connected to the switch. One endpoint uses the B1-channel, while the other endpoint uses the B2-channel. Although both endpoints use the B-channels on the same wire, they each have their own extension number. The system is able to distinguish between the two endpoints by using the Service Order Profile Identifier (SPID) of each endpoint. The SPID enables each endpoint in a multipoint configuration to identify itself to the switch.

ISDN-BRI Data Services

Data transmission on ISDN-BRI is provided by the 7500B Data Module and the Asynchronous Data Module (ADM). The 7500B Data Module is a stand-alone unit that supports asynchronous or synchronous DCE and asynchronous DTE. In asynchronous mode, the 7500B supports packet or circuit-switched data communications, and can be controlled via the front panel or the keyboard of a connected terminal. In synchronous mode, the 7500B supports circuit-switched or nailed-up data communications, requires either the Multipurpose Enhancement Board or the High Speed Synchronous Enhancement Board, and can only be controlled via the front panel.

The Asynchronous Data Module (ADM) may be used with asynchronous DTE as a data stand for 7500-series ISDN-BRI voice terminals. Consisting of a circuit pack located inside the ISDN-BRI voice terminal, the ADM allows the transmission of integrated voice and data through one voice terminal. The ADM supports the Hayes command set for compatibility with PC communications packages.

The system can support up to 800 data modules. This value includes both ISDN-BRI and DCP data modules.

Administration

The Packet Bus Activated field must be ‘‘y’’ on the Maintenance-Related System Parameters form before ISDN-BRI station forms can be administered.

Both the 7500B Data Module and the ADM are administered through station administration forms, using the data module administration page.

Hardware Requirements

ISDN-BRI services require the following hardware:

- The TN778 Packet Control circuit pack which provides the interface to the LAN (packet) bus for establishing the signaling connectivity.
- The TN556 ISDN-BRI Line circuit pack which can support 12 line interfaces, each operating at 192-kbps.
- ISDN-BRI Type B and Type D Terminal Management S/T interface terminals.

- The AT&T ISDN 7505D, 7506D, 7507D, and 8503D voice terminals.
- The 7500B Data Module and the Asynchronous Data Module (ADM). The ADM is supported by the AT&T ISDN 7505D, 7506D, and 7507D voice terminals with firmware version FP2.0 or later.

For additional information, refer to the ''7500B Data Module'', ''Asynchronous Data Module, '' and ''Data Modules'' sections in this chapter and to the ''7500B Data Module'' and ''7500D Series Voice Terminals'' sections in Chapter 5.

To implement this feature, complete the following forms.

Form	Field
Maintenance-Related System Parameters	Packet Bus Activated
Station (7500 series)	All
Station (8500 series)	All
7500B Data Module	All

NOTE:
The Maintenance-Related System Parameters Form is a maintenance form. For more information, refer to *Generic 3r—Maintenance*, 555-230-105,

- Maintenance-Related System Parameters Form Enter ''yes'' in the Packet Bus activated field to enable to Packet Control circuit pack.
- Station Form (7505D, 7506D, and 7505D) Complete all fields.
- Station Form (8505D) Complete all fields.
- 7500B Data Module Form Complete all fields.

Integrated Services Digital Network—Primary Rate Interface

Provides end-to-end digital connectivity within the network and can provide national and international digital connectivity to other Integrated Services Digital Networks (ISDNs) that support the Primary Rate Interface (PRI) standard.

NOTE:
For administration information associated with an ISDN Gateway adjunct (3B2 or 6386 computer) used in support of the Calling Party Number/Billing Number (CPN/BN) feature, refer the ''CPN/BN'' coverage in this chapter.

Administration

The ISDN-PRI option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
DS1 Circuit Pack	All
Signaling Group	All
Synchronization Plan	All
ISDN-PRI Trunk Group	All
CPN Prefix Table	All
Routing Patterns	All
Hunt Groups	ISDN Caller Display
Terminating Extension Group	ISDN Caller Display

- DS1 Circuit Pack Form—Assign all fields as required. For Facility Associated Signaling, up to 23 ports are available for administration as trunk members in an associated ISDN-PRI trunk group. The 24th port is used as a signaling channel. For Non-Facility Associated Signaling, all 24 ports may be used on certain DS1 circuit packs. The D-channel signaling function for these packs must be provided by a designated DS1 pack on it's 24th channel.
- Signaling Group Form—Complete all fields. This form is used to identify groups of ISDN-PRI DS1 interface B-channels for which a given D-channel (or D-channel pair) will carry the associated signaling information (supports the Facility and Non-Facility Associated Signaling feature. Each DS1 board required to have a D-channel must be in a different signaling group (unless D-channel backup is needed in which case a second DS1 is administered as a backup D-channel).
- Synchronization Plan Form—Used to assign primary and secondary external synchronization sources for the DS1 circuit pack. Complete all fields of the form as required.
- ISDN-PRI Trunk Group Form—Complete all fields as required.
- CPN Prefix Table Form—Complete all fields. This form is used to support the ISDN-PRI Call Identification Display feature.

- Routing Pattern Form—Complete all fields including the Supplemental ISDN Routing Information fields as required.
- Hunt Group Form—Complete the ISDN Caller Display field by entering either ‘‘grp-name’’ or ‘‘mbr-name’’ to specify whether the hunt group name or member name, respectively, will be sent to the originating user (used in support of the ISDN-PRI Call Identification Display feature).
- Terminating Extension Group Form—Complete the ISDN Caller Display field by entering either ‘‘grp-name’’ or ‘‘mbr-name’’ to specify whether the group name or member name, respectively, will be sent to the originating user (used in support of the ISDN-PRI Call Identification Display feature).

Hardware Requirements

Requires a TN767 for B-channel NFAS only.

Requires a TN464 for signaling.

Voice terminals equipped with displays are required to display ISDN-PRI Call Identification information.

Intercept Treatment

Provides an intercept tone or a recorded announcement or routes the call to an attendant for assistance when calls cannot be completed or when use of a feature is denied.

NOTE:
A Vector Directory Number extension cannot be administered to receive intercept treatment.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	DID/Tie/ISDN Intercept Treatment
	Controlled Restrictions
Recorded Announcements	Port Assignments (1–128)

- Feature-Related System Parameters Form—Complete the following fields:
  - — DID/Tie/ISDN Intercept Treatment—This entry (extension number or 0 for the attendant) is to be used for intercepting invalid DID and/or tie trunk calls.
  - — Controlled Outward Restriction Intercept Treatment—This entry determines the type of intercept treatment the caller receives on outward restricted calls.
  - — Controlled Termination Restriction (Do Not Disturb)—This entry determines the type of intercept treatment a caller receives when a call is placed to a termination restricted voice terminal.
  - — Controlled Station-to-Station Restriction—This entry determines the type of intercept treatment the caller receives when a call is placed to a restricted voice terminal.
- Recorded Announcements Form—Assign intercept announcement extension number, if used.

Hardware Requirements

Requires announcement equipment and a port on a TN742, TN746B, or TN769 Analog Line circuit pack for each announcement device to be assigned. A TN750 Announcement circuit pack can be used to provide up to 16 different announcements. The announcements can be directly recorded onto the TN750 circuit pack (does not require announcement equipment).

Intercom—Automatic

Provides a talking path between two voice terminal users. Calling users press the Automatic Intercom button and lift the handset, or vice versa. The called user receives a unique intercom alerting signal, and the status lamp associated with the Dial or Automatic Intercom button, if provided, flashes.

Administration

To implement this feature, complete the following forms.

Form	Field
Intercom Groups	Group Member Assignments
Station (multi-appearance)	Button/Feature Button Assignments -auto-icom (Grp:__ DC:__)

- Intercom Groups Form—Complete intercom-dial fields.
- Station Forms—Assign Auto Intercom (auto-icom) button(s).

Hardware Requirements

None.

Intercom—Dial

Allows multi-appearance voice terminal users to gain rapid access to as many as 32 other voice terminal users within an administered group. Calling voice terminal users lift the handset, press the Dial Intercom button, and dial the 1- or 2-digit code assigned to the desired party. The called user receives alerting tone, and the status lamp associated with the Intercom button, if provided, flashes.

Administration

To implement this feature, complete the following forms.

Form	Field
Intercom Groups	All
Station (multi-appearance)	Button/Feature Button Assignments -dial-icom (Grp:__)

- Intercom Groups Form—Establish intercom groups.
- Station Forms—Assign Dial Icom buttons on voice terminals for all intercom group members who can originate an intercom call. Anyone in a group can be called, but only those members with an assigned Intercom button can originate an intercom call.

Hardware Requirements

None.

Inter-PBX Attendant Service

Allows attendant positions for more than one branch location to be concentrated at one central, or main, location. Incoming trunk calls to the branch location, as well as attendant-seeking voice terminal calls, are routed over tie trunks to the attendants at the main location.

Administration

To implement this feature, complete the following forms.

Form	Field
Tie Trunk Group (Main)	Incoming Destination
Console Parameters (Branch)	IAS (Branch) IAS Tie Trunk Group No. IAS Att. Access Code
Tie Trunk Group (Branch)	All

- Tie Trunk Group Form (Main)—Requires a Tie Trunk Group with the Incoming Destination field set to the attendant group access code (typically 0).
- Console Parameters Form (Branch)—Enter ‘‘y’’ in the IAS (Branch) field. Assign an ‘‘IAS Trunk Group Number’’ and an ‘‘Inter-PBX Attendant Access Code’’.
- Tie Trunk Group Form (Branch)—Requires a tie trunk group connected to the IAS Main (this is the trunk group referred to as ‘‘IAS Tie Trunk Group No.’’ on the Console Parameters form.

Hardware Requirements

Requires a port on a TN722B or TN767 DS1 Tie Trunk circuit pack for each tie trunk to be assigned.

Intraflow and Interflow

Allows Automatic Call Distribution (ACD) calls to be redirected from one split to another split under busy or unanswered conditions. Intraflow provides redirection of ACD calls to other splits within the system via Call Coverage or Call Forwarding All Calls. Interflow uses the Call Forwarding All Calls feature to redirect ACD calls to an external location and requires no further administration.

Administration

To implement the Intraflow feature, the following form(s) or sections of the form(s) must be completed in addition to ACD administration requirements.

Form	Field
Feature-Related System Parameters	Coverage—Don't Answer Interval for Subsequent Redirection
Feature Access Codes	Call Forwarding Activation Call Forwarding Deactivation
Hunt Groups	Inflow Threshold Priority on Intraflow
Call Coverage Paths	Don't Answer Busy Number of Rings

- Feature-Related System Parameters Form—Assign the number of times a voice terminal in a Call Coverage path will ring before the call is routed to the next coverage point.
- Feature Access Code Form—Assign the digits a user must dial to activate and deactivate call forwarding in the Call Forwarding Activation and Deactivation fields.
- Hunt Group Form—Assign ''y'' to the Priority On Interflow field if calls incoming from this split to a covering split will have priority over calls waiting in the covering split's queue. Assign the number of seconds in the Inflow threshold field (for the receiving split) that a call can remain in the queue before no more calls will be accepted by the queue (the age of the oldest call that can be in the queue as the receiving split before no intraflow calls will be accepted).
- Call Coverage Paths Form—Complete the Coverage Criteria Busy and Don't Answer fields for both inside and outside calls. Assign a number of rings for a call queued to the hunt group/split redirects to coverage in the Number of Rings field. One ring cycle is about five seconds. This interval also applies to calls made to an agent's terminal.

Hardware Requirements

None.

Last Number Dialed

Automatically redials the last number dialed when users press the Last Number Dialed button or dial the Last Number Dialed feature access code.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Last Number Dialed Access Code
Station (multi-appearance)	Button/Feature Button Assignments -last-numb
Attendant Console	Feature Button Assignments -last-numb

- Feature Access Codes Form—Verify Last Number Dialed Access Code field.
- Station Forms—Assign Last Number Dialed (last-numb) button to voice terminal.
- Attendant Console Forms—Assign Last Number Dialed (last-numb) button to the console.

Hardware Requirements

None.

Leave Word Calling

Allows internal system users to leave a short preprogrammed message for other internal users. Users can activate Leave Word Calling (LWC) at any time during a call attempt.

NOTE:
LWC messages cannot be stored, canceled, or retrieved for Vector Directory Number extensions.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	Max. Number Of Messages Per Station
	Stations With System-Wide Message Retrieval Permission
Station	LWC Reception
	LWC Activation
	Button/Feature/Button Assignments -lwc-store -lwc-cancel -aut-msg-wt (Ext:__) -call-disp -msg-retr -next -delete-msg -lwc-lock -cov-msg-rt
Attendant Console	Feature Button Assignments -lwc-store -lwc-cancel -delete-msg -next -call-disp -aut-msg-wt (Ext:__)

Form	Field
Feature Access Codes	LWC Message Retrieval Lock
	LWC Message Retrieval Unlock
	LWC Send A Message
	LWC Cancel A Message

NOTE:
Refer to the ‘‘Attendant Display’’ and ‘‘Voice Terminal Display’’ coverage elsewhere in this chapter for additional information on LWC feature related buttons that can be assigned an attendant console or voice terminal display.

- Feature-Related System Parameters Form—Complete the Maximum Number of Messages Per Station and Stations with System-wide Retrieval

Permission fields.

- Station Forms—Complete the LWC Reception and LWC Activation fields (which specify if the voice terminal can receive and/or activate LWC messages, respectively).
  - — Assign a Leave Word Calling button, if desired.
  - — Assign a Cancel button, if desired, to allow a calling party to cancel a previously left message.
  - — Automatic Message Waiting (the buttons associated status lamp lights at the same time the message lamp lights at the called voice terminal. A common use is to provide an indication of an extension's messages on a secretary's voice terminal. This lamp also provides an indication of LWC messages left for a DDC group, a UCD group, an ACD split, a TEG or PCOL group.)
- Attendant Console Form or the Station Form—For each voice terminal or attendant console group that can retrieve LWC messages, optionally assign the following buttons:
  - — Message Retrieval (to access one's own messages (voice terminals)
  - — Coverage Msg Retrieval (to access another user's message)
  - — Delete Message (to remove a retrieved message)
  - — Call Display (to automatically call the person who left the message while displaying a retrieved message)
  - — Lock (displays locked or unlocked status of the Message Retrieval)
  - — Next (to retrieve the next stored message)
  - — Cancel Leave Word Calling (to allow canceling a previously left message)
  - — Automatic Message Waiting (the buttons associated indicator is used to indicate a remote message waiting).

NOTE:
Buttons can be assigned on the visual display module or in the ''features area'' of the terminal or console. If a Message Retrieval or a Coverage Message Retrieval button is specified, a Next Message and a Delete Message button should also be specified.

- Feature Access Codes Form—Verify or assign the following access codes:
  - — Leave Word Calling Message Retrieval Lock field
  - — Leave Word Calling Message Retrieval Unlock field
  - — Leave Word Calling Send a Message field
  - — Leave Word Calling Cancel a Message field.

Hardware Requirements

None.

Lookahead Interflow

Provides a flexible and intelligent Automatic Call Distribution (ACD) load balancing capability based on programmable call vectors. It enhances the Call Vectoring (CV) feature so that calls will not interflow to a remote location that cannot accept the calls. This service is provided by the use of private network Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) connections. The receiving switch may accept or deny the lookahead calls and the sending switch has the option to initiate lookahead interflow to an alternate backup location.

NOTE:
The receiving switch must have the Call Vectoring and the Lookahead Interflow features active also. In addition, all Lookahead Interflow calls must connect ISDN-PRI switch-to-switch using private facilities.

The Lookahead Interflow, ISDN-PRI, and Call Vectoring (Basic) options must be enabled on the System-Parameters Customer-Options form.

Administration

To implement this feature, complete the following forms.

NOTE:
Refer to the ''Call Vectoring'' coverage elsewhere in this chapter for associated Call Vectoring administration information.

Form	Field
Trunk Group (ISDN-PRI)	-Display, TCM, Lookahead Codeset -Outgoing Display
CPN Prefix Table	-Ext Len -Ext Code -CPN Prefix

- Trunk Group Form (ISDN-PRI)—If the far-end switch can only receive Lookahead Interflow information in Codeset 7 (such as, System 85 R2V4) the Display, TCM, Lookahead Codeset field must be administered as ''7''.

For switches that can receive the information in either codeset, enter ‘‘6’’ (default) or ‘‘7’’.

For those Systems that do not want the call originator’s display to be updated on each Lookahead Interflow call attempt, lookahead calls should be routed over trunk groups where the Outgoing Display field is ‘‘n’’.

- CPN Prefix Table Form—Administer a CPN Prefix for each Vector Directory Number (VDN) that maps to a call vector that is used to place Lookahead Interflow calls. Failure to administer a CPN/Prefix results in a Lookahead Interflow Dialed Number Identification Service (DNIS) of all spaces being sent to and displayed on the answering agent’s terminal.

Hardware Requirements

Existing ISDN-PRI hardware can be used for Lookahead Interflow ISDN-PRI connectivity to the receiving switch. Interconnecting facilities must be ISDN-PRI with no interworking (call connections that use both ISDN-PRI and non-ISDN-PRI facilities to complete) for the full capabilities of the feature to be operational. Lookahead Interflow calls which interwork may interflow successfully, but the ability to do so on an intelligent basis will be lost as will the lookahead DNIS information.

Loudspeaker Paging Access

The following provides administration guidelines for Loudspeaker Paging Access feature and for administering a PagePac paging system. In addition to or instead of the System’s Loudspeaker Paging Access feature, a PagePac paging system can be used.

Loudspeaker Paging Access

Provides attendants and voice terminal users dial access to voice paging equipment. Up to nine individual paging zones and one zone that can be used to activate all nine zones simultaneously can each be accessed using unique trunk access codes assigned each zone. The access codes may be assigned on Abbreviated Dialing feature buttons or when activated by an attendant may also be assigned Trunk Group Select button(s) on the console.

This feature is particularly useful when used in conjunction with the Call Park feature. When a user is away from his or her location and receives a call, an incoming call can be answered and then parked by another user. The called party can then be paged and told what extension number to call to receive the incoming call. The called party dials the Answer-Back access code and (after receiving Dial tone) the extension number that the call is parked on.

Refer to the ‘‘Loudspeaker Paging Access—Deluxe’’ coverage elsewhere in this chapter for an explanation of how this Call Park feature integrates with the Loudspeaker Paging feature.

Administration—Loudspeaker Paging

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments
Attendant Console	Direct Trunk Group Selection or Feature Button Assignments
Loudspeaker Paging and Code Calling Access	All
Feature-Related System Parameters	Call Park Timeout Interval Deluxe Paging and Call Park Timeout to Originator
Dial Plan	First Digit Table
Console Parameters	Common Shared Extensions
Class of Service	Console Permission

- Station/Attendant Console Forms—Up to ten (one per zone) Loudspeaker Paging Access buttons (per multi-appearance voice terminal and attendant console) can be assigned through the Attendant Direct Trunk Group Selection, Abbreviated Dialing, and the Facility Busy Indication features, if required.
- Loudspeaker Paging and Code Calling Access Form—Complete Loudspeaker Paging fields.
- Feature-Related System Parameters Form—Enter in the Call Park Timeout Interval field, the desired time in minutes that a call can remain parked before it is canceled. Enter ''n'' in the Deluxe Paging and Call Park Timeout to Originator field. (All parked calls that time out are returned to the attendant console.)
- Dial Plan Form—Assign the length (1–4 digits) of the trunk access code to be used to activate Loudspeaker Paging Access.
- Console Parameters Form—Complete the Common Shared Extensions fields that are exclusively used for Call Park.
- Class of Service Form—Complete the Console Permission field on those Class of Service forms that will allow associated voice terminal users to park calls on the attendant consoles ''Common Shared Extensions''.

Hardware Requirements—Loudspeaker Paging

Requires loudspeaker paging equipment and a port on a TN763C Auxiliary Trunk circuit pack for each individual paging zone port (up to 9) to be assigned. In addition, paging interface hardware consisting of a 278A Adapter and a 24-volt power supply is required per paging zone. (This hardware can be shared with the Code Calling Access feature. Each feature is activated via an assigned trunk access code.) Associated wiring information is provided in *Generic 1 and Generic 3i—Wiring*, 555-230-111, and *Generic 1 and Generic 3—Installation and Test*, 555-230-104.

PagePac Paging

In addition to, or instead of the system loudspeaker paging equipment, a PagePac paging system can be used. A PagePac paging system has an advantage over the System's Loudspeaker Paging Access feature in that a PagePac system requires one port to provide as many as 39 paging zones. The System's Loudspeaker Paging Access feature requires a separate port for each paging zone with up to 9 zones.

PagePac equipment is easy to use. A user simply dials the trunk access code assigned to the PagePac system. This connects the user to the PagePac equipment. If there is only one paging zone, the user then uses the handset of the voice terminal to page someone. If there are multiple zones, the user, after hearing a steady tone, dials a 1- or 2-digit code to access the desired zone(s) before paging.

Administration—PagePac Paging

To implement this feature, complete the following forms.

Form	Field
CPE Trunk Group	All
Feature-Related System Parameters	Call Park Timeout Interval
Dial Plan	First Digit Table
Console Parameters	Common Shared Extensions
Class of Service	Console Permission

- CPE Trunk Group Form—Complete a CPE Trunk Group form and associated member number to assign a TN763C Auxiliary Trunk port interface to the PagePac paging equipment. Assign the TAC that will be used to access the paging equipment.

NOTE:
The administration of this port and associated PagePac paging zones is not provided for on the Loudspeaker Paging and Code Calling Access form. The port must be administered using a CPE Trunk Group form. Support for single or multiple zone paging is provided by the PagePac system and is not administered on the switch. Associated wiring information is provided in *Generic 1 and Generic 3i—Wiring*, 555-230-111, and *Generic 1 and Generic 3—Installation and Test*, 555-230-104.

- Feature-Related System Parameters Form—Enter in the Call Park Timeout Interval field, the desired time in minutes that a call can remain parked before it is canceled. (All parked calls that time out are returned to the attendant console.)
- Dial Plan Form—Assign the length (1–4 digits) of the trunk access code to be used to activate the paging equipment.
- Console Parameters Form—Complete the Common Shared Extensions fields that are exclusively used for Call Park.
- Class of Service Form—Complete the Console Permission field on those Class of Service forms that will allow associated voice terminal users to park calls on the attendant consoles ''Common Shared Extensions''.

Hardware Requirements—PagePac Paging

Three different PagePac paging systems are available for use with System 75 or DEFINITY® Generic 1:

- PagePac 20

  This is the smallest PagePac system. The basic system provides a single paging zone with an input source for music over the paging system. The music can also serve as the music for the Music-on-Hold Access feature. Additional add-on hardware is available to provide multi-zone paging for 3, 9, or 39 paging zones.

- PagePac VS

  This system provides one to three paging zones. It also permits the paging of all zones simultaneously. Additional hardware is available to provide music and/or talk-back over the paging system.

- PagePac 50/100/200

  This system provides up to 24 paging zones. Additional hardware is available to provide music and/or talkback over the paging system.

Loudspeaker Paging Access—Deluxe

Provides attendants and voice terminal users with integrated dial access to voice paging equipment and Call Park capabilities. Up to nine individual paging zones and one zone that can be used to activate all nine zones simultaneously can each be accessed using unique trunk access codes assigned each zone. The access codes may be assigned on Abbreviated Dialing feature buttons or when activated by an attendant may also be assigned Trunk Group Select button(s) on the console.

This feature is particularly useful in that the Call Park feature is integrated into the use of the feature. When a user is away from his or her location and receives a call, an incoming call can be answered and then automatically parked by another user. The user dials the Loudspeaker Paging access code and the System then automatically parks the call. The called party can then be paged and told that they have a call. The called party dials the Answer-Back access code to retrieve the parked call.

NOTE:
See also ''Loudspeaker Paging Access''.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments
Attendant Console	Direct Trunk Group Selection or Feature Button Assignments
Loudspeaker Paging and Code Calling Access	All
Feature-Related System Parameters	Call Park Timeout Interval Deluxe Paging and Call Park Timeout to Originator
Dial Plan	First Digit Table
Console Parameters	Common Shared Extensions
Class of Service	Console Permission

- Station/Attendant Console Forms—Up to ten (one per zone) Loudspeaker Paging Access buttons (per multi-appearance voice terminal and attendant console) can be assigned through the Attendant Direct Trunk Group Selection, Abbreviated Dialing, and the Facility Busy Indication features, if required.
- Loudspeaker Paging and Code Calling Access Form—Complete Loudspeaker Paging fields. Enter ''y'' in the Deluxe Paging field.
- Feature-Related System Parameters Form—Enter in the Call Park Timeout Interval field, the desired time in minutes that a call can remain parked before it is canceled. Enter ''y'' in the Deluxe Paging and Call Park Timeout to Originator field. (All parked calls that timeout are returned to the parking party.)
- Dial Plan Form—Assign the length (1–4 digits) of the trunk access code to be used to activate Loudspeaker Paging Access - Deluxe.
- Console Parameters Form—Complete the Common Shared Extensions fields that are exclusively used for Call Park.
- Class of Service Form—Complete the Console Permission field on those Class of Service forms that will allow associated voice terminal users to park calls on the attendant consoles ''Common Shared Extensions''.

Hardware Requirements

Requires loudspeaker paging equipment and a port on a TN763C Auxiliary Trunk circuit pack for each individual paging zone port (up to 9) to be assigned. In addition, paging interface hardware consisting of a 278A Adapter and a 24-volt power supply is required per paging zone. (This hardware can be shared with the Code Calling Access feature. Each feature is activated via an assigned trunk access code.) Associated wiring information is provided in *Generic 1 and Generic 3i—Wiring*, 555-230-111, and *Generic 1 and Generic 3—Installation and Test*, 555-230-104.

Malicious Call Trace (MCT)

Malicious Call Trace (MCT) provides a way for terminal users to notify a predefined set of users that they may be party to a malicious call. This predefined set of user may then retrieve certain information related to the call. Based on this information, it is possible to identify the source of the malicious call or be capable of providing useful information to personnel at an adjacent switch to aid in the tracking down of the source of the malicious call.

This feature also provides a method by which an audio recording of the malicious call may be generated.

MCT collects three sets of information depending on whether the malicious call originated within the System or outside of it.

1. If the call originated within the System (the same node or within a DCS node), the calling number will be displayed on the controlling terminal
2. If an ISDN calling number identification is available on the incoming trunk, then the calling number will be displayed.
3. Otherwise, the incoming trunk equipment location will be displayed.

   In the latter case, it will be necessary for the customer to call the appropriate connecting switch.

For all three types of calls, the controlling terminal displays other information including the called number, activating number, whether the call is active or not, and, if appropriate, identification of any additional parties that may be on the call.

The complete trace activity for MCT can be divided into three distinct phases: feature activation, feature control and feature deactivation.

MCT is activated by:

- Pushing an administered MCT-Activate feature button
- Placing the call on hold, getting a second call appearance, dialing an MCT-Activate Feature Access Code (FAC), and then dialing their extension (or pressing #) after receiving a dial tone.
- Signaling a coworker to activate the feature.
- Inform the MCT Controller who can request tracing the call through tandemed PBXs by coordinating with its MCT Controller the trunk member port ID.

Once activated, the information associated with the call is stored and a group of previously administered terminals is alerted. If an MCT Voice Recorder is connected, it will begin recording the conversation.

Upon MCT activation for a Trunk Access Code (TAC), the terminal performing the activation will be checked for an MCT-Control button. If no button is administered on this set, the user will receive intercept. If a button is administered on the set, this terminal will receive a third dialtone in order to enter the trunk member number of interest for the trunk group identified by the TAC. An invalid trunk member number results in the user receiving intercept. A valid trunk member number results in this user immediately becoming the MCT Controller for a call involving the identified trunk member.

(This particular TAC operation is useful when a user has been asked to trace a call that has tandemed through their switch to terminate on another).

NOTE:
MCT does not generate a call within the system to accomplish the alerting of the controlling terminals. Since the alerting is not a call, it is not impacted by the length or existence of queues associated with the controlling terminals. There are, however, still interactions with real calls at the alerted terminals as described later.

If a trunk is involved in the MCT, this resource will be blocked from being dropped *from the switch-side* to facilitate the tracing activity. Any terminal involved in the call will not be blocked from dropping.

Feature Control

After being alerted of an MCT activation, the first controlling terminal to respond by pushing an administered MCT-Control button is considered the controlling party for the call. Alerting on the remaining members of the set of controlling terminals, if any, will stop.

The initial MCT-Control button push generates a display identifying the called party (both the called extension and the names display information). Subsequent button pushes will cycle through the MCT information. The complete set of MCT information may be displayed repeatedly by continued pushes of the button.

In the case of a malicious call involving a non-ISDN trunk, the controlling party would call personnel at the connecting switch to request a trace be performed. For this to be feasible, it is necessary that the controlling party have available the telephone number for the connecting switch as well as a cross-reference of System trunk port numbers (including DS1 channel number, if appropriate) versus the trunk equipment locations at the connecting switch.

Feature Deactivation

The controlling party may at any time (but presumably after completing the trace) complete the MCT feature activity by dialing the MCT-Deactivate FAC. This deactivation frees any resources involved in the current trace activity that were blocked by the MCT feature and, if appropriate, disconnects the MCT Voice Recorder from the call.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	Access to MCT?
Station	Feature Button Assignments - mct-act - mct-contr
Feature-Related System Parameters	Apply MCT Warning Tone? MCT Voice Recorder Trunk Group
Feature Access Code	Malicious Call Trace Activation Malicious Call Trace Deactivation
Attendant Console	Feature Button Assignments

- Class of Restriction Form—Permit this station assigned to this COR to access the MCT feature by assigning a ''y'' in the Access to MCT field.

  NOTE:
  Assigning a ''n'' in this field still allows this station to make entries to the MCT History report.

- Station Form—Assign those stations to have MCT Control Buttons (mct-contr) and MCT-Active Buttons (mct-act) in the Feature Button Assignments fields.
- Feature-Related System Parameters Form—Provide an audible tone to the controlling station when an MCT recorder is actively recording a malicious call by assigning a ''y'' in the Apply MCT Warning Tone field.

  Assign the trunk group number of the MCT voice recorder in the MCT Voice Recorder Trunk Group field.

  Display those stations with MCT-Control Buttons on the Extensions Administered an MCT Control Button fields.
- Feature Access Code Form—Enter the feature access code that activates the MCT feature in the Malicious Call Trace Activation field.

  Enter the feature access code that deactivates the MCT feature in the Malicious Call Trace Deactivation field.
- Attendant Console Form—Assign those attendants to have MCT Control Buttons (mct-contr) and MCT-Active Buttons (mct-act) in the Feature Button Assignments fields.

Hardware Requirements

The MCT Feature requires an voice recording device (such as a conventional audio cassette tape recorder) connected to the System via an Auxiliary Trunk circuit pack.

NOTE:
The MCT Voice Recorder and associated Auxiliary Trunk port(s) cannot be shared by other System features.

Manual Message Waiting

Enables multi-appearance voice terminal users, by pressing a designated button on their own terminals, to light the status lamp associated with the Manual Message Waiting button at another multi-appearance voice terminal. Activating the feature causes the lamp to light on both the originating and receiving voice terminals. Either terminal user can cause the lamp to go dark by pressing the button.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -man-msg-wt

- Station Form—Assign ‘‘man-msg-wt’’ to a voice terminal button.

Hardware Requirements

None.

Manual Originating Line Service

Connects users to the attendant automatically when the user lifts the handset.

Administration

To implement this feature, complete the following forms.

Form	Field
Abbreviated Dialing System List	Dial Code (attendant)
Abbreviated Dialing Group List	Dial Code (attendant)
Abbreviated Dialing Personal List	Dial Code (attendant)
Station (single-line)	Abbreviated Dialing-List 1, 2, or 3 Hot Line Destination-AD List

- Abbreviated Dialing List Forms—Verify or assign an attendant code to a list.
- Station Forms—Assign the Abbreviated Dialing List to designated single-line voice terminal. List can be List 1, 2, or 3. Complete Hot-Line Destination field to indicate the Abbreviated Dialing List entry containing the attendant code.

Hardware Requirements

None.

Manual Signaling

Allows a voice terminal user to signal another voice terminal user. The receiving voice terminal user hears a 2 s burst of tone.

NOTE:
A Manual Signaling button cannot point to a Vector Directory Number.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -Signal (extension # or name)

- Station Forms—Assign Manual Signal buttons as required to the voice terminal.

Hardware Requirements

None.

Message Server Interface

The Message Server (MS) provides MS-based features to the System such as Directory Service, Message Center Service, and Unified Messaging Services, such as Electronic Documentation Communications, UNIX® system mail, Office Telesystem, and DCS Centralized Messaging (principals switch is remote from MS host switch).

Administration

To implement this feature, complete the following forms.

Form	Field
BX.25 Link Connection:	
PGATE	All
Data Module (X.25)	All
Interface Links	All (for one MS link)
Processor Channel Assignment	All
EIA Connection:	
MPDM	All
Other:	
Hunt Groups	All
Station	All

- **BX.25 Link Connection**
  - — PGATE Form—Enter the board location and ‘‘rs232’’ as the cable type.
  - — Data Module (X.25) Form—Assign DTE/DCE as ‘‘dte’’.

- — Interface Links Form—Complete all fields on the form for one link as required. Assigns a link from the PGATE circuit pack for the MS.
- — Processor Channel Assignment Form—Complete the required fields on the form for the MS interface. Enter the appropriate channel assignments and complete all associated field entries.

- **EIA Connection**
  - — MPDM Form—Complete all sections as required. Assign a port on a TN754B/TN7400A Digital line circuit pack to provide a port interface.
- **Other**
  - — Hunt Group Form—Complete all fields as required to assign MS agents to the hunt group.
  - — Station Form—Assign the PC/PBX Connection per implementation instructions, assign MS agent work stations as required. Complete System voice terminal, and data terminal forms as required for all users.

Hardware Requirements

Requires a TN577 PGATE circuit pack. The EIA connection requires either an MPDM and a port on a TN754B/TN7400A Digital Line circuit pack, an ADU and a port on a TN726B Data Line circuit pack or a modem and a port on a TN742, TN746B, or TN769 Analog Line circuit pack.

THIS ILLUSTRATION WILL BE UPDATED IN THE NEAR FUTURE.

Figure 3-23. Typical Message Server Interface Connections

Modem Pooling

Allows switched connections between digital data endpoints (data modules) and analog data endpoints, and acoustic coupled modems. The analog data endpoint can be either a trunk or line circuit.

See Figure 3-24 for an example of integrated and combined modem pooling. Additional information on Modem Pooling is available in *Generic 1 and Generic 3—Feature Description*, 555-230-201, and *AT&T System 75—Application Notes—Modem Pooling,* 555-209-007.

Administration

To implement this feature, complete the following forms.

Integrated Modem Pooling

Form	Field
Modem Pool Group	All
Feature Access Codes	Data Origination Access Code
MPDM/MTDM	All

- Modem Pool Group Form—Complete all fields. Up to 63 Modem Pool Groups may be administered.
- Feature Access Codes Form—Complete the Data Origination access code entry (default is 134) if required. This code is used to indicate a need for a modem pooling conversion resource on an analog data call origination.
- MPDM/MTDM Form—Complete all fields as required when supporting a combined modem pool arrangement. Enter ‘‘tdm’’ in the form’s ‘‘Type’’ field. A MTDM or 7400A Data Module may be used in support of the combined pool.

Combined Modem Pooling

Form	Field
Modem Pool Group	All
Feature Access Codes	Data origination Access Code

- Modem Pool Group Form—Complete all fields. Up to 63 Modem Pool Groups may be administered.
- Feature Access Codes Form—Complete the Data Origination access code entry (default is 134) if required. This code is used to indicate a need for a modem pooling conversion resource on an analog data call origination.

Hardware Requirements

A port on a TN758 Pooled Modem circuit pack is required for each integrated conversion resource to be supported. Up to 16 TN758s can be used for integrated conversion resources, each providing two ports. Combined conversion requires a port on a TN754B/TN7400A Digital Line circuit pack and a port on a TN742, TN746B, or TN769 Analog circuit pack for each combined resource to be supported.

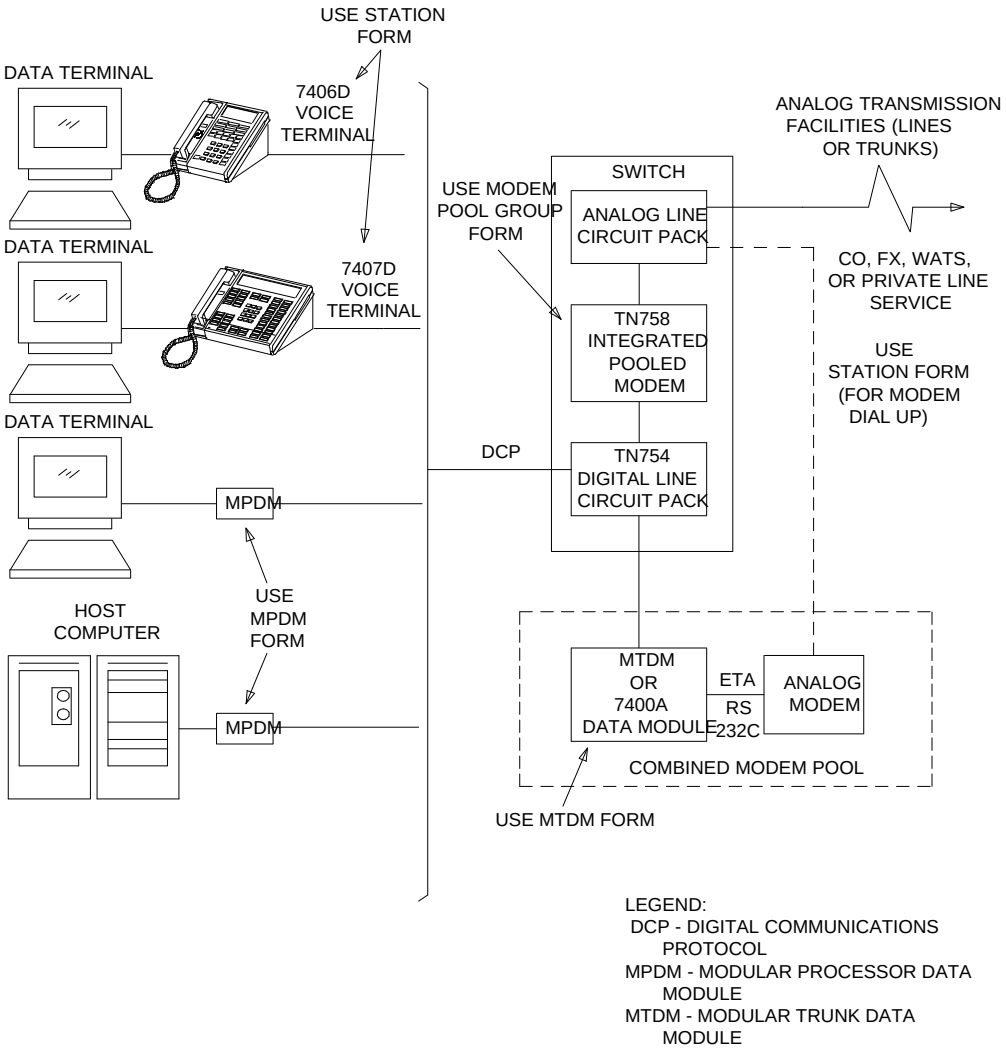


Figure 3-24. Typical Integrated and Combined Modem Pooling Arrangement

Multi-Appearance Preselection and Preference

Provides multi-appearance voice terminal users with options for placing or answering calls on selected appearances.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Idle Appearance Preference

- Station Forms—Complete Idle Appearance Preference field.

Hardware Requirements

None.

Multiple Listed Directory Numbers

Allows a publicly published number for each incoming and two-way foreign exchange (FX) and local central office (CO) trunk group assigned in the System. Also allows up to 20 Direct Inward Dialing (DID) numbers to be treated as Listed Directory Numbers (LDNs).

Administration

To implement this feature, complete the following forms.

Form	Field
CO Trunk Group	Incoming Destination
FX Trunk Group	Incoming Destination
Listed Directory Numbers	All

- Trunk Group Forms—Assign Incoming Destination field for a Central Office or Foreign Exchange Office Trunk Group. The Incoming Destination field entry may be a Vector Directory Number (VDN).
- Listed Directory Numbers Form—Assign up to 20 listed directory numbers and an associated night service destination (may be a VDN) if required.

Hardware Requirements

None.

Multiuser System Management Access

Allows up to eight users to concurrently access System Management. Up to three maintenance and five administration commands may be simultaneously invoked (one command per user). Some command contention exists. Refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for more information about this feature.

Music-on-Hold Access

Provides music to a party whose call is on hold, waiting in queue, parked, or on a trunk call that is being transferred. The music lets the waiting party know that the connection is still in effect.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	Music On Hold Port
	Music (or Silence) on Transferred Trunk Calls
Trunk Group (CPE)	All
Call Vector	(vector commands)

- Feature-Related System Parameters Form—Complete Music on Hold Port and the Music (or Silence) on Transferred Trunk Calls fields.
- Customer Provided Equipment (CPE) Trunk Group Form—Complete all fields as required to assign auxiliary trunk ports to interface with a customer provided music source.
- Call Vector Form—Enter up to 15 vector commands as required to provide music and recorded announcements while the call remains unanswered.

Hardware Requirements

Requires a port on a TN763C Auxiliary Trunk circuit pack. Also, a 36A voice coupler is required if the music source is not FCC registered (provides an interface and System protection for the music source). See *Generic 1 and Generic 3i—Wiring*, 555-230-111, and *Generic 1 and Generic 3—Installation and Test*, 555-230-104, for a description of the Music-on-Hold hardware interface requirements.

The music source may also be provided by a PagePac paging system (see Loudspeaker Paging Access—Deluxe feature) when used.

Names Registration

Automatically sends a guest's name and room extension from the Property Management System (PMS) to the System's digital switch at Check-In and automatically removes the information at Check-Out. In addition, the guest's preferred call coverage arrangement (such as, voice mail or hotel operator) will be sent from the PMS to the switch at Check-In and set to the default coverage path for client rooms at checkout.

The name information can be displayed on display-equipped voice terminals to provide a display of the name of the calling party or called party. (Do not administer these type of voice terminals to guest rooms. The guest could dial other guest rooms and obtain the registered names.)

For suite rooms, pre-arranged call coverage paths can be administered in the switch and the numbers stored within the PMS that would allow one room in the suite to be the coverage point for the other.

Administration

Refer to the ''Property Management System Interface'' coverage elsewhere in this chapter for information on the PMS interface and for associated administration guidelines.

To implement this feature, complete the following forms.

Form	Field
Hospitality-Related System Parameters	PMS Protocol Mode Default Coverage Path For Client Rooms Milliseconds Before PMS Link Acknowledgement Timeout

- Hospitality-Related System Parameters Form—In the PMS Protocol field, assign ''normal'' (supports 4-digit room numbers) or ''transparent'' (supports 5-digit room numbers).

  In the Default Coverage Path For Client Rooms field, assign a valid call coverage path (1–600), or leave blank for no coverage.

In the Milliseconds Before PMS Link Acknowledgement Timeout field, enter the time the System will wait for an acknowledgement from the PMS that a transmitted message was received (100–1000 ms).

Hardware Requirements

See Property Management System Interface.

Network Access—Private

Allows calls to be connected to the following types of networks:

- Common Control Switching Arrangement (CCSA)
- Electronic Tandem Network (ETN)
- Enhanced Private Switched Communications Service (EPSCS)
- Tandem Tie Trunk Network (TTTN).

Administration

The Private Networking option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Trunk Groups: Access APLT ISDN-PRI Tandem Tie	All
Class of Restriction	Advanced Private Line Termination
Feature Access Codes	Automatic Alternate Routing Access Code
AAR Digit Analysis Table	All
AAR Digit Conversion Table	All
Node Number Routing	All
Station	COR

- Trunk Group Forms—Specify group type as access, aplt, tandem, tie, or ISDN-PRI with Service Type as ‘‘access’’, ‘‘tie’’, or ‘‘tandem’’. Complete COR digit treatment and common type fields on the Tie Trunk Groups associated with a private network. Unless prohibited by the COR, all incoming private network trunks (except CCSA) can access outgoing trunks without attendant or terminal user assistance. All incoming CCSA calls must route to the attendant or a terminal user.
- Class of Restriction Form—Complete the Advanced Private Line Termination field.
- Feature Access Codes Form—Assign an AAR access code consistent with user’s ability to access these tie trunks.
- ARS Digit Analysis Form—Complete each table (Partitioned Group Number) as required. Complete the Dialed String, Minimum, Maximum, Route Pat (Routing Pattern), Call Type, and Node Num fields for each dialed string to be given specific routing considerations.
- AAR Digit Conversion Form—Complete the Matching Pattern and associated Replacement String fields for each dialed string (matching pattern) to be modified in part or whole. These dialed strings will be routed based on the assigned replacement strings.
- Node Number Routing Form—Associate a routing pattern with each node in the Extension Number Portability (ENP) sub-network.
- Station Forms—Assign a COR.

Hardware Requirements

Requires a port on a TN760C Tie Trunk circuit pack or TN722B or TN767 DS1 Tie Trunk circuit pack for each trunk assigned.

Network Access—Public

Provides voice terminal users and attendants with access to and from the public network.

Administration

To implement this feature, complete the following forms.

Form	Field
CO Trunk Group	All
DID Trunk Group	All
FX Trunk Group	All
ISDN-PRI	All
WATS Trunk Group	All

- Complete all Trunk Group Forms used for Public Network Access.

Hardware Requirements

Requires a port on a TN747B CO Trunk circuit pack or TN767 DS1 circuit pack for each trunk assigned.

Night Service—Hunt Group

Night Service—Hunt Group allows a user with a ‘‘hunt-ns’’ button to place a hunt group in the night service mode. All calls terminating on the hunt group or split in the night service mode will redirect to the designated night service extension.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -hunt-ns
Attendant Console	Feature Button Assignments -hunt-ns
Hunt Group	Night Service Destination

- Station Forms—Assign ‘‘hunt-ns’’ buttons to designated voice terminals. Up to three hunt group buttons can be assigned to a combination of voice terminals and attendant consoles in each hunt group. The hunt group 3-digit number must be assigned to each button. These buttons should be assigned to feature buttons that have an associated status lamp. The lamp lights when hunt group night service is activated. If the assigned button does not have a status lamp, no visual indications of the hunt group night service status is given.
- Attendant Console Form—Assign ‘‘hunt-ns’’ feature button. Up to three buttons can be assigned to a combination of attendant consoles and voice terminals assigned to each hunt group. The hunt group 3-digit number must be assigned to each button.
- Hunt Group Form—Assign the extension used for night service in the Night Service Destination field.

Hardware Requirements

None.

Night Service—Night Console Service

Directs all calls for the primary and daytime attendant consoles to a night console.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Console Type

- Attendant Console Form—The night console must be administered identical to the Primary Attendant Console. Specify the console as a ‘‘night console’’ in the Console Type field. Enter ‘‘night-only’’ if the console is dedicated to night service. Enter ‘‘day/night’’ if a day console is also used as the night console.

Hardware Requirements

None.

Night Service—Night Station Service

Redirects incoming attendant-seeking trunk calls to designated extension numbers whenever the system is placed in Night Service.

Administration

Do not provide Night Console Service with this feature assigned.

To implement this feature, complete the following forms.

Form	Field
Listed Directory Numbers	Night Destination
Trunk Group (all)	Night Service
Hunt Group	Night Service Destination
Attendant Console	Feature Button Assignments -hunt-ns -night-ser -trunk-ns
Station (multi-appearance)	Button/Feature Button Assignments -hunt-ns -night-ser -trunk-ns

- Listed Directory Numbers (LDN) Form—Enter Night Destination extension that will receive LDN DID calls when the System is in the night service mode.
- Trunk Group Forms—Verify that the Night Service extension number of the answering voice terminal or group is specified for each desired trunk group, and where required, for specific trunk members.

- Hunt Group Form—Enter the Night Service Destination extension (or 0 for the attendant) where calls will direct when in the night service mode.
- Attendant Console/Station Forms—Assign feature buttons as required.

Hardware Requirements

None.

Night Service—Trunk Answer From Any Station

Allows voice terminal users to answer all incoming attendant-seeking calls when the attendant has activated the Night button on the primary console and when other voice terminals have not been designated to answer the calls and when a night console is not assigned or operational.

Administration

Do not provide a Night Console Position with this feature assigned.

To implement this feature, complete the following forms.

Form	Field
Trunk Group (all)	Night Service (blank)
Feature Access Codes	Trunk Answer Any Station Access Code
Console Parameters	Ext Alert Port (TAAS)

- Trunk Group Forms—Verify Night Service field is blank for the associated trunk group.
- Feature Access Codes Form—Verify feature access code is assigned for Trunk Answer Any Station Access Code field.
- Console Parameters Form—Assign a port on a TN742, TN746B, or TN769 Analog Line circuit pack to provide connection with an alerting device in the External Alerting Number (TAAS) field.

Hardware Requirements

Requires a port on a TN742, TN746B, or TN769 Analog Line circuit pack. Up to five alerting devices can be connected to one port. Also requires an external ringing device(s) positioned so that users can hear them.

Night Service—Trunk Group

Allows an attendant or a designated voice terminal user to individually assign a trunk group or all trunk groups to the night service mode.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -trunk-ns
Attendant Console	Feature Button Assignments -trunk-ns
Listed Directory Numbers	Night Destination

- Station Forms—Assign ‘‘trunk-ns’’ to a voice terminal button. Up to three buttons can be assigned to voice terminals in each trunk group. The trunk group number must be assigned to each button.
- Attendant Console Form—Assign ‘‘trunk-ns’’ feature button. Up to three buttons can be assigned per console. The trunk group number must be assigned to each button.
- Listed Directory Numbers Form—Complete Night Destination field if incoming LDN DID calls are to be redirected to an extension or an attendant when the System is in the night service mode.

Hardware Requirements

None.

Node Number Routing (NNR)

Node Number Routing (NNR) specifies the routing pattern associated with each node in a private network. NNR is a required capability for Extension Number Portability (ENP) and is associated with the Uniform Dial Plan (UDP). UDP extensions can be routed to a specified node using its associated pattern and allows a UDP routing choice based on node numbers or on location codes. AAR and ARS routing forms may also use node number routing in lieu of direct specification of routing patterns.

Administration

To implement this feature, complete the following forms.

Form	Field
System Parameters Customer Options	Private Networking **or** Uniform Dialing Plan **or** ARS AAR/ARS Partitioning
Node Number Routing	All

- System Parameters Customer Options Form—Assing the type of routing by entering a ‘‘y’’ in either the Private Networking, Uniform Dialing Plan, or ARS fields.

  To allow more than one partition, enter a ‘‘y’’ in the AAR/ARS Partitioning field.
- Node Number Routing Form—For each PGN, associate a routing pattern with each node in the ENP subnetwork.

Hardware Requirements

None.

Off-Premises Station

Allows a voice terminal located outside the building where the switch is located to be connected to the System. If central office trunk circuits, the voice terminal must be analog and must be FCC-registered. Refer to *Generic 1 and Generic 3—System Description and Specifications*, 555-230-200, for cabling distance information for the various voice terminal types.

Administration

Voice terminal types that may be administered as OPS are: 500, 2500, 7101, 7102A, 7103A, and 7104A. These Off-Premises Stations are administered similar to on-premises voice terminals. Refer to the appropriate voice terminal form for additional information.

Hardware Requirements

Requires cross-connecting capabilities and one port on a TN742, TN746B, TN769 Analog Line, or TN767/TN464 DS1 Tie Trunk circuit pack for each interface to be provided. **Do not** assign an OPS port on a 16-port TN746B Analog Line circuit pack.

NOTE:
Message Waiting Indicator lamps on an OPS are not supported.

Outgoing-Trunk to Outgoing-Trunk Transfer

CAUTION:
Abuse of this feature can lead to toll fraud.

Outgoing-trunk to Outgoing-trunk Transfer (OTTOTT) is a trunk-to-trunk transfer enhancement that allows calls in which outgoing trunks are the only parties involved in the call.

Using OTTOTT, a controlling party, such as a station user or attendant, can initiate two or more outgoing trunk calls and then transfer the trunks together. The transfer operation removes the controlling party from the connection and conferences the outgoing trunks. Alternatively, the controlling party can establish a conference call with the outgoing trunks and then drop out of the conference, leaving the outgoing trunks on the conference connection. At least one outgoing trunk must be administered to support this type of transfer, and have provided network answer supervision.

NOTE:
The answer supervision test increases the probability, but does not guarantee, that a disconnect signal will be received from the remote end of the trunk. OTTOTT calls can result in *locked-up* trunks (trunks which cannot be disconnected except by busying out and releasing the affected trunk circuit, or by removing and reseating the affected trunk board).

To mitigate problems associated with its accidental use, this feature is only administrable on trunk groups and is not a system option.

Administration

To implement this feature, complete the following forms.

Form	Field
Trunk Group	Disconnect Supervision - Out

- Trunk Group Form—Allow OTTOTT to this trunk group by assigning a ‘‘y’’ to the Disconnect Supervision - Out field.

Hardware Requirements

OTTOTT can be activated for trunk groups with trunks assigned to the following trunk boards:

- Central Office Trunk board (TN747B)
- Analog Tie trunk Board (TN760C)
- DS1 board (TN722B & TN767 & TN464C [Universal DS1])

Personal Central Office Line (PCOL)

Provides a dedicated trunk for direct access to or from the public network for multi-appearance voice terminal users.

Administration

To implement this feature, complete the following forms.

Form	Field
Personal Central Office Line Group	All
Station (multi-appearance)	Button/Feature Button Assignments -per-COline (Grp:__) -aut-msg-wt (Ext:____)

- Personal Central Office Line Group (PCOLGs) Forms—Verify or complete all fields.

- Station Forms—Assign (per CO line) buttons to voice terminals in group. If Leave Word Calling (LWC) messages are to be stored for the PCOLG, assign a LWC Remote Message Waiting (aut-msg-wt) feature button with status lamp to one of the voice terminals in the group.

Hardware Requirements

Requires a port on a TN747B Central Office Trunk circuit pack for each CO, FX, or WATS trunk assigned as a PCOL. Up to 40 PCOLs can be assigned in the System.

Personal Computer (PC)—6300 PC/PBX Connection

Provides an integrated voice and data workstation interface from the System to an AT&T PC 6300 or other compatible computer. The connection provides access to a variety of host computers, allowing the PC to act as a terminal for the host.

Figure 3-25 shows a typical 7400D series voice terminal PC/PBX workstation connection and Figure 3-26 shows a typical 7404D voice terminal (equipped with Message Cartridge) PC/PBX workstation connection.

Administration

To implement this feature, complete the following forms.

Form	Field
PC/PBX Connection	All

Hardware Requirements

A port is required on a TN754/TN7400A Digital Line circuit pack for each PC/PBX connection to be installed. A TN754/TN7400A provides eight ports.

Software Requirements

One of the following PC/PBX software packages must be installed on the PC, as appropriate:

- **PC/PBX Connection Package 1**

  Provides features such as keyboard dialing, personal phone directory, directory dialing, and message retrieval. Hardware requirements include: PC, 7404D voice terminal equipped with a Message Cartridge.

- **PC/PBX Connection Package 3**

  Provides Package 1 services plus additional features (such as call log, higher file transfer rates, and the ability to take notes on a call). Hardware requirements include: PC equipped with a DCP card and a 7400D series voice terminal. Package 3 provides an integrated voice and data workstation that supports:

  — Dialing calls from the PC

  — Use of customized phone features from the PC keyboard

  — Creating a personal phone directory in the PC, searching the directory, and dialing voice and data calls from the directory

  — Reading phone messages on the PC screen and having the PC automatically dial calls to users that have left messages

  — Logging all incoming and outgoing calls (voice and data) and the ability to automatically recall them

  — Using an associated speakerphone to make ‘‘hands-free’’ calls

  — Use of a security feature so as to keep directory and message information private

  — Use of the PC as a terminal connected to a variety of host computers

  — Transferring files between the PC and another PC or host computer

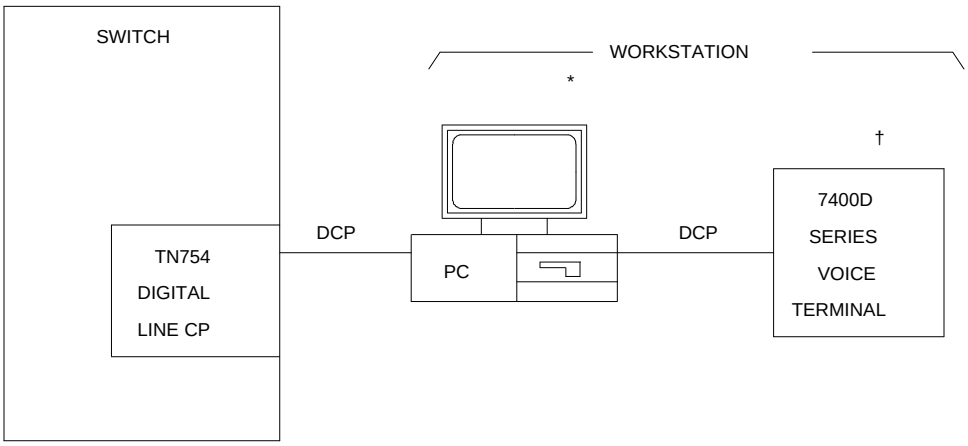
  — Setting up ‘‘script programs’’ to have the System perform selected data functions automatically

  — Using voice and data functions simultaneously. Lets you perform PC application while running the PC/PBX Connection software application in the background.

- **PC/PBX Connection Package 5**

  Package 5 is a terminal emulation package that allows the PC to emulate a 3278/3279 terminal. This is a software enhancement to Package 3 and works with Package 3 hardware and software.

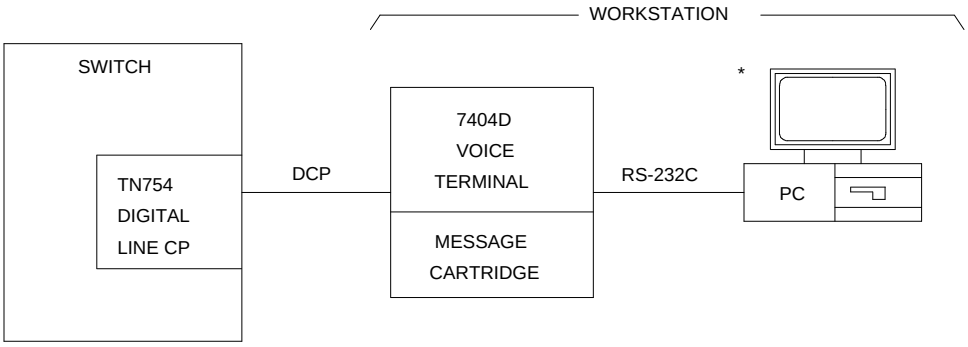
For additional PC/PBX user information, refer to *AT&T PC/PBX Connection Package 3 User’s Guide,* 555-016-703. A complete set of documents is available as *AT&T PC/PBX Connection Release 3 Documentation Set*, 555-016-715.



* PC MUST BE EQUIPPED WITH DCP CARD AND APPROPRIATE PC/PBX SOFTWARE.

† 7401D, 7403D, 7404D (WITH OUT MESSAGE CARTRIDGE), 7405D, 7406D, OR 7407D VOICE TERMINAL.

Figure 3-25. Typical 7400D Series Voice Terminal PC/PBX Connections



* PC MUST BE EQUIPPED WITH APPROPRIATE PC/PBX SOFTWARE.

Figure 3-26. Typical 7404D PC/PBX Connection

Personalized Ringing

Allows users of certain voice terminals to uniquely identify their own calls. Each user can choose one of a number of possible ringing patterns.

Administration

To implement this feature, complete the following forms.

Form	Field
7303S Voice Terminal	Personalized Ringing Pattern
7305S Voice Terminal	Personalized Ringing Pattern
7404D Voice Terminal	Personalized Ringing Pattern
7406D Voice Terminal	Personalized Ringing Pattern
7407D Voice Terminal	Personalized Ringing Pattern
7434D Voice Terminal	Personalized Ringing Pattern
CALLMASTER Digital Voice Terminal	Personalized Ringing Pattern

- Voice Terminal Forms—Complete Personalized Ringing Pattern field for each 7303S, 7305S, 7404D, 7406D, 7407D, 7434D, and CALLMASTER digital voice terminal.

NOTE:
The 7103A, 7404D, 7406D, 7407D, 7410D, 7434D, 7505D, 7506D, 7507D, 8503D, 8510D, 8520D, and CALLMASTER digital voice terminal users have the capability of setting their own ringing pattern. In the event of a power failure, the user-specified ringing pattern for a 7404D, 7406D, 7407D, 7410, or CALLMASTER Digital voice terminal is lost In the case of ISDN-BRI voice terminals, the user-specified ringing pattern is retained even in the event of a power failure.

Hardware Requirements

None.

Priority Calling

Provides a special form of call alerting between internal voice terminal users. The called voice terminal user receives a distinctive 3-burst alerting signal.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Priority Calling Access Code
Class of Service	Priority Calling
Attendant Console	Feature Button Assignments -priority
Station (multi-appearance)	Button/Feature Button Assignments -priority

- Feature Access Codes Form—Verify or assign Priority Calling Access Code field.
- Class of Service Form—Verify Priority Calling field has correct permission.
- Attendant Console/Station Forms—Assign priority feature buttons as required.

Hardware Requirements

None.

Privacy—Attendant Lockout

Prevents an attendant from reentering a multiple-party connection held on the console unless recalled by a voice terminal user.

Administration

To implement this feature, complete the following forms.

Form	Field
Console Parameters	Attendant Lockout

- Console Parameters Form—Enter ‘‘y’’ in Attendant Lockout field.

Hardware Requirements

None.

Privacy—Manual Exclusion

Allows multi-appearance voice terminal users to keep other users with appearances of the same extension number from bridging onto an existing call.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -exclusion

- Station Form—Assign Manual Exclusion button to voice terminals of members of a Terminating Extension Group and/or Personal Central Office Line Group, as required.

Hardware Requirements

None.

Property Management System Interface

Provides a communications link between the System and a customer-owned Property Management System (PMS). The PMS allows a customer to control certain features used in both a hospital-type and a hotel/motel-type environment.

Administration

The Hospitality option must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

Also refer to the ‘‘Names Registration’’ coverage elsewhere in this chapter for associated administration considerations.

To implement this feature, complete the following forms.

Form	Field
Class of Service	Client Room, Console Permission
Hospitality-Related System Parameters	All
Attendant Console	Feature Button Assignments -mwn-act -mwn-deact -check-in -check-out
Feature Access Codes	Hospitality Features
Station (multi-appearance) (Front Desk Terminal)	Button/Feature Button Assignments -mwn-act -mwn-deact -check-in -check-out
System Access Port Data Module	All
Modular Processor Data Module	All
Data Line Data Module	All

- Class of Service Form—Assign ‘‘y’’ to Client Room field for the class of service (COS) to be used for guest voice terminals. For the Console Permission, assign ‘‘y’’ for the Class of Service assigned to the attendant and front desk voice terminal. This allows the attendant or front desk station to control the following items:
  - — Check-in
  - — Check-out
  - — Room change
  - — Swap Maid Status.
- Hospitality-Related System Parameters Form—Complete all fields.
- Attendant Console/Station Forms—Assign mwn-act (message waiting activation), mwn-deact (message waiting deactivation), check-in, and check-out buttons. These buttons can be assigned to the attendant console and display-equipped front desk voice terminals.
- Feature Access Codes Form—Assign Hospitality Feature Access Codes as required.

- System Access Port Data Module Form—Complete all fields as required. Provides a data channel for the PMS interface.
- Modular Processor Data Module Form—Complete all fields. Assign three different PDMs as follows: assign one PDM for the PMS link and one PDM for each printer (Log and Journal).
- Data Line Data Module Form—Complete all fields. Complete this form if the PMS link is connected using a Data Line circuit pack.

Hardware Requirements

The PMS link can be connected to a TN754B/TN7400A Digital Line circuit pack using a Processor Data Module (PDM) or a TN726B Data Line circuit pack using an Asynchronous Data Unit. The Journal and Log printers can be connected to a TN754B/TN7400A Digital Line circuit pack via a PDM interface.

Queue Status Indications

Provides indications of queue status for Automatic Call Distribution (ACD) calls based on the number of calls in queue and time in queue. These indications are provided via lamps assigned to the terminals or consoles of split agents or supervisors. In addition, auxiliary queue warning lamps can be provided to track queue status.

Administration

The Automatic Call Distribution (ACD) option must be enabled on the System-Parameters Customer-Options form before fields on associated forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Hunt Group	Queue Length Calls Warning Threshold Time Warning Threshold Time Warning Port Calls Warning Port
Station (multi-appearance)	Button/Feature Button Assignments -q-calls -q-time
Attendant Console	Feature Button Assignments -atd-qcalls -atd-qtime -q-calls -q-time

- Hunt Group Form—Assign the thresholds to be reached before the System flashes the queue status buttons and the Auxiliary Warning lamp assigned to the split.
  - — Assign the time a call can remain in the queue before the System flashes the queue status buttons and the Auxiliary Warning lamp assigned to the split.
  - — Assign the number of calls that can be in queue before the System flashes the queue status buttons and the Auxiliary Warning lamp assigned to the split.
  - — Assign ports for the external Auxiliary Warning lamps.
- Station Forms—Assign queued calls and queued time buttons or split (q-calls and q-time) buttons if the attendant's Individual Attendant Extension is a member of an ACD split.
- Attendant Console Form—Assign atd-qcalls and atd-qtime buttons.

Hardware Requirements

Each auxiliary queue Warning lamp requires one port on a TN742, TN746B, or TN769 Analog Line circuit pack. A ''beehive'' lamp may be used as an auxiliary queue Warning lamp.

Recorded Announcements

Allows up to 256 analog or integrated announcements or any desired combination of both. Integrated announcements are assigned on the TN750

Announcement circuit pack. The analog announcements are assigned on the TN742, TN746B, or TN769 Analog Line circuit pack which is connected to external recording or playback equipment via a TN763 Aux. trunk circuit pack.

Announcement administration allows the assignment of an extension to an announcement device at an analog port or to an announcement on an integrated announcement board. A recorded message may be accessed by dialing the extension assigned the announcement. References to announcement extensions may be found on: Hunt Group form, Coverage Path form, Trunk Group (Incoming Destination) form, Call Vector form, and Feature-Related System Parameters form (DID/Tie/ISDN Intercept Treatment and Controlled Restriction fields).

Administration

To implement this feature, complete the following forms.

Form	Field
Recorded Announcements	All
Recorded Announcement Data Module (for Integrated Announcements)	All
System Access Port Data Module	All
Trunk Group (all)	Incoming Destination
Feature-Related System Parameters	DID Intercept Treatment
Feature Access Codes	Announcement Access Code
Call Coverage Paths	Point1, Point2, Point3
Hunt Groups	First and Second Announcement Extensions
Station	COS

- Recorded Announcements Form—Complete all fields as required.
- Recorded Announcement Data Module Form—Complete all fields for a recorded announcement data module.
- System Access Port Data Module Form—Complete all fields for a System Access Port data module. Provides for the upload/download (store/restore to/from tape) of TN750 recorded announcements.
- CO, DMI-BOS, FX, WATS Trunk Group Forms—Assign a recorded announcement extension number to the Incoming Destination field, as required.

- Feature-Related System Parameters Form—Assign a recorded announcement extension number to the DID Intercept Treatment field, as required.
- Feature Access Codes Form—Assign announcement access code.
- Call Coverage Path Form—Assign a recorded announcement extension number to a coverage point (Point1, Point2, Point3), as required.
- Hunt Groups Form—Assign a recorded announcement extension number to the First and Second Announcement Extension fields, as required.
- Station Forms—Verify that the voice terminal has a class of service (COS) that allows console permission (Perms) so that the user can enter or change an announcement.

Hardware Requirements

Each external announcement to be provided requires a port on a TN742, TN746B, or TN769 Analog Line circuit pack. The external recorded announcement equipment and music sources are not provided with the System and each requires a TN763 Aux. Trunk circuit pack. Since the integrated announcement is recorded onto the TN750 circuit pack, no additional announcement equipment is required.

Recorded Telephone Dictation Access

Permits voice terminal users, including Remote Access and incoming tie trunk users, to access dictation equipment.

Administration

To implement this feature, complete the following forms.

Form	Field
CPE Trunk Group	All fields if the trunk group is not assigned, or assign trunk port for digital switch interface.
or	
2500 Voice Terminal	All

- CPE Trunk Group Form—Verify or assign an auxiliary trunk group and associated trunk port.

- Station Form—Assign a port and extension number to 2500-series voice terminal form. Enter ''n'' in the tests field to prevent interference with dictation equipment operation.

Hardware Requirements

Requires telephone dictation machines and, depending on the type of machine, one port on a TN742, TN746B, or TN769 Analog Line circuit pack or one port on a TN763C Auxiliary Trunk circuit pack for each dictation machine to be interfaced.

Release Link Trunk Group

A Release Link Trunk Group is used to implement the Centralized Attendant Service feature.

Administration

To implement this feature, complete the following forms.

Form	Field
Release Link Trunk Group	All

- Release Link Trunk Group Form—Complete all fields as required to assign trunks that are used to implement Centralized Attendant Service. Associated release link trunks can only originate calls going out, although signaling direction is always two-way. There is no dial access or incoming destination. The trunk-type is always release link. Outgoing and incoming dialing type is always tone and the disconnect timing is 280 ms.

Hardware Requirements

A port is required on a TN722B or TN767 circuit pack for each trunk to be assigned in the Trunk Group. A TN722B or TN767 provides 24 ports.

Remote Access

Permits authorized callers using the public network to access the System and then use its features and services.

Administration

To implement this feature, complete the following forms.

Form	Field
Remote Access	All
Trunk Groups: CO FX ISDN-PRI WATS	Incoming Destination Night Service
DID	All
Authorization Code - COR Mapping (optional)	All

- Remote Access Form—Complete all fields. This provides Remote Access via Direct Inward Dialing if the assigned Remote Access Extension number is within the range of numbers dialable from the local central office.
- Trunk Group Forms:
  - — Optionally, on a per-trunk group basis, verify or set the Incoming Destination field to the Remote Access Extension number to provide the feature via a dedicated trunk group (Trunk Group Form for incoming trunk groups, except Direct Inward Dialing).
  - — Optionally, on a per-trunk group basis, verify that Incoming Destination section is equal to the attendant group access code (usually ‘‘0’’). Verify or set Night Service field to the Remote Access Extension number to provide Remote Access for attendant seeking calls whenever the Night key is pressed and an Alternate Console Position is not provided (Trunk Group form for incoming trunks, except Direct Inward Dialing).
  - — Complete DID trunk group form as required.
- Authorization Code - COR Mapping Form (optional)—Assign 4- to 7-digit authorization codes (with CORs 0–95).
  - — In the authorization code (AC) field, enter the 4- to 7-digit authorization code the user must dial. The number of digits entered must agree with the number assigned to the Authorization Code Length field on the Feature-Related System Parameters form.

— In the Class of Restriction field, enter the desired COR number from 0–95. This is the replacement COR to be used to modify the user's calling privileges and is effective after the corresponding authorization code has been dialed.

NOTE:
The use of 7-digit authorization codes is strongly recommended to prevent unauthorized access to remote access capabilities.

Hardware Requirements

None.

Remote Administration

NOTE:
See *Security Handbook* (555-025-600) for suggestions on preventing unauthorized access to system ports.

Allows the System to be administered from a remote terminal located on the customer's premises. A local administration terminal is one that is located on-premises within 50 feet of the System cabinet. A terminal located more than 50 feet from the System cabinet is considered remote. A remote administration terminal can be on-premises or off-premises. The remote terminal can perform the same functions as the local terminal.

Administration

To implement this feature, complete the following forms.

On-Premises Remote Administration

Form	Field
System Access Port Data Module	All
Data Line Data Module	All
Hunt Groups	Group Extension Group Members Assignments

Off-Premises Remote Administration

Form	Field
System Access Port Data Module	All
Data Line Data Module	All
Hunt Groups	Group Extension Group Members Assignments
Modem Pool Group	All
Trunk Group (DID System) DID Trunk Group **or** CO Trunk Group	 All All
Trunk Group (Non-DID System) —CO Trunk Group	 All

- System Access Port Data Module Form—Complete all appropriate fields. Provides a data channel for the G3-MT terminal interface.
- Data Line Data Module Form—Complete all appropriate fields.
- Hunt Groups Form—Complete Group Extension and Group Members Assignment fields.

If the System will be remotely administered from an on-premises terminal, no additional translations are required. However, if the System will be remotely administered from an off-premises location via a dial-up facility, complete the following step.

- Modem Pool Group Form—Complete all appropriate fields.
- Trunk Group Form—Complete Trunk Group forms as follows:
  - — *DID equipped Systems*—Using a Direct Inward Dialing (DID) trunk form, translate a new trunk group containing one DID trunk. The NAME (Tel. number) assigned in the Group Member Assignments field **must** be the same DID number assigned to the Uniform Call Distribution (UCD) hunt group (see next item).
  - — *DID equipped Systems using a non-DID trunk*—Using a CO trunk form, translate a new trunk group. In the Incoming Destination field and Night Service field, enter the UCD hunt group extension number (see next item).
  - — *Non-DID equipped Systems—calls made from Remote (off-premises) terminal will be to the Local Directory Number (LDN)*—If not translated previously, translate a trunk group containing the LDN.

— *Non-DID equipped Systems—calls made from Remote (off-premises) terminal will be to a trunk dedicated to Remote Administration*—Using a CO trunk form, translate a new trunk group. In both the Incoming Destination and Night Service fields, enter the UCD group extension number (see Hunt Group form).

Hardware Requirements

On-Premises Remote

- Requires a port on a TN726B Data Line circuit pack and an associated Asynchronous Data Unit (ADU) and System Access Port.
- 513 BCT, 610 BCT, 615 MT terminal, 4410 terminal, or 4425 terminal.

Off-Premises Remote

- Requires a port on a TN726B Data Line circuit pack and associated ADU.
- Modem Pooling (see Modem Pooling).
- DID Trunk Group—Requires a port on a TN753 DID Trunk circuit pack.
- CO Trunk Group—Requires a port on a TN747B CO Trunk circuit pack.
- 513 BCT, 610 BCT, 615 MT terminal, 4410 terminal, or 4425 terminal.
- Separate CO line to Processor circuit pack for Alarm Origination/Remote Administration.

Report Scheduler and System Printer

Allows the System Administrator to schedule selected G3-MT (System Access Terminal) commands to be printed by a system printer. Reports are scheduled at 15-minute intervals for any combination of days of the week. Reports are scheduled using the *schedule* command line option on the G3-MT (such as, *list config all [sched]*). Up to 50 individual reports can be scheduled.

Administration

To implement this feature, complete the following forms.

Report Scheduler/System Printer Connected to MPDM/MTDM:

Form	Field
System Access Port Data Module	All
MPDM/MTDM Data Module	All
Feature-Related System Parameters	System Printer Parameters Printer Extension EIA Device Bit Rate Lines per Page

Report Scheduler/System Printer Connected to DCE Jack on the Control Carrier:

Form	Field
Feature-Related System Parameters	System Printer Parameters Printer Extension EIA Device Bit Rate Lines per Page

Report Scheduler/System Printer Connected To Data Line Circuit Pack via Asynchronous Data Unit (ADU):

Form	Field
Data Line Data Module	All
System Access Port Data Module	All
Feature-Related System Parameters	System Printer Parameters Printer Extension EIA Device Bit Rate Lines per Page

Complete the following forms if the Report Scheduler/System Printer is connected to an MPDM/MTDM:

- System Access Port Data Module Form—Complete all fields as required. An associated MPDM/MTDM Data Module form must also be completed to assign the associated MTDM interface from the Report Scheduler/System printer to the switch.
- MPDM/MTDM Form—Complete all fields if a 700A-type MPDM is to used. This form is used to assign the Report Scheduler/System Printer to a port on a TN754B/TN7400A Digital Line circuit pack.
- Feature-Related System Parameters Form—Complete the Printer Extension (enter valid extension), EIA Device Bit Rate (1200, 2400, 4800, 9600), and Lines per Page (24–132 with 60 as the default) fields associated with the System Printer Parameters.

Complete the following form if the Report Scheduler/System Printer is connected to the DCE jack on the Control Cabinet:

- Feature-Related System Parameters Form—complete the Printer Extension (enter ‘‘eia’’), EIA Device Bit Rate (1200, 2400, 4800, 9600), and Lines per Page (24–132 with 60 as the default) fields associated with the System Printer Parameters.

Complete the following forms if the Report Scheduler/System Printer is connected to a TN726B Data Line circuit pack via ADU (Asynchronous Data Unit):

- Data Line Data Module Form—Complete all fields as required. A Data Line circuit pack must be assigned if a port is not available using the Circuit Pack Administration form as shown in *Generic 1 and Generic 3—Installation and Test* (555-230-104). Up to eight ports are available. A Z3A Asynchronous Data Unit (ADU) is required at the printer input.
- System Access Port Data Module Form—Complete all fields as required. This form activates a physical channel on the TN777 Network Control circuit pack.
- Feature-Related System Parameters Form—Complete the Printer Extension (enter valid extension), EIA Device Bit Rate (1200, 2400, 4800, 9600), and Lines per Page (24–132 with 60 as the default) fields associated with the System Printer Parameters.

Hardware Requirements

A single asynchronous System printer connection dedicated for use by the Report Scheduler is required. Other printers in the System include those connected to the G3-MT, the CDR printer, and the journal printer. These printers **are not** used by the Report Scheduler. Currently, the Report Scheduler printer must be a serial input AT&T 572 or compatible printer.

The type of interface depends on how the Report Scheduler/System printer is connected to the digital switch.

- If the printer is connected to the switch via MPDM, the MPDM must be connected to a port on a TN754B/TN7400A Digital Line circuit pack when used.
- If the printer is connected to a TN726B Data Line circuit, a TN726B port and an Z3A ADU is required.
- If the printer is connected to the DCE jack on the back of the Control Cabinet, the appropriate cable (not to exceed 50 feet) is required.

Restricted/Unrestricted Call Lists

Used to control outgoing call access. The Class of Restriction (COR) assigned the facility being used to place a call is checked to determine if it is associated with the System's Restricted Call List (RCL) and/or one or more Unrestricted Call Lists (UCLs). The System can have one RCL and up to ten UCLs. All lists are administered on the Toll Analysis form. Dialed Strings and associated Min/Max fields on the form can be marked as being members of the RCL and/or UCLs as required.

A call attempt from a facility whose COR is administered as being associated with the RCL and whose dialed string matches a RCL Dialed String will be denied. The caller will receive intercept treatment.

A UCL is accessed if the facilities COR's Calling Party Restriction field is ''all-toll'' or ''tac-toll'' and the COR's UCL field references one or more UCLs. A call from a facility whose COR meets the above conditions will complete if the COR is associated with a UCL whose dialed string matches the dialed number.

NOTE:
The call *will not* complete if the COR is also associated with the RCL and the dialed string also matches the dialed number. The RCL takes precedence over the UCL.

For additional information, an Authorization Check Flow Chart is provided with the Toll Analysis form coverage in Chapter 5. The chart depicts the checks that call processing uses in determining call restrictions. (Other features that are administered on the Toll Analysis form include Restriction-Toll and CDR Account Code Dialing.)

Administration

To implement this feature, complete the following forms.

Form	Field
Toll Analysis	Dialed String Min/Max RCL UCL (1–10)
Class of Restriction	RCL UCL (1–10)

- Toll Analysis Form—Complete the Dialed String, Min/Max, RCL, and UCL List fields as required.
- Class of Restriction Form—Complete the Restricted Call List and Unrestricted Call List fields on each COR form as required.

Hardware Requirements

None.

Restriction—Controlled

Allows an attendant or voice terminal user with console permission to activate and deactivate the following restrictions for an individual voice terminal or a group of voice terminals:

- Outward—The voice terminal(s) cannot be used for placing calls to the public network. Such call attempts can receive an announcement, attendant, extension, or intercept tone.
- Total—The voice terminal(s) cannot be used for placing or receiving calls. Direct Inward Dialing calls can receive an announcement, attendant, extension, or intercept tone.
- Station-to-Station—The voice terminal cannot receive or place station-to-station calls. Such call attempts can receive an announcement, attendant, extension, or intercept tone.
- Termination—The voice terminal cannot receive any calls. Incoming calls can receive an announcement, attendant, extension, or intercept tone.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	User Control Restrict Activation and Deactivation
	Group Control Restrict Activation and Deactivation
Feature-Related System Parameters	Controlled Outward Restriction Intercept Treatment
	Controlled Termination Restriction (Do Not Disturb)
	Controlled Station-to- Station Restriction

- Feature Access Codes Form—Verify or assign User Control Restrict Activation and Deactivation and Group Control Restrict Activation and Deactivation fields.
- Feature-Related System Parameters Form—Assign the type of interface treatment the caller receives when the call is outward restricted. Assign the type of intercept treatment the caller receives when the call is placed to a termination restricted voice terminal. Enter the type of intercept treatment the caller receives when the call is placed to a restricted voice terminal.

Hardware Requirements

None.

Restriction—Miscellaneous Terminal

Restricts a caller from accessing a pre-selected group of voice or data terminals. The restriction is controlled by the Class of Restriction (COR) assigned to the calling party's voice terminal and the COR assigned to pre-selected groups of voice and data terminals. The calling party's COR either allows or denies access to the COR assigned to the called facility.

NOTE:
When a call is to a Vector Directory Number (VDN) extension, the COR of the caller and the VDN are compared to determine if the associated Call Vector can be accessed. After the vector is accessed, the COR of the VDN is used for further call permission checking.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	All
Station	COR
Remote Access	COR
Hunt Group	COR
Terminating Extension Group	COR
Trunk Group (all)	COR
Vector Directory Number	COR

- Class of Restriction Forms:
  - — Voice/Data Terminals—Verify or establish a COR for a group of voice or data terminals.
  - — Originating Facility—Verify or establish a COR for each originating facility that is to be restricted from calling the miscellaneous trunk group types. (These CORs can be different.) To assign this capability on the originating facilities COR form(s), the calling permission field associated with the CORs of the trunk groups to be restricted must have an ''n''.
- Station Forms—Assign the same COR to the miscellaneous group of voice terminals. Include the associated data module form if station has a DTDM.
- Remote Access Form—Assign the miscellaneous COR to barrier codes.
- Hunt Group Form—Assign the miscellaneous COR to UCD/DDC groups.
- Terminating Extension Group Form—Assign the miscellaneous COR to the group.
- Trunk Groups Forms—Assign the selected COR to the incoming trunk groups and/or terminals. (CORs already assigned can be used if all users with the CORs will be restricted.)
- Vector Directory Number Form—Assign the miscellaneous COR to the appropriate VDNs.

Hardware Requirements

None.

Restriction—Miscellaneous Trunk

Restricts users at specified voice terminals from accessing preselected groups of trunks, such as CO, CPE, etc. Any or all trunk groups can be in a given miscellaneous trunk restriction group. The restriction is controlled by the Classes of Restriction (CORs) assigned to the facility or item of hardware that originates the call and the trunk group being accessed. The calling party's COR can either allow or deny access to the COR assigned the calling facility.

NOTE:
When a call is to a Vector Directory Number (VDN) extension, the COR of the caller and the VDN are compared to determine if the associated Call Vector can be accessed. After the vector is accessed, the COR of the VDN is used for further call permission checking.

NOTE:
AAR and ARS access tp a trunk group (pattern/preference) is not subject to miscellaneous trunk restrictions.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	All
Trunk Group (all)	COR
Station	COR

- Class of Restriction Forms
  - — Trunk Groups to be Restricted—Verify or establish a COR for various trunk group types that are to be restricted. Assign the same COR to each group.
  - — Originating Facility—Verify or establish a COR for each originating facility (voice terminal, etc.) that is to be restricted from calling the miscellaneous trunk group types. (These CORs can be different.) To assign this capability on the originating facilities COR form(s), the calling permission field associated with the CORs of the trunk groups to be restricted must have an ''n''.

- Trunk Group Forms—Assign an appropriate (the same to each) COR to each trunk group to be restricted.
- Station Forms—Assign the appropriate CORs to the voice terminals. (CORs already assigned can be used if all users with the CORs will be restricted.)

Hardware Requirements

None.

Restriction—Toll

Restricts users at specified voice terminals from placing public network calls to certain numbers designated as toll calls by the System Administrator.

User Toll Restriction is administered on Class of Restriction forms as follows:

- All Toll—Denies the calling party the ability to make both ARS and trunk access calls to certain toll numbers as defined on the System's Toll Analysis form, unless this number is on a Unrestricted Call List (UCL). The UCL is defined on the Toll Analysis form and appropriate UCL numbers are assigned on the Class of Restriction forms.
- TAC Toll—Denies the calling party from making trunk access calls to certain toll numbers as defined on the Toll Analysis form, unless this number is on a UCL associated with the calling party's Class of Restriction (COR).

If the System is connected to a central office that uses a step-by-step switch, all seven of the digits which are normally dialed for a local call may not be required by the central office to route the call. For example, the central office may require the last five of the normally dialed seven digits. If all seven digits are dialed, the step-by-step switch uses digit absorption to absorb the unneeded digits. Digit absorption can be provided within the System to emulate the absorption at the central office. This prevents users from bypassing toll restriction by dialing unneeded digits. For example, assume that the central office absorbs leading 7s before processing a number and that a toll-restricted user wants to call someone in area code 201. The user could dial 77-1-201 plus seven more digits. The Toll Restriction feature would not recognize the call as a toll call and the central office would route the call. With digit absorption, the 77 is absorbed by the System before Toll Restriction is used. Thus, the call would be denied, as intended. Up to five digit absorption lists can be assigned.

NOTE:
If a Digit Absorption list (see ''Digit Absorption'' in Chapter 5) is assigned to a CO or FX trunk group, then entries on the ''Toll Analysis'' form in Chapter 5 will not be used to determine if a TAC call routed over one of these trunk groups is a toll call. If a ''0'' or a ''1'' is dialed as the first or second digit and the caller is toll restricted, the call is denied.

Administration

To implement this feature, complete the following forms.

Form	Field
Toll Analysis	All
Class of Restriction	All
Console Parameters	COR
Station	COR
Data Line Data Module	COR
Attendant Console	COR
Trunk Group (CO) or Trunk Group (FX)	Toll Restricted Toll Restricted
Digit Absorption	All

- Toll Analysis Form—Complete all entries as required to administer certain dialed digit string to the System's Toll List. Enter ''x'' in the associated Toll List field to associate the dialed string to the toll list. Complete appropriate Unrestricted Call List fields to assign certain dialed digit strings as unrestricted.
- Class of Restriction Form—Verify or establish CORs with a Calling Party Restriction of ''all-toll'' or ''tac-toll''. Complete the Unrestricted Call List fields (enter appropriate UCL numbers from the System's Toll Analysis form).
- Station, Data Line Data Module, and Console Parameters Forms—Assign an applicable COR to each voice terminal, data module, and attendant console group that is to be toll restricted.
- Foreign Exchange and Central Office Trunk Group Forms—Verify or assign appropriate Foreign Exchange (FX) and Central Office (CO) trunk groups as toll restricted; enter ''y'' (default) in the Toll Restriction field. Enter ''n'' if you want to disable toll restriction to trunk access code type calls on this trunk group.

- Digit Absorption Form—Complete all appropriate fields. The Digit Absorption list number must be assigned to the appropriate CO and/or FX trunk groups.

Hardware Requirements

None.

Restriction—Voice Terminal—Inward

Restricts callers at specified voice terminals from receiving public network, attendant-originated, and attendant-extended calls. A denied call is routed to intercept tone, a recorded announcement, or the attendant for direct inward dialing (DID) calls.

NOTE:
When a call is to a Vector Director Number (VDN) extension, the Class of Restriction (COR) of the caller and the VDN are compared to determine if the associated Call Vector can be accessed. After the vector is accessed, the COR of the VDN is used for further call permission checking.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	Called Party Restriction (Inward)
Station	COR

- Class of Restriction Form—Verify or establish COR with Called Party Restriction of ''Inward''.
- Station Forms—Assign COR to voice terminal.

Hardware Requirements

None.

Restriction—Voice Terminal—Manual Terminating Line

Restricts callers at specified voice terminals from receiving calls other than those from an attendant. Local CO, Foreign Exchange, and Wide Area Telecommunications Service calls are routed to the attendant. Direct Inward Dialing (DID) calls are routed to an announcement or the attendant Tie trunk, and voice terminal calls are routed to intercept treatment. The voice terminal user can originate calls and activate features.

NOTE:
When a call is to a Vector Directory Number (VDN) extension, the Class of Restriction (COR) of the caller and the VDN are compared to determine if the associated Call Vector can be accessed. After the vector is accessed, the COR of the VDN is used for further call permission checking.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	Called Party Restriction (Manual)
Station	COR

- Class of Restriction Form—Verify or establish COR with Called Party Restriction of ''Manual''.
- Station Forms—Assign COR to voice terminal.

Hardware Requirements

None.

Restriction—Voice Terminal—Origination

Restricts callers at specified voice terminals from originating calls. Voice terminal users can receive calls.

NOTE:
When a call is to a Vector Directory Number (VDN) extension, the Class of Restriction (COR) of the caller and the VDN are compared to determine if the associated Call Vector can be accessed. After the vector is accessed, the COR of the VDN is used for further call permission checking.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	Calling Party Restriction (Origination)
Station	COR

- Class of Restriction Form—Verify or establish COR with Calling Party Restriction of ''Origination''.
- Station Forms—Assign COR to voice terminal.

Hardware Requirements

None.

Restriction—Voice Terminal—Outward

Prevents specified voice terminal users from placing calls to the public network. Calls can be placed to other voice terminal users, to the attendant, and over tie trunks.

NOTE:
When a call is to a Vector Directory Number (VDN) extension, the Class of Restriction (COR) of the caller and the VDN are compared to determine if the associated Call Vector can be accessed. After the vector is accessed, the COR of the VDN is used for further call permission checking.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	Calling Party Restriction (Outward)
Station	COR

- Class of Restriction Form—Verify or establish COR with Calling Party Restriction of ‘‘Outward’’.
- Station Forms—Assign COR to voice terminal.

Hardware Requirements

None.

Restriction—Voice Terminal—Termination

Restricts voice terminal users on specified extension numbers from receiving any calls. Voice terminal users can originate calls. Direct Inward Dialing or Advanced Private Line Termination calls are routed to a recorded announcement or the attendant.

NOTE:
When a call is to a Vector Directory Number (VDN) extension, the Class of Restriction (COR) of the caller and the VDN are compared to determine if the associated Call Vector can be accessed. After the vector is accessed, the COR of the VDN is used for further call permission checking.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	Called Party Restriction (Termination)
Station	COR

- Class of Restriction Form—Verify or establish COR with Called Party Restriction of ‘‘Termination’’.

- Station Forms—Assign COR to voice terminal.

Hardware Requirements

None.

Ringback Queuing

Places outgoing calls in an ordered queue (first-in, first-out) when all trunks are busy. The voice terminal user is automatically called back when a trunk becomes available. The voice terminal receives a distinctive 3-burst alerting signal (Priority Calling) when called back.

Administration

To implement this feature, complete the following forms.

Form	Field
Trunk Groups: Access APLT CO CPE DMI-BOS FX ISDN-PRI RLT Tandem Tie WATS	Queue Length
Feature-Related System Parameters	Automatic Callback-No Answer Timeout Interval
Feature Access Codes	Automatic Callback Activation/Deactivation
Station (multi-appearance)	Buttons/Feature Button Assignments -auto-cback

- Trunk Group Forms for outgoing Trunk Groups—Verify or assign queuing to Queue Length field.
- Feature-Related System Parameters Form—Specify Automatic Callback-No Answer Timeout Interval (rings) field.

- Feature Access Codes Form—Verify or assign Automatic Callback Activation and Deactivation fields.
- Station Forms—Assign Auto Callback buttons to multi-appearance voice terminals, as desired.

NOTE:
Automatic Callback and Ringback Queuing share the same intervals, codes, and buttons.

Hardware Requirements

None.

Ringer Cutoff

Allows users of multi-appearance voice terminals to turn on or off certain audible ringing signals. Visual alerting is not affected by this feature.

When this feature is enabled, only Priority ringing (3-burst ringing), Intercom ringing, and Manual Signaling ringing will ring at the voice terminal. 1-burst, 2-burst, and redirection notification will not ring. When this feature is disabled, the voice terminal will have normal ringing.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (multi-appearance)	Button/Feature Button Assignments -ringer-off

- Station Forms—Assign ‘‘ringer-off’’ to a voice terminal feature button. One button may be assigned per voice terminal.

Hardware Requirements

None.

Security Violation Notification

Provides the capability to immediately detect a possible breach of the System's System Management or Remote Access, and to notify a designated referral destination upon detection. It is intended to detect Generic 3 Management Terminal (G3-MT) or Generic 3 Management Application (G3-MA) login failures and Remote Access (barrier code) failures based on customer- administrable thresholds. Once a threshold is reached, for either of these avenues of access, (System Management login or Remote Access barrier code), the System will initiate a referral call to an assigned referral point (attendant console or station equipped with a display module).

An audit trail of the security infractions, containing relevant information about each failed attempt to access the System, is available from the *monitor security-violations* command. This command refreshes the information every thirty s, providing an up to date view of fallacious system access activity.

Information about invalid login attempts is collected at two levels:

- On an immediate basis, when an invalid login attempt is made, the *Security Violation Notification (SVN)* feature can be used to send a priority call to a designated referral point (attendant console or station equipped with a display module) so that there is some chance of apprehending the violator during the attempted violation. Upon notification, the security administrator can request the Security Violations Status Report which will show details of the last sixteen security violations of each type.
- On a historical basis, the number of security violations of each type are collected and reported in the Security Violations Measurements Report. This report shows summary information since the last time that the counters were reset by the *clear measurements security-violations* command. It does not show details of the individual security violations.

The Security Violations Measurement Report (historical) is generally available in all systems without special prerequisites.

The Security Violations Status Report (immediate) is available when the Security Violation Notification (SVN) feature (local and/or remote), has been enabled on Page 2 of the Feature-Related System Parameters form.

Commands are available for displaying and clearing the Security Violation Report. To display the report, enter:

list measurements security-violations [print] or [schedule]

To reset all counters of the Security Violation Report to zero, enter:

clear measurements security-violations

NOTE:
Security measurements are accumulated until they are cleared.

Options: There are no options for these commands.

A typical Security Violation Measurements Report and a detailed description of the meaning of the data presented in the report are provided in *Generic 3r—System Reports*, 555-230-510.

Status Report

The Security Violations Status Report provides current status information for invalid G3-MT or G3-MA login or Remote Access (barrier code) attempts. Invalid G3-MT or G3-MA login attempts will log the time the violation occurred, the login entered, the port that was accessed during the failed login attempt, and the extension assigned to the port (if one exists). Invalid barrier code attempts will log the time the violation occurred, the number of the trunk group that was accessed, the trunk group member number, and the extension assigned to Remote Access. A total of 16 entries will be maintained for each type of invalid access (local or remote).

To display the Security Violation Status Report, enter:

monitor security-violations [print]

Options: There are no options for this command.

A typical Security Violation Status report and a detailed description of the meaning of the data presented in the report are provided in *Generic 3r—System Reports*, 555-230-510.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	Security Violation Notification Parameters
Station (multi-appearance)	Button/Feature Button Assignments (lsvn-call) (rsvn-call

- Feature-Related—Complete all appropriate Security Violation Notification Parameters on Page 2 of the form.

After completing Page 2 of the Feature-Related System Parameters form, you must then administer and activate any previously unadministered call-appearance buttons as the ‘‘lsvn-call’’ and ‘‘rsvn-call’’ buttons for the Referral Destination extension.

NOTE:
If the lsvn-call or rsvn-call feature button is deactivated, login and remote access violations can still be viewed at the Manager 1 or G3-MA via the *monitor security violations* command.

Additional Considerations

When implementing the Security Violation Notification feature, bear in mind the following:

- One Referral Destination may be administered per switch.
- The Call Coverage, Call Forwarding, and Call Pickup (such as, within pickup group) features are not supported for SVN.
- CAS attendants will not receive referral calls from branch locations.
- Referral Destination must be local because SVN does not support a DCS network interface.
- Unlike ACA, Priority Calling is supported for the SVN feature.
- Unlike ACA, Speech Synthesis Circuit pack functionality currently is not supported for SVN.

Hardware Requirements

None.

Send All Calls

Allows users to temporarily direct all incoming calls to coverage regardless of the assigned Call Coverage redirection criteria. Send All Calls also allows covering users to temporarily remove their voice terminals from the coverage path.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	Send All Calls Activation and Deactivation
Station (multi-appearance)	Button/Feature Button Assignments -send-calls
Call Coverage Paths	All

- Feature Access Codes Form—Assign an Activation and a Deactivation access code for Send All Calls.
- Station Forms—Assign a Send All Calls button.
- Call Coverage Paths Form—Complete all fields as required to establish the call redirection criteria.

Hardware Requirements

None.

Service Observing

Allows a specified user, such as a supervisor, to observe a call that involves other users while the call is in progress. While observing a call, the specified user can toggle between a listen-only and a listen/talk connection to the call.

NOTE:
Service Observing cannot be used toward a Vector Directory Number (VDN) extension.

NOTE:
The use of Service Observing features may be subject to federal, state, or local laws, rules or regulations or require the consent of one or both of the parties to the conversation. Customers should familiarize themselves with and comply with all applicable laws, rules and regulations before using these features.

Administration

To implement this feature, complete the following forms.

Form	Field
Class of Restriction	Service Observing
Feature-Related System Parameters	Service Observing Warning Tone
Station (multi-appearance)	Button/Feature Button Assignments -serv-obsrv
Attendant Console	Feature Button Assignments -serv-obsrv

- Class of Restriction Form—Complete Service Observing field.
- Feature-Related System Parameters Form—Assign ''y'' to Service Observing Warning Tone field to provide an audible tone while a call is being observed.
- Station Forms—Assign one serv-obsrv (service observing) button to the observer.
- Attendant Console Form—Assign a serv-obsrv button per attendant console as required.

Hardware Requirements

None.

Single-Digit Dialing and Mixed Station Numbering

Allows easy access to internal hotel/motel services and provides the capability to associate room numbers with guest room voice terminals.

Administration

To implement this feature, complete the following forms.

Form	Field
Dial Plan	All
Miscellaneous-Related System Parameters	Short Interdigit Timeout

- Dial Plan Form—Refer to the DCS section elsewhere in this chapter.
- Miscellaneous Related System Parameters Form—Assign timer value for the Short Interdigit Timeout timer.

Hardware Requirements

None.

Software Defined Data Network

Software Defined Data Network (SDDN) provides virtual private line connectivity via the AT&T switched network (4ESS switch). Access to the service is provided by the Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) feature. These services complement the Software Defined Network (SDN) voice services.

SDDN offers an attractive alternative to the traditional design of data communications networks, through high speed data networking, extensive functionality, advanced call handling capabilities, and network flexibility.

SDDN also offers the Automatic Restoration capability, which restores disrupted administered connections between access/data endpoints. (Access endpoints are non-signaling trunks and data endpoints are devices that connect the switch to data terminal/communications equipment.) This restoration is achieved within seconds of a service disruption so that critical data applications can remain operational. The Auto Restoration function is described in more detail in the Administered Connections feature description provided in *Generic 1 and Generic 3—Feature Description*, 555-230-201. Also refer to the ''Administered Connection/Access Endpoint'' coverage elsewhere in this chapter for additional information associated with SDDN and Administered Connections.

SDDN is well suited for data communications applications which have one or more of the following characteristics:

- Have a time window for completion (performed during night, morning, or other specified time periods).
- Have requirements for high speed data or high volume data.
- Have restoration requirements. These are critical applications which must remain operational in the event of a network failure.
- Have multiple end-point destinations (require serial or non-simultaneous communication between an originating point and several endpoints).
- Would benefit from network flexibility (traffic patterns show daily or seasonal variations, and may change as the network grows).

Administration

Refer to the ‘‘Administered Connection/Access Endpoint’’ and ‘‘ISDN-PRI’’ coverage elsewhere in this chapter for administration information and associated hardware requirements.

Subnet Trunking

Provides modification of the dialed number so an Automatic Alternate Routing (AAR) or Automatic Route Selection (ARS) call can route over alternate trunk groups.

Administration

The Private Network Access or Automatic Route Selection features, as appropriate, must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Routing Patterns	No. Del. Digits Inserted Digits
Feature-Related System Parameters	Off Premises Tone Detect Timeout Interval

- Routing Patterns Form—Specify the number of digits to delete. Special characters, if any, are included in the inserted digits string.
- Feature-Related System Parameters Form—Specify the number of seconds (5 to 25) that a call progress tone receiver will wait to detect a call progress tone from off-premises during dialing.

Hardware Requirements

None.

Tandem Trunk Group

A Tandem Trunk Group provides the System with the ability to communicate with another tandem PBX switch. This trunk group will send and receive Traveling Class Marks (TCMs) as well as outpulse 7-digit RNX-XXXX dialing.

NOTE:
An ISDN-PRI trunk group whose Service Type field is ''tandem'' can also function as a tandem trunk group.

Administration

To implement this feature, complete the following forms.

Form	Field
Tandem Trunk Group	All

Hardware Requirements

A port is required on a TN722B, TN760C, or TN767 circuit pack for each trunk to be assigned in the Access Trunk Group. A TN760B provides four ports. A TN722B or TN767 provides 24 ports.

Terminating Extension Group

Allows an incoming call to ring (either audible or silent alerting) as many as four voice terminals at one time (cannot be a Vector Directory Number extension). Any user in the group can answer the call.

Administration

To implement this feature, complete the following forms.

Form	Field
Terminating Extension Group	All
Station (multi-appearance)	Button/Feature Button Assignments -term-x-gr (Grp:___) -exclusion -send-term (Grp:___) -aut-msg-wt (Ext:___) Bridged Call Alerting

- Terminating Extension Group Form—Complete all fields.
- Station Forms—Assign Term Grp, Exclusion, Send Term, and Leave Word Calling Remote Message Waiting (aut-msg-wt) buttons to voice terminals as required. Enter either ‘‘y’’ or ‘‘n’’ in the Bridged Call Alerting field to enable or disable the audible signal on a bridged call appearance.

Hardware Requirements

None.

Terminal Translation Initialization (TTI)

The Terminal Translation Initialization (TTI) Feature associates an Administered Without Hardware terminal translation to a valid port. A user can then enable this terminal by dialing a special digit sequence (Feature Access Code, TTI security code, and extension) from a terminal connected to the port. A user can also disassociate a terminal from its port location by dialing a similar disassociate digit sequence.

This feature also includes the administration necessary to change unadministered ports in the switch to ‘‘TTI Ports’’ or ports from which the TTI association sequence can occur.

This feature can also be used in station and data module moves from office to office.

Once attributes are assigned on the Station, Attendant Console, or Data Module forms and TTI is enabled on the Feature-Related System Parameters form, each station receives dial tone once plugged in. To activate a station, the Feature Access Code, TTI Security Code, and this extensions number must be dialed at this extension.

All voice extensions should dial into the System while the TTI State is ‘‘voice’’ and all data extensions should dial into the System while the TTI State is ‘‘data’’.

Administration

To implement this feature for stations, attendants, and data modules, complete the following forms.

Form	Field
Feature-Related System Parameters	TTI Enabled TTI State TTI Security Code
Station	All
Attendant Console	All
Data-Module	All

- Feature-Related System Parameters Form—Enable TTI by entering a ‘‘y’’ in the TTI Enabled field.

  Assign the type of translations desired at this time (voice or data) in the TTI State field.

  Enter a 1 to 7 digit security code in the TTY Security Code field.
- Station Form—Assign each station’s attributes and place an ‘‘X’’ in the Port field.
- Attendant Form—Assign each attendant console’s attributes and place an ‘‘X’’ in the Port field.
- Data-Module Form—Assign each attendant console’s attributes and place an ‘‘X’’ in the Port field.

Hardware Requirements

Data Modules require an associated display terminal to dial into the System and activate the extension.

Tie Trunk Group

Provides the System with the ability to communicate with another PBX over dedicated private trunks. This trunk group can also be used to connect to a 4 ESS switch to support MEGACOM service, MEGACOM 800 service, OR MEGACOM 800 DNIS services.

NOTE:
An ISDN-PRI trunk group whose Service Type field is ‘‘tie’’ can also function as a tie trunk group.

Administration

To assign a Tie Trunk Group, complete the following forms.

Form	Field
Tie Trunk Group	All

Hardware Requirements

A port is required on a TN722B, TN760B, or TN767 circuit pack for each trunk to be assigned in the Trunk Group. A TN760B provides four ports. A TN722B or TN767 provides 24 ports.

Time of Day Routing

Provides the most economic routing of Automatic Route Selection (ARS) and Automatic Alternate Routing (AAR) calls, based on the time of day that a call is made. Up to eight Time of Day (TOD) Routing plans can be administered in the System.

Administration

The optional Time of Day Routing and ARS Partitioning features must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To assign a Tie Trunk Group, complete the following forms.

Form	Field
Time of Day Routing	All
ARS Analysis	All
AAR Analysis	All
Node Number Routing Table	All
Class of Restriction	Time of Day Plan Number
Station (multi-appearance) (7400D series equipped with a display)	Button/Feature Button Assignments -man-overid -clk-overid
Attendant Console	Feature Button Assignments -man-overid -clk-overid

- Time of Day Routing Form—Complete up to eight Time of Day Routing forms as required.
- ARS Analysis Form—Complete an ARS Analysis form for each PGN as required.
- AAR Analysis Form—Complete an AAR Analysis form for each PGN as required.
- Node Number Routing Form—Complete an Node Number Routing Table for each PGN as required.
- Class of Restriction Form—Complete the Time of Day Plan Number (1–8) field on each COR form as required.
- Station Forms—Assign Immediate Manual Override (man-overid) and Clocked Manual Override (clk-overid) feature buttons to 7400D series voice terminals equipped with a display.
- Attendant Console Form—Assign Immediate Manual Override (man-overid) and Clocked Manual Override (clk-overid) feature buttons as required.

Hardware Requirements

None.

Timed Reminder

Automatically alerts the attendant after a predetermined time for the following types of calls:

- Extended calls waiting to be answered or waiting to be connected to a busy single-line voice terminal
- One-party incoming calls placed on hold on the console
- Incoming calls answered by a voice terminal user, but which are unanswered after being transferred.

The Timed Reminder feature is not available for calls placed, transferred, or extended to a Vector Directory Number (VDN) extension.

Administration

To implement this feature, complete the following forms.

Form	Field
Console Parameters	Timed Reminder On Hold Return Call Timeout

- Console Parameters Form—Complete Timed Reminder on Hold and Return Call Timeout fields.

Hardware Requirements

None.

Trunk Flash

Enables PBX stations to access customized services provided by a far end (such as, Central Office). To use this feature, the following conditions must be met:

- The trunk group must be enabled for the Trunk Flash feature. Generic 1.1 supports the Trunk Flash signal for incoming, outgoing, or two-way call directions on selected two-wire analog (ground-start or loop-start) or digital (DS1) trunks. The trunk group types may be ‘‘co’’, ‘‘fx’’, and/or ‘‘wats’’.

NOTE:
The Trunk Flash feature is not available on Personal Central Office Lines (PCOL).

- The Trunk Flash (Flash) button on selected multifunction voice terminals (stations) must be administered.

  NOTE:
  The Trunk Flash (Flash) button is not available on analog voice terminals or attendant consoles.

- At the time the Trunk Flash (flash) button is pressed, the call can only involve one trunk line. This trunk line must have been administered with the Trunk Flash feature.

NOTE:
If the trunk is not directly connected to the far end/Central Office (CO) providing the customized services, use of the Trunk Flash signal may cause the call to be disconnected by the far end/CO.

Administration

To implement this feature, complete the following forms.

Form	Field
Station (MET* Sets)	All
10 Button	
20 Button	
30 Button	
Station (multi-appearance**)	All
7303S	
7305S	
7309H	
7401D	
7403D	
7404D	
7405D	
7406D	
7407D	
7434D	
‘‘CALLMASTER’’ Terminal (602A1)	
Station (Terminals)	
515BCT	
Trunk Group	
CO	All
FX	All
WATS	All

*MET=Multi-Button Electronic Telephone

** Refer to Table 5-11 for details on the administration of the following models of voice terminals: 7302H, 7303H, 7305H01B, 7305H02B, 7305H03B, and 7305H04B.

- Station Form—Administer a station form for each one of the above voice terminals to be assigned. Assign a Trunk Flash feature button (Flash) to each terminal.
- Trunk Group Form—For Central Office, Foreign Exchange, and/or WATS trunk groups, the ‘‘Trunk Flash?’’ field must be administered on the appropriate Trunk Group form(s).

Hardware Requirements

None.

Trunk Group Busy/Warning Indicators to Attendant

Provides the attendant with a visual indication that the number of busy trunks in a group has reached an administered level. A visual indication is also provided when all trunks in a group are busy.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Direct Trunk Group Select Buttons
Trunk Groups: Access APLT CO CPE DMI-BOS FX ISDN-PRI RLT Tandem Tie WATS	Busy Threshold

- Attendant Console Form—Trunk group must be assigned to one of the first six Direct Trunk Group Button Assignments for a Basic Attendant Console (301A) or up to 12 Button assignments for an Enhanced Attendant Console (302A).
- Trunk Group Forms—Assign Busy Threshold (Warning) field.

NOTE:
Refer to the ‘‘Attendant Direct Trunk Group Selection’’ coverage elsewhere in this chapter for additional information.

Hardware Requirements

None.

Trunk Identification by Attendant

Allows an attendant or display-equipped voice terminal user to identify a specific trunk being used on a call. This capability is provided by assigning a Trunk ID button to the attendant console or voice terminal.

Administration

To implement this feature, complete the following forms.

Form	Field
Attendant Console	Feature Button Assignments -trk-id
7400D Series Voice Terminals	Button/Feature button Assignments -trk-id

- Attendant Console Form—Assign a Trunk ID button.
- Station Forms—Assign a Trunk ID feature button to stations equipped with a display or have an associated data terminal providing voice terminal displays.

Hardware Requirements

None.

Trunk Groups

Up to 666 trunk groups can be assigned in the System. Each trunk group can have up to 256 trunks. Up to 4,000 trunks can be assigned in the System.

The following trunk groups can be assigned:

- Access
- Advanced Private Line Termination (EPCS or CCSA access)
- Central Office (CO)
- Customer Provided Equipment
- Digital Multiplexed Interface—BOS
- Direct Inward Dialing (DID)

- Foreign Exchange (FX)
- Integrated Services Digital Network-Primary Rate Interface (ISDN-PRI)
- Personal Central Office Line (PCOL)
- Release Link
- Tandem
- Tie (Analog or DS1)
- Wide Area Telecommunications Service (WATS) or 800 Service.

Each trunk group type is covered separately in this chapter. Refer to the specific trunk group coverage for additional information.

Trunk-to-Trunk Transfer

Allows the attendant or voice terminal user to connect an incoming trunk call to an outgoing trunk.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature-Related System Parameters	Trunk-to-Trunk Transfer

- Feature-Related System Parameters Form—Complete Trunk-to-Trunk Transfer field.

Hardware Requirements

None.

Uniform Call Distribution

Used with Automatic Call Distribution (ACD), Uniform Call Distribution (UCD) provides direct access to a group of voice terminals, data modules, data line circuit ports, or modems by either lines or trunks. Access to a group of like resources, such as modems, is through a single group extension number, which minimizes the dialing of a busy resource. Calls are handled on a ‘‘most idle’’ basis for the hunt group number.

Administration

To implement this feature, complete the following forms. See also ''Extension Number Portability (ENP) Numbering Plan'' and ''Node Number Routing'' elsewhere in this chapter.

Form	Field
Recorded Announcements	As Required
Recorded Announcement Data Module	All
Call Coverage Paths	As Required
Hunt Group	All
Trunk Group (all)	Incoming Destination Night Service

- Recorded Announcements Form—Assign recorded announcement extension numbers, if used.
- Recorded Announcement Data Module Form—Complete all fields.
- Call Coverage Paths Form—Verify or assign Call Coverage Path for the group, if used.
- Hunt Group Form—Complete all fields.
- Trunk Group Forms—If this feature is to be provided via DID, the assigned hunt group extension number must be accessible via DID. If not DID, enter the extension number assigned to the hunt group in the trunk group Incoming Destination and/or Night Service fields.

Hardware Requirements

Requires one port on a TN742, TN746B, or TN769 Analog Line circuit pack for each Auxiliary Queue Warning lamp. A ''beehive'' indicator lamp may be used as a warning lamp. This lamp operates on ringing voltage and can be mounted in any convenient location.

Each delay announcement requires announcement equipment; external announcements require a port on a TN742, TN746B, or TN769 Analog Line circuit pack. If music is to be provided after the delay announcement, a music source and a port on the TN763C Auxiliary Trunk circuit pack is also required. The announcement and music equipment are not provided as part of the System equipment.

Refer to the ‘‘Recorded Announcements’’ and ‘‘Trunk Groups’’ coverage elsewhere in this chapter for additional administration and hardware requirements.

Uniform Dial Plan (UDP)

The Uniform Dial Plan (UDP) provides a common 4- or 5-digit dial plan that can be shared among a group of switches. Inter-switch dialing and intra-switch dialing are both accomplished via 4- or 5-digit dialing. UDP is used with Electronic Tandem Networks, Main/Satellite/Tributary and Distributed Communications System (DCS) configurations. Additionally, UDP can be used alone to provide uniform 4- or 5-digit dialing between two or more private switching systems without Main/Satellite/Tributary or DCS configurations.

Unrestricted 4- or 5-digit numbering plans are available for DID, DCS, PRI, and LDN calls by steering calls on all dialed digits.

NOTE:
A UDP Numbering Plan can be either 4 digits or 5 digits, but not both.

Any extension number associated with a UDP endpoint may reside on any switch via an Extension Number Portability (ENP) subnetwork [refer to ‘‘Extension Number Portability (ENP) Numbering Plan’’ elsewhere in this chapter]. This allows extensions to be moved from one switch to another while retaining the original extension number (as long as these switches are part of the ENP subnetwork). It also allows users to retain their ETN/SDN/CCSA/EPSCS numbers when they are moved within the ENP subnetwork. This capability allows the movement of an extension to a different switch without the need to purchase additional blocks of DID numbers at the new switch. As a result, corporate directories need not be updated as often since subscribers numbers do not change.

NOTE:
Extension numbers associated with devices that must be local to the switch, such as the CDR output device, cannot be ported.

Administration

The optional UDP feature must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

To implement this feature, complete the following forms.

Form	Field
Dial Plan	Uniform Dial Plan
Second Digit Table	All
Uniform Dialing Plan	All
AAR Analysis	All
AAR Digit Conversion	All
ARS Analysis	All
ARS Digit Conversion	All
Node Number Routing	Route Pat
ENP Numbering Plan	All
Routing Patterns	All (AAR & ARS)

- Dial Plan Form—Assign a ‘‘y’’ in the Uniform Dialing Plan field. Specify four or five digits.
- Second Digit Table Form—Specify which UDP extensions are valid.
- Uniform Dialing Plan Form—Administer so that Ext Codes for non-home extensions in the ENP sub-network are node number routed.
- AAR Analysis Form—Complete appropriate fields as described under Automatic Alternate Routing (AAR).
- AAR Digit Conversion Form—Complete appropriate fields as described under Automatic Alternate Routing (AAR).
- ARS Analysis Form—Complete each table (Partitioned Group Number) as required. Complete the Dialed String, Minimum, Maximum, Route Pat (Routing Pattern), Call Type, and Node Num fields for each dialed string to be given specific routing considerations.
- ARS Digit Conversion Form—Complete the Matching Pattern and associated Replacement String fields for each dialed string (matching pattern) to be modified in part or whole. These dialed strings will be routed based on the assigned replacement strings.
- Node Number Routing Form—Assign the routing pattern associated with each node number in the ENP sub-network.
- ENP Numbering Plan Form—Associate the leading one or two digits of extensions in the ENP sub-network with a 3-digit ENP code, used to construct a 7-digit AAR-like ENP number.
- Routing Patterns Form—Complete appropriate fields as described under Automatic Alternate Routing (AAR).

Hardware Requirements

None.

Voice Message Retrieval

Allows attendants, voice terminal users, and remote access users to retrieve Leave Word Calling (LWC) and Call Coverage messages in the form of a voice output.

Administration

To implement this feature, complete the following forms.

Form	Field
Feature Access Codes	LWC Message Retrieval Lock
	LWC Message Retrieval Unlock
	Voice Coverage Message Retrieval Access Code
	Voice Principal Message Retrieval Access Code
Feature-Related System Parameters	Stations With System-Wide Retrieval Permission
Station	Security Code

- Feature Access Codes Form—Assign Leave Word Calling Message Retrieval Lock/Unlock codes. Assign Voice Coverage/Principal Message Retrieval Access Codes.
- Feature-Related System Parameters Form—Complete Stations With System-wide Retrieval Permission field.
- Station Forms—Complete the Security Code field for each voice terminal.

Hardware Requirements

Requires a TN725 Speech Synthesizer circuit pack. No additional software is required.

Voice Terminal Display

Provides multi-appearance voice terminal users with updated call and message information. This information is displayed on a display-equipped terminal. The information displayed depends upon the display mode selected by the user.

Administration

To implement this feature, complete the following forms.

Form	Field
7400D Series Voice Terminal	Data Module Display

- Station Form for 7400D Series Voice Terminals—Complete the Data Module and Display Module fields. Complete all fields of the associated Data Module and Display Module forms. One ''Normal'' button must be assigned on the Display Module form or as a feature button.

  The display buttons may also be administered as voice terminal feature buttons if required.

Hardware Requirements

A port on a TN754B/TN7400A Digital Line circuit pack must be assigned to the 7400D series voice terminal before this feature can be implemented. The voice terminal must have a built-in display, a digital display module, or obtain the display via an associated data terminal. All digital voice terminals (includes 7400D series and CALLMASTER digital voice terminal) can be provided an interface to a data terminal via 7400B Data Module. The 7403D and 7405D sets can interface a data terminal via an optional Digital Terminal Data Module (DTDM), the 7404D requires an optional Messaging Cartridge, and the 7406D requires an optional 703A Data Stand.

Voice Terminals

The following provide administrative guidelines for the System's voice terminals. Refer to the referenced forms for specific instructions associated with a voice terminal type.

Administration

To administer Voice Terminals, complete the following forms.

Form	Field
Station—10-, 20-, or 30-MET Voice Terminal	All
Station—500 Voice Terminal	All
Station—510D Personal Terminal	All
Station—515 BCT	All
Station—2500 Voice Terminal	All
Station—7101A Voice Terminal	All
Station—7102A Voice Terminal	All
Station—7103A Voice Terminal	All
Station—7104A Voice Terminal	All
Station—7303S	All
Station—7305S	All
Station—7309H Voice Terminal	All
Station—7401D Voice Terminal	All
Station—7403D Voice Terminal	All
Station—7404D Voice Terminal	All
Station—7405D Voice Terminal	All
Station—7406D Voice Terminal	All
Station—7407D Voice Terminal	All

Form	Field
Station—7410D Voice Terminal	All
Station—7434D Voice Terminal	All
Station—7505D Voice Terminal	All
Station—7506D Voice Terminal	All
Station—7507D Voice Terminal	All
Station—8503D Voice Terminal	All
Station—8510D Voice Terminal	All
Station—8520D Voice Terminal	All
Station—602A1 CALLMASTER Digital Voice Terminal	All

Hardware Requirements

MET Sets (10-, 20-, 30-MET)

A port in a TN735 circuit pack is required for each 10-, 20-, or 30- Multi-Button Electronic Telephone (MET) to be assigned. A TN735 provides four ports.

Analog Voice Terminals (500, 2500, 7101A, 7102A, 7103A, 7104A)

A port is required on a TN742, TN746B, or TN769 Analog Line circuit pack, or a TN767 DS1 Tie Trunk for each analog Voice Terminal to be assigned. A TN742 and TN769 provides eight ports. The TN746B provides 16 ports for in-building use. A TN767 provides 24 ports.

Hybrid Voice Terminals (7302H, 7303H, 7303S, 7305H, 7305S, 7309H)

A port is required in a TN762 Hybrid Line circuit pack for each hybrid voice terminal to be assigned. A TN762 provides eight ports.

Digital Voice Terminals [7401D, 7403D, 7404D, 7405D, 7406D, 7407D, 7410D, 7434D, 602A1, 7505D (BRI), 7506D (BRI), 7506D (BRI), 7507D (BRI), 8503D (BRI), and 8510D (BRI)]

A port is required on a TN754/TN7400A Digital Line circuit pack for each 7401D, 7403D, 7404D, 7405D, 7406D, 7407D, 7410D, 7434D, and 603A1 digital voice terminal to be assigned. In the case of the 7505D, 7506D, 7507D, 8503D, and 8510D ISDN-BRI voice terminals (digital, but non-DCP), a port is required on a TN556 ISDN-BRI Line circuit pack. The TN556 ISDN-BRI Line circuit pack provides 12 ports. When administered in multipoint (passive bus) configuration, a port may be shared by two endpoints. Each endpoint may be a voice-only or stand-alone data endpoint. For ISDN-BRI applications, a TN778 Packet Control circuit pack is also required to provide ISDN-BRI connectivity. The Packet Control circuit pack provides ISDN signaling links with Link Access Protocol for the D-channel.

510D Personal Terminal and 515 Business Communications Terminal (BCT)

A port is required on a TN754/TN7400A Digital Line circuit pack for each 510D or 515 BCT to be assigned. A TN754/TN7400A provides eight ports.

Wide Area Telecommunications Service (WATS) Trunk Group

A WATS Trunk Group provides for trunk connections between the System 75 and a WATS (or 800 Service) office.

Administration

To assign a WATS Trunk Group, complete the following forms.

Form	Field
WATS Trunk Group	All

- WATS Trunk Group Form—Complete all fields as required.

Hardware Requirements

A port on a TN747B CO Trunk or TN767 DS1 Interface circuit pack is required for each WATS trunk to be assigned. A TN747 provides eight ports and a TN767 provides 24 ports.

Forms for Network Features and Services

4

This chapter contains System forms and associated instructions required to implement the following network-type features and services.

- Automatic Route Selection (ARS)
- Automatic Alternate Routing (AAR)
- Centralized Attendant Service (CAS)
- Distributed Communications System (DCS)
- DS1 Trunk Service
- Integrated Services Digital Network (ISDN)—Primary Rate Interface (PRI)
- Trunk Groups.

In addition, administration commands required to access the forms is provided along with each form's coverage. In some cases, just the most commonly used commands are given. Chapter 2 provides a complete listing of the System's administration commands and describes the ''make-up'' of the command line. Specifically, the ''action'', ''object'', and ''qualifier'' command words are described in detail.

The forms included in this chapter are those forms that are primarily dedicated to networking and do not include multi-use forms that support other functional areas such as voice or data management. All other forms required to implement the System, including those multi-use forms (such as, Dial Plan, Feature Access Codes) that support networking and voice and data management, are included in ''Forms for System Features and Services'' in Chapter 5.

Refer to ''System Features, Functions, and Services'' in Chapter 3 for a complete listing of all forms and/or related fields on forms that must be completed or considered when implementing the above network-type features and services.

Blank forms are provided in the Blank Forms Package and may be reproduced as required. The copies are used as worksheets when using this manual to assign features and services. The completed hard-copy forms are later used with administration commands provided in Chapter 2 to implement the System. The forms should then be retained as part of the System's hard-copy records.

Automatic Alternate Routing (AAR)

This section contains the network-type forms and associated instructions dedicated primarily to implementing the Automatic Alternate Routing (AAR) feature.

Automatic Alternate Routing provides alternative routing choices for private on-network calls. The feature automatically selects the most desirable and least expensive (by a customer-specified order) route over various trunking facilities for private network calls. AAR also provides digit modification to allow on-network calls to route through the public network when an on-network route is not available.

The network of PBXs interconnected with private line facilities that use the AAR feature are referred to as an Electronic Tandem Network (ETN). An ETN is a four-level hierarchical network of PBXs. There are two levels of Tandem switches and two levels of subtending PBXs. The first level of Tandems are called fully interconnected tandem switches, and the second level of Tandems are called the final groups of tandem switches. The third level of PBXs, homing directly on a Tandem switch, are called Main PBXs, and the last level of PBXs homing on a Main are called Satellites or Tributaries. The Tandem switches contain most of the intelligence for routing and digit manipulation.

Typically, AAR simplifies dialing. Users need only dial the AAR access code (normally 8) followed by an ETN or Public Network Destination Number (PNDN). The feature selects the route and does whatever digit manipulation is necessary. In addition, AAR selects the most desirable On-Net or Off-Net route. If the first choice route is not available, another route is chosen automatically. For outgoing ISDN calls, route selection is dependent on Bearer Capability Class (BCC), Facility Restriction Level (FRL), and type of facility.

AAR assumes a Uniform Numbering Plan and its capabilities include flexible Digit Analysis, Partitioning, Time of Day Routing, Automatic Overflow to DDD, Trunk-to-Trunk Signaling, Traveling Class Marks, and Sub-Net Trunking. An additional capability allows a user to dial an ETN address to reach a specific foreign country location. The call is routed On-Net to an appropriate exit point, where digit insertion is used for conversion to the appropriate access code, country code, city code, and exchange.

AAR can access the same trunk groups and share the same set of routing patterns as ARS when activated.

Refer to ''Automatic Alternate Routing'' in Chapter 3 for a complete listing of all System forms and/or fields on forms that must be completed or considered when

implementing AAR. Forms such as the Dial Plan, Class of Restriction, Feature Access Codes, and Feature-Related System Parameters that support both networking and other functional areas such as voice and data management may also require implementation.

AAR administration has changed for DEFINITY Generic 3r. The AAR RNX Translation Table and Ten-Digit to Seven-Digit Conversion Tables that were previously used have been replaced with two new forms (AAR Digit Analysis and AAR Digit Conversion). Now, a more flexible private networking arrangement is supported that allows a better interworking with Generic 2 and other communications systems. The System can now be administered to include RN, RNX, and RXX dial plans, where R = 2–9, N = 2–9, and X = 0–9 (and any other forms).

ETN addresses for DCS or UDP destinations remain limited to a 7-digit format. This means that the location code part for UDP/DCS is a 3-digit code of the form XXX and the extension number is a 4- or 5-digit number in the XXXX format (where XXXX are the last four digits). For other destinations, ETN addresses are not limited to the 7-digit RNX format. ETN addresses can be administered as 18 or fewer digits in length and the AAR location codes (PBX codes) of the format RN, RX, XX, RNX, RXX, XXX, and RNXX (or any other form) are supported.

AAR Forms

The following AAR forms are provided in this section. Since AAR and ARS share several common forms, reference to the appropriate form is provided, where applicable.

NOTE:
The Private Networking option on the System-Parameters Customer-Options form must be enabled before associated AAR forms can be administered.

- AAR Analysis Table
- AAR Digit Conversion Table
- Remote Home Number Plan Area (form information provided in the ARS section)
- Node Number Routing (form information provided in the Node Number Routing section)
- Routing Patterns (form information provided in the ARS section)
- Time of Day Routing (form information provided in the ARS section).

The following provides an overview of the System's AAR forms and their purpose. A description of the forms and how software uses their associated data entries to process a call is described.

Figure 4-1 (see Automatic Route Selection feature description) is a high-level presentation on the use of the various System forms in the processing of AAR and Automatic Route Selection (ARS) calls. ARS call processing is included

here because of the interrelationship that exists between the two features when both have been activated in a System. If your System does not have the ARS optioned for, all call processing functionality using ARS as shown on the flow diagram is not available.

The forms are shown in the general order that software accesses them when processing a call. Actual software processing may differ in some cases. The flow diagram does not show all software processes and decision making routines that occur. It is intended only to show the use of the forms and their various parameters in call processing.

The flow diagram assumes that the associated optional features have been enabled on the System-Parameters Customer-Options form. For those features not enabled, consider the flow as through the associated form(s) and through any decision making blocks that occur as a result of using the form. The optional features include:

- Automatic Route Selection
- Private Networking (AAR)
- ARS Partitioning
- Time of Day Routing

Immediately following the flow diagram is a summary of each of the forms (Figure 4-2) and the parameters that may be administered on the forms. Use this summary as a ''quick reference'' when you need an overview of just what is on each form.

Following this introduction are detailed instructions for completing each unique AAR form. Refer to the ''Automatic Route Selection'' coverage in Chapter 3 for instructions on forms that are shared between the two features (Remote Home Numbering Plan Area, Time of Day Routing, and Routing Patterns).

As shown in Figure 4-1, an AAR call begins with the dialing of an AAR access code (typically 8). If the facility (such as, voice terminal) is Origination or Outward restricted or the user (by COR assignment to the facility) is Controlled Outward or Total Restricted, intercept treatment is provided. Second Dial Tone is provided to the calling party if AAR/ARS Dial Tone is optioned for on the Feature-Related System Parameters form. The caller then dials an ETN or Public Network Destination number.

The dialed digits are compared to numbers entered on the ARS Digit Conversion and ARS Digit Analysis forms. A number of specified digits are deleted and replaced by another digit string. Then, the digit analysis proceeds in the specified AAR, ARS, or extension network. Certain dialed digit strings may be routed (via their replacement strings) to the attendant, an announcement, another extension, an AAR/ARS route, or intercept if required. If an analysis match is found, call processing continues based on how the ARS Partitioning and Time of Day Routing (TDR) options are administered on the System-Parameters Customer-Options form as follows:

- ARS Partitioning Enabled and TDR Not Enabled:

  The Partitioned Group Number (PGN) of the calling party (1–8, administered via COR assignment to station) is used to make the choice of an AAR Analysis Table form with a PGN of the same number (1–8).

- ARS Partitioning Enabled and TDR Enabled:

  The Time of Day Plan Number of the calling party (1–8, administered via COR assignment to station) is used to make the choice of a Time of Day (TOD) Routing form of the same number (1–8). On the form, a Plan Number (1–8) is identified based on the day and time of day. This Plan Number is used to select an AAR Analysis Table form with a PGN of the same number (1–8).

- ARS Partitioning and TDR Not Enabled:

  The AAR Analysis Table form (only one form in the System when ARS Partitioning and TDR not enabled) is accessed for continued call processing.

The AAR Analysis Table form is used to map dialed strings to routing patterns and/or node numbers. Each dialed string entry on the form is associated with a routing pattern and/or node number, and a call type (aar). Refer to Table 4-3 in the AAR Analysis Table information for default translations associated with typical dialed strings. Refer to the AAR Analysis Table information for the various Call Type options available.

For regular AAR calls, if Remote Home Numbering Plan Area (RHNPA) translations are required for certain dialed strings, r1–r32 is entered in the appropriate Routing Pattern field on the AAR Analysis Table form. The RHNPA form is used for translating 3-digit codes in the range 000–999. The table is used typically for the DDD of central office codes in a nonlocal NPA. The first three dialed digits are translated on the AAR Analysis Table form and, where appropriate, the form points to a RHNPA table (1–32) for further analysis based on the next three digits.

If the AAR Analysis table points to an RHNPA table, the next three dialed digits are compared with 3-digit codes in the selected RHNPA table. Each code on the table may have an administered reference to a routing pattern number (1–640).

The Routing Pattern form is used to route a call over one of 16 possible trunk groups. Up to 640 Routing Patterns may be assigned in the System. Based on entries on the form, up to 18 leading digits may be deleted from the dialed number and up to 36 (after digit deletion) may be inserted. Up to 52 digits may be outpulsed (includes special symbols ‘‘˜w’’, ‘‘˜p’’, and ‘‘˜m’’). When they are used, special symbols count as two digits each.

Compatibility checks ensure that the calling party’s FRL is greater than or equal to the routing preference’s FRL, the BCC of the calling party matches the BCC specified for the routing preference (ISDN calls only), the facility type is okay for

the call type, and there is an unused circuit (trunk port) available in the selected trunk group. With all checks complete and okay, digits are outpulsed over the selected trunk group member.

AAR Trunking Facilities

Off-Net facilities can include trunks such as CO, FX, and WATS. These trunks may be used to carry private network calls. On-Net facilities can include trunks such as tie, tandem, and private ISDN-PRI trunks. These trunks are dedicated to the private network.

Tandem trunks are used to interconnect two tandem nodes in an ETN. Traveling Class Marks (TCMs) are appended to AAR/ARS numbers outpulsed on these trunks. (TCMs represent the originating user's FRL or the FRL of the user's Access trunk group.) Access trunks are used to connect a subtending main PBX to a tandem node. Tie trunks are used to interconnect a satellite/tributary and the homing main PBX. An ETN tandem node can, however, directly access main and tributary PBXs that are homed on another tandem node using bypass Access trunks.

Sub-Net Trunking

Provides a means to modify dialed digits sent over the private or public network. Address manipulation may be required when the first choice route of a routing pattern is busy and the call must be placed over alternate facilities. The alternate facilities may require that one or more initially dialed digits be deleted and other digits inserted to form a new digit string that is compatible with the dialing plan of the intermediate network nodes. Sub-net Trunking is typically used for:

- Routing a call from a tandem PBX to a subtending PBX
- Reaching a final PBX and then ''hopping off'' to public network facilities (this is better accomplished by digit conversion)
- Overflowing to DDD
- Placing an IDDD call via AAR.

AAR Analysis Table

This form is used to map customer dialed numbers (dialed strings) to routing patterns, using up to 18 digits. The AAR Analysis Table replaces the RNX Translation Table that was used in previous releases of the System.

NOTE:
The Private Networking (AAR) feature must be enabled on the System-Parameters Custom-Options form before associated AAR forms can be administered.

Administration Commands

The following administration commands can be used to access the AAR Analysis Table form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	aar analysis	Enter digits between 0–9, 'x' or 'X' (dialed string) ['part' 1–8]
display	aar analysis	Enter digits between 0–9, 'x' or 'X' (dialed string) ['part' 1–8] ['print' or 'schedule']
list	aar analysis	[start dialed string] ['count' 1–2000] ['rp' 1–640 or r1–r32] ['part' 1–8] ['print' or 'schedule']
list	aar route chosen	Enter dialed number, ['partition' (1–8)], ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form.

- Percent Full—3-character display-only field. Displays the percentage of the System's memory resources that have been used. A common pool of memory resources is shared between the ARS and AAR Analysis tables.

  If the Percent Full field display indicates that the System memory resources are in jeopardy of becoming full (100%) perform any of the following to ''free-up'' memory resources:

  — Delete unnecessary entries from any of the shared resources tables

  — Utilize RHNPA tables for 6-digit AAR routing

- Partitioned Group Number—When completing a paper form, enter the PGN to be associated with this table. Valid entries are 1–8; default is 1.
- Dialed String—Enter the dialed string of significant digits. Up to 18 characters consisting of the digits 0–9 are allowed. A wild card letter ''x'' or ''X'' may be used to substitute for any digit occurring in the string at the character position where used. Valid entries are 0–9, ''x'', ''X'', or blank; default is blank.

NOTE:
The user-dialed digits are matched to the Dialed String field entry that most closely matches the dialed number (referred to as the ‘‘longest match’’). For example, if a user dials 297-1234 and the AAR Analysis Table has Dialed String entries of 297-1 and 297-123, the match is on the 297-123 entry. In addition, an exact match is made on Dialed string entries of the same number of digits in cases where wild card characters (Xs) are used. For example, if 424 is dialed and the table has Dialed String entries of 424 and X24, the match is on the 424 entry.

As an example of Dialed String entries and associated Min and Max field entries (fields described below), RNXs 200–299 can be assigned on the AAR Analysis Table in either of the following ways:

Dialed String	Min. # of Digits	Max. # of Digits
2	7	7
	or	
20	7	7
21	7	7
22	7	7
...	...	...
29	7	7
	or	
2xx	7	7
	or	
20x	7	7
21x	7	7
22x	7	7
...	...	...
29x	7	7

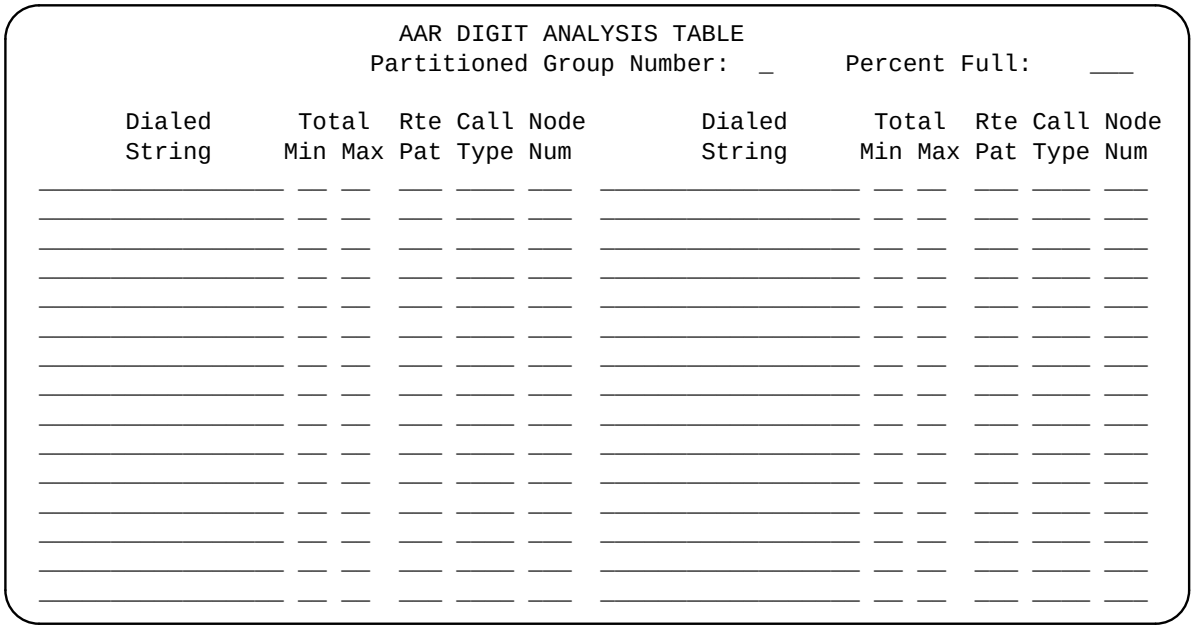
- Min—Enter the minimum number of digits needed to validate and route the call. Valid entries are 0–17 or blank; default is blank.
- Max—Enter the maximum number of digits that can be used to validate and route the call. Valid entries are 0–23 or blank; default is blank.
- Route Pat (Routing Pattern)—Enter the routing pattern number (1–640) on a pointer to an associated Remote Home Number Plan Area (RHNPA) form (r1–r32) to be used to route the call once all identifying digits have been received. Valid entries are 1–640, r1–r32, or blank; default is blank.
- Call Type—Enter ‘‘aar’’ for regular AAR calls (default is blank).

- Node Number—The number of the destination node if node number routing or DCS are used.

Table 4-1 provides a listing of the AAR Analysis default translations.

Table 4-1. AAR Analysis Default Translations

Dialed String	Total Digits Min.	Total Digits Max.	Route Pattern	Call Type	Node Num
2	7	7	640	aar	-
3	7	7	640	aar	-
4	7	7	640	aar	-
5	7	7	640	aar	-
6	7	7	640	aar	-
7	7	7	640	aar	-
8	7	7	640	aar	-
9	7	7	640	aar	-



```
                    AAR DIGIT ANALYSIS TABLE
                  Partitioned Group Number:  _     Percent Full:    ___

      Dialed      Total  Rte Call Node        Dialed      Total  Rte Call Node
      String     Min Max Pat Type Num         String     Min Max Pat Type Num
____________________ __ __ ___ ____ ___ ____________________ __ __ ___ ____ ___
____________________ __ __ ___ ____ ___ ____________________ __ __ ___ ____ ___
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AAR Analysis Table Form

AAR Digit Conversion Table

This form is used to convert private network numbers to other private network or ARS numbers and is essential to converting Home AAR numbers into extension numbers. Its purpose is to steer some AAR calls to other switches in the private network or even to change the dialed digits to a public network number and route the call via the ARS feature (by specifying the call type ''ars'' in the network). Also, this feature can block or intercept certain private network calls to the attendant group.

The form allows for the replacement of all or part of a dialed digit string with a modified string and/or change of analysis type. The modified string represents an alternative equivalent address and results in the call being analyzed according to the network type. If the AAR Access Code is dialed, this table is accessed during call processing. Up to 400 entries in software can be shared between this table and the ARS Digit Conversion table.

The AAR Digit Conversion feature enhances the capabilities of the AAR feature so that public network calls and private network calls can be changed to local, private, or public network destinations. The calls are then routed via the resulting analysis type.

NOTE:
The Private Networking feature must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

Administration Commands

The following administration commands can be used to access the AAR Digit Conversion Table form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	aar digit-conversion	Enter digits between 0–9 ‘x’ or ‘X’
display	aar digit-conversion	Enter digits between 0–9 ‘x’ or ‘X’ ['print' or 'schedule']
list	aar digit-conversion	Enter ['start' matching pattern] ['count' (1–400)] ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form.

NOTE:
When the form is accessed via the display (change, etc.) command, the entries are sorted separately in the order of the matching pattern. Specific digits are sorted before the wild card character ‘‘x’’ or ‘‘X’’.

- Percent Full—3-character display-only field. Displays the percentage of the System’s memory resources that have been used. A common pool of memory resources is shared between the ARS and AAR Digit Conversion tables.

  If the Percent Full field display indicated that the System memory resources are in jeopardy of becoming full (100%) perform any of the following to ‘‘free-up’’ memory resources:

  — Delete unnecessary entries from any of the shared resources tables.

  — Reduce dialed string field entries to shortest possible length that accomplishes the desired function.

- Matching Pattern—Enter a 1- to 18-digit string to be matched against a dialed number. Matching Pattern entries must be unique within the table. The string may contain the digits 0–9 and wild card character ‘‘x’’ or ‘‘X’’ which is used to match any digit in the range of 0–9. If a Prefix Digit is required for 10-digit DDD numbers, then the Prefix Digit ‘‘1’’ must be present in the Matching Pattern string for the match to succeed.

  If the associated Replacement String field has an entry, the Matching Pattern field must have an entry.

- Min—The minimum number of digits in the dialed string.
- Max—The maximum number of digits in the dialed string.

- Del—The number of digits to delete from the beginning of the dialed string.
- Replacement String—Enter a 1- to 18-digit string which will replace the deleted portion of the dialed number. The string may contain the digits 0–9, a # character, or be blank (no entry). The # character, when used, must be at the end of the digit string and is used to signify end of dialing.

  NOTE:
  A blank replacement string has the effect of just deleting the leading digits from the dialed digit string. The ''#'' character in the replacement string signifies the end of the modified digit string so that any digits dialed by the user after the inserted portion of the string are ignored by the ARS/AAR features.

- Net—The network in which to analyze the resulting number. Enter ''ext'', ''aar'', or ''ars''. The resulting digit string will then be analyzed as an extension number, an AAR address, or an ARS address respectively.
- Conv—Enter ''y'' or ''n''. To allow further conversion enter ''y''.

```
                    AAR DIGIT CONVERSION TABLE
                                                Percent Full: ___

Matching Pattern     Min   Max   Del   Replacement String   Net  Conv
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
```

AAR Digit Conversion Table Form

AAR/ARS Remote Home Numbering Plan Area (RHNPA)

This form is used when additional 3-digit translations are required in addition to translations performed on the AAR/ARS Analysis Table. Codes in the range of 000–999 may be processed. The RHNPA form is typically used for the direct distance dialing of central office codes in a nonlocal NPA. Digit translations for this type call begins on the ARS or AAR (AAR/ARS) Analysis Table. Typically, the first three digits representing a nonlocal NPA number are translated using the AAR/ARS Analysis Table and, where appropriate, the table then points to an RHNPA Table for the next 3-digit translation. For example, ''r1'', ''r10'', ''r32'' entries on a AAR/ARS Analysis Table point to respective RHNP Tables 1, 10, or 32. The next three digits dialed represent a central office code in the FNPA. These digits are translated by the RHNPA Table and routed via the assigned routing pattern to the central office. Digit translation requiring both the Digit Analysis and RHNPA Tables is sometimes referred to as 6-digit translations (3-digits are translated via the Digit Analysis Table and the next 3-digits translated via the RHNPA Table). The RHNPA Table can be used with any call type requiring additional 3-digit translations.

The RHNPA form is used to assign 3-digit codes and associated routing pattern numbers for up to 32 RHNPA tables. One form is required for each block of 100 codes in the range 000–999.

The RHNPA form provides a choice of up to 12 routing patterns for the block of 000–999 codes.

Administration Commands

The following administration commands can be used to access the RHNPA Table form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	rhnpa	Enter RHNPA and office code n:xyy n(1–32) x(0–9) y(0–9) y(0–9) (Table No. 1–32:office code = office code 000–999)
display	rhnpa	Enter RHNPA and office code n:xyy n(1–32) x(0–9) y(0–9) y(0–9) (Table No. 1–32:office code = code 000–999) ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

- RHNPA TABLE—Enter the applicable table number from 1–32. Up to eight forms may be required for each table, one for each hundreds block, 2–9.
- CODE—Enter the desired hundreds block; that is, 000–099, 100–199, 200–299,...800–899, 900–999. A separate form is required for each hundreds block.
- Pattern Choices—Enter a pattern number from 1–640 representing the routing patterns that can be accessed by the RHNPAs identified on this screen form only. Each screen form on each RHNPA Table may have 12 different Pattern Choices. Pattern choices listed on one screen form automatically defaults to the other forms of the same table. If one pattern will be used most often (that is, accessed by the greatest number of office codes in this block), assign that pattern as choice 1. Otherwise, the correlation between Pattern Choice Numbers and Patterns is completely arbitrary.
- Code-Pattern Choice Assignments (from 1–12 above)—Enter a Pattern Choice number from the list above in the field associated with each Office Code. The Code fields represent the last two digits of the codes within the hundreds block. The Pattern Choice Assignment points to the Pattern Choice above, which contains the Routing Pattern to be used.

```
                              RHNPA TABLE: __                    Page 1 of 1

                         CODE:  x00 - x99
                                Pattern Choices
             1: ___   3: ___   5: ___   7: ___   9: ___   11: ___
             2: ___   4: ___   6: ___   8: ___  10: ___   12: ___
          Code-Pattern Choice Assignments (from 1–12 above)
00: 1__ 10: 1__ 20: 1__ 30: 1__ 40: 1__ 50: 1__ 60: 1__ 70: 1__ 80: 1__ 90: 1__
01: 1__ 11: 1__ 21: 1__ 31: 1__ 41: 1__ 51: 1__ 61: 1__ 71: 1__ 81: 1__ 91: 1__
02: 1__ 12: 1__ 22: 1__ 32: 1__ 42: 1__ 52: 1__ 62: 1__ 72: 1__ 82: 1__ 92: 1__
03: 1__ 13: 1__ 23: 1__ 33: 1__ 43: 1__ 53: 1__ 63: 1__ 73: 1__ 83: 1__ 93: 1__
04: 1__ 14: 1__ 24: 1__ 34: 1__ 44: 1__ 54: 1__ 64: 1__ 74: 1__ 84: 1__ 94: 1__
05: 1__ 15: 1__ 25: 1__ 35: 1__ 45: 1__ 55: 1__ 65: 1__ 75: 1__ 85: 1__ 95: 1__
06: 1__ 16: 1__ 26: 1__ 36: 1__ 46: 1__ 56: 1__ 66: 1__ 76: 1__ 86: 1__ 96: 1__
07: 1__ 17: 1__ 27: 1__ 37: 1__ 47: 1__ 57: 1__ 67: 1__ 77: 1__ 87: 1__ 97: 1__
08: 1__ 18: 1__ 28: 1__ 38: 1__ 48: 1__ 58: 1__ 68: 1__ 78: 1__ 88: 1__ 98: 1__
09: 1__ 19: 1__ 29: 1__ 39: 1__ 49: 1__ 59: 1__ 69: 1__ 79: 1__ 89: 1__ 99: 1__
```

RHNPA Table Form (Page 1 of 1)

AAR/ARS Routing Patterns

The digit translations performed on a Public Network Destination Number by the AAR/ARS Digit Analysis and RHNPA Tables cause a specific routing pattern to be selected for routing the call. The routing pattern contains a sequence of up to 16 trunk groups on which an attempt is made to route the call. The trunk groups in a pattern are generally arranged by increasing cost of using the facility and are tested for compatibility and availability in that order.

A Routing Pattern form is used to implement one of up to 640 routing patterns, each of which can contain up to 16 alternate trunk routes. This form supports the Automatic Route Selection (ARS), Automatic Alternate Routing (AAR), Generalized Route Selection, and the Call by Call Service Selection features.

Administration Commands

The following administration commands can be used to access the Routing Pattern form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	route-pattern	1–640
display	route-pattern	1–640 [print]
list	route-pattern	Enter ['trunk' (1–666)] ['service'/feature name string] [print]

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form:

- Pattern Number—This is a display-only field when the form is accessed using an administration command such as *change* or *display*. When completing a paper form, enter a pattern number from 1–640.
- Grp No.—Enter the desired trunk group number from 1–666 to specify which trunk group will be associated with the entries on this line of the form.

- FRL—Enter the Facility Restriction Level (FRL) 0–7 (0 being the least restrictive and 7 being the most restrictive) to be assigned this routing preference (this line of parameters on the form). Trunk group FRLs are changeable from pattern to pattern. The calling party's FRL must be greater than or equal to this FRL to access the associated trunk group. Valid entries are 0–7 or blank.
- NPA (this entry not required when used for AAR)—For ARS applications, enter the NPA of the distant end (terminating end). For WATS trunks, the term NPA is the same as the home NPA. For tie trunks, the NPA field is left blank. Valid entries are three digits in the form: first digit (2–9), second digit (0–9), third digit (0–9); default is blank.
- Prefix Mark (not required for AAR)—For ARS, enter a number from 0–4 as indicated below. This specifies when the prefix digit 1 is outpulsed. Valid entries are 0–4 or blank; default is 0.

  For a WATS trunk, the Prefix Mark is the same as the local CO trunk. For tie trunks, the Prefix Mark field is left blank.

  NOTE:
  Prefix Mark operations only apply to fnpa or hnpa call types (ARS).

  0 Do not outpulse prefix digit 1.

  NOTE:
  Prefix Mark 0 suppresses a user-dialed Prefix digit 1 for 10-digit FNPA calls, but leaves a user-dialed Prefix digit 1 for 7-digit HNPA calls. This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

  1 Outpulse Prefix digit 1 for 10-digit calls. Prefix Mark 1 should be selected for those HNPAs that require users to dial 1 to indicate a toll call.

  2 Outpluse prefix digit 1 for all toll calls and 7- and 10-digit calls whether the user dials 1 or not.

  3 Outpulse prefix digit 1 all toll calls. These calls are always outpulsed as 10-digit numbers, even those within the HNPA.

  4 Suppress a user-dialed Prefix digit 1.

  NOTE:
  This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

NOTE:
Prefix Marks 2 and 3 must refer to a Toll Table.

- Toll List (not required for AAR)—For ARS, enter a number (1–32) that references the ARS Toll Table associated with the terminating NPA of the trunk group. This field must be completed if the Prefix Mark field is ''2'' or ''3''. Valid entries are 1–32 or blank; default is blank.
- No. Del. Digits—Enter the total number of digits (0–18) to be deleted from the dialed string when this trunk group is selected for call routing. Valid entries are 0–18 or blank; default is blank.
- Inserted Digits—Enter the actual digits to be inserted (0–36). Up to 52 digits may be outpulsed. This includes 34 digits inserted (up to 32 digits per group plus one special character) plus up to 18 digits originally dialed. These digits may be divided into groups separated by a two-digit wait-for-dial-tone separator. The ''~w'' is used for pause, ''~p'' for the second dial tone, and ''~m'' for end-to-end signaling. Valid entries are 0–9, ''~w'', ''~p'', and ''~m''.

  NOTE:
  The special character ''~p'' (pause) should not be used unless absolutely necessary as the first character in the string. Typical misuse can result in calls such as Abbreviated Dialing or Last Number Dialed calls not completing to the far-end.

- IXC—Displayed when ISDN-PRI is enabled on the System-Parameters Customer-Options form. For ISDN-PRI preference trunks, enter the last three digits to represent an equal access Inter-exchange Carrier code (such as 10XXX). This field is used by all calls that route via an IXC, and is also used for Call Detail Recording (CDR). If an IXC is not specified, a call will be transmitted by the presubscribed common carrier.

  NOTE:
  The IXC field must be blank for non-ISDN preference trunk groups. If you need to send an IXC code for a non-ISDN preference trunk group, then enter this IXC value in the Inserted Digits field.

- BCC Value (required by Generalized Route Selection feature)—Displayed when ISDN-PRI is enabled on the System-Parameters Customer-Options form. Enter ''y'' (default) or ''n'' in the appropriate BCC column (0, 1, 2, 3, or 4) to specify whether or not the BCC is valid for the associated route (1–16). The following defines the BCC values:

BCC VALUE	DESCRIPTION
0	Voice-Grade Data and Voice
1	56-kbps Data (Mode 1)
2	64-kbps Data (Mode 2)
3	64-kbps Data (Mode 3)
4	64-kbps Data (Mode 0)

NOTE:
Refer to the ''Generalized Route Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of BCCs and their use to provide specialized routing for various types of voice and data calls. The BCC value is used to determine compatibility when non-ISDN-PRI facilities are connected to ISDN facilities (ISDN-PRI Interworking feature).

- TSC—Enter ''y'' to allow incoming Non Call Associated TSC requests to be tandemed out and to allow the establishment of Call Associated TSCs associated with B-channel connections of that preference. To achieve feature transparency, DCS+ calls should be routed via a routing pattern that has an ISDN-PRI *Used for DCS* trunk group as a first preference.
- CA-TSC Request—Appears when the TSC field is ''y''. A CA-TSC uses the call reference value of the call control data packets to exchange user information messages associated with an ISDN B-channel connection. CA-TSCs are a finite system and trunk group resource; there is a tradeoff between the two possible entries of a small time-lag with the first and the usage generated by the second. Valid entries are:

  as-needed (Recommended for most situations.) No CA-TSC will be established along with the B-channel call. If a CA-TSC is needed due to feature activation somewhere in the lifetime of this B-channel call, then the CA-TSC will be established at that time and remain active for the duration of the call.

  at-setup Causes a CA-TSC to be established at the same time the initial B-channel connection is established. In other words, a CA-TSC is setup for each and every B-channel call **whether or not that CA-TSC is ever needed**.

  none Disallows the establishment of CA-TSCs associated with B-channel connections of the current preference (tandeming of NCA-TSC setup requests however, are still permitted).

NOTE:
With ‘‘as-needed’’, the need to establish the CA-TSC causes a slight delay in the invocation of the Call Associated feature. This delay is not present with ‘‘at-setup’’ because the CA-TSC is already established at call setup and is ready to be used immediately upon feature invocation.

- ITC (Information Transfer Capability)—Displayed when one or more of the BCC data preferences is ‘‘y’’. Used to administer the type of traffic (restricted, unrestricted, or both) that is allowed to be carried by this routing preference. If the ITC field is administered as ‘‘res’’ (restricted), then only calls that are originating from restricted endpoints may access this routing preference. If the ITC field is administered as ‘‘unr’’ (unrestricted), then only calls that are originating from unrestricted endpoints may access this routing preference. If the ITC field is administered as ‘‘both’’, then calls originating from both restricted and unrestricted endpoints may access the facility.
- BCIE (Bearer Capability Information Element)—Used to determine how to create the Information Transfer Capability codepoint in the Bearer Capability IE of the SETUP message. The BCIE field only applies to ISDN-PRI trunks and is displayed and administrable only if the ITC field is administered as ‘‘both’’. Valid entries are ‘‘ept’’ (endpoint) and ‘‘unr’’ (unrestricted); default is ‘‘ept’’.
- Service/Feature (required by the Call by Call Service Selection feature)—Displayed when ISDN-PRI is enabled on the System-Parameters Customer-Options form. Enter up to 15 characters that represent the Service/Feature that is carried by a call in this routing pattern (see the Network Facilities form for all predefined and administered Services/Features); default is blank.
- Band (required by the Call by Call Service Selection feature)—Enter a number (0–255) that represents the OUTWATS band number. This field is displayed when the Services/Features field has a value of ‘‘outwats-bnd’’; default is blank.

```
                          Pattern Number: __              Page 1 of 3

    Grp.   FRL  NPA    Prefix   Toll  No. Del. Inserted            "XC
    No.                 Mark    List  Digits   Digits
1.  ___    _    ___     _        _      _  ____________________   ___
2.  ___    _    ___     _        _      _  ____________________   ___
3.  ___    _    ___     _        _      _  ____________________   ___
4.  ___    _    ___     _        _      _  ____________________   ___
5.  ___    _    ___     _        _      _  ____________________   ___
6.  ___    _    ___     _        _      _  ____________________   ___

     BCC Value          CA-TSC   ITC  BCIE  Service/Feature
   0  1  2  3  4   TSC  Request
1. _  _  _  _  _    _   ________  both ept ________________   Band: ___
2. _  _  _  _  _    _   ________            ________________   Band: ___
3. _  _  _  _  _    _   ________            ________________   Band: ___
4. _  _  _  _  _    _   ________            ________________   Band: ___
5. _  _  _  _  _    _   ________            ________________   Band: ___
6. _  _  _  _  _    _   ________            ________________   Band: ___
```

Routing Pattern Form (Page 1 of 3)

Implementation Notes:

The IXC, BCC Value, TSC, CA-TSC Request, ITC, BCIE, and Service/Feature fields are only displayed if the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

The BCIE field is displayed only when ‘‘both’’ is entered in the ITC field.

The Band field is only displayed if the Service/Feature field is ‘‘outwats-band’’.

```
list route-pattern              ROUTE PATTERNS

Route    Pref  Trunk  FRL  IXC      BCC      TSC  CA_TSC  ITC  Service/Feature
Pattern        Group             0 1 2 3 4       request
   1      1      1     0   user   y n n n n   n   none         inwats
          2      2     1   user   y n n n n   n   none         operator
          3      3     2   user   y n n n n   n   none
          4      4     3   user   y n n n n   n   none         outwats
  23      1      99    1   user   n n y n n   n   none    res  accunet
          2      5     4   user   n n n n y   n   none    unr  sdn
 123      1      33    1   user   n y y n n   n   none    res  accunet
          2      2     2   user   n n y n n   n   none    both accunet
          3      76    4   user   n n y n n   n   none    both sdn
```

List Route Patterns Form (Page 1 of 1)—(ITC field shown)

Implementation Note:

The IXC, BCC Value, TSC, CA-TSC Request, ITC and Service/Feature fields are displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

The ITC field is displayed when one or more of the BCC data preferences is ‘‘y’’.

The BCIE field is displayed when the ITC field is ‘‘both’’. and only applies to ISDN-PRI trunks.

The Band field is displayed when the Service/Feature field is ‘‘outwats-band’’.

AAR/ARS Time of Day Routing

This form is used to assign the Time of Day (TOD) routing plan. The plan provides for routing of ARS and AAR calls based on the time of day that each call is made. Up to eight TOD routing plans may be administered, each scheduled to change up to six times a day for each day in the week.

The TOD routing plan selected for a call is controlled by the Time of Day Plan Number administered to the COR assigned the facility (station) that a user is calling from. The COR is inspected to identify the TOD plan number (1–8) to be used to process the call. On the TOD Routing Plan, a ''Plan #'' (1–8, based on the time of day and the day) is identified. This plan number is used to select an AAR/ARS Analysis Table with the same Partitioned Group Number (1–8). On the Analysis Table a routing pattern is identified to route the call.

NOTE:
The following optional features must be enabled on the System-Parameters Customer-Options form before this form can be administered: Automatic Route Selection (ARS) and/or Private Networking, ARS Partitioning, and Time of Day Routing.

Administration Commands

The following administration commands can be used to access the Time of Day Routing Plan form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
display	time	[print]
display	time-of-day	1–8 (plan number) ['print' or 'schedule']
change	time-of-day	1–8

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

- Time of Day Routing Plan—Specifies the TOD routing plan number. Up to eight of these plans can be administered. Enter a plan number from 1–8 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Act Time—Specifies the time that the routing plan administered in the next field (PGN #) will become effective. The time is represented in military time. It is recommended that activation times for the same day must be

listed in increasing order. Valid entries are 00:00 – 23:59; default is ‘‘00:00’’. There must be at least one entry for each day.

- PGN #—Specifies the AAR/ARS Digit Analysis Tables with a PGN of the same number (1–8) that contains routing patterns that will be in effect from the activation time until the activation time of the next scheduled plan change. The Table selected and the routing pattern used (1–640) is based on the number dialed; default PGN is 1. Enter a Partitioned Group number (1–8) that points to the appropriate AAR/ARS Analysis Table to be used. There must be at least one entry for each day.

NOTE:
It is possible to point to an AAR/ARS Analysis Table associated with a PGN that is different than that assigned the facility that the caller is using. Proceed with caution when making these assignments.

```
                              TIME OF DAY ROUTING PLAN x                Page 1 of 1

     Act     PGN   Act    PGN   Act     PGN   Act     PGN   Act     PGN   Act     PGN
     Time     #    Time    #    Time     #    Time     #    Time     #    Time     #
Sun  00:00    1    __:__   _    __:__    _    __:__    _    __:__    _    __:__    _
Mon  00:00    1    __:__   _    __:__    _    __:__    _    __:__    _    __:__    _
Tue  00:00    1    __:__   _    __:__    _    __:__    _    __:__    _    __:__    _
Wed  00:00    1    __:__   _    __:__    _    __:__    _    __:__    _    __:__    _
Thu  00:00    1    __:__   _    __:__    _    __:__    _    __:__    _    __:__    _
Fri  00:00    1    __:__   _    __:__    _    __:__    _    __:__    _    __:__    _
Sat  00:00    1    __:__   _    __:__    _    __:__    _    __:__    _    __:__    _
```

Time Of Day Routing Form (Page 1 of 1)

Implementation Note:

Up to eight Time of Day Routing Plans (1–8) may be administered. The plan selected for processing a call is determined by examining the COR assigned the facility that the call is originating from. CORs may be administered with Time of Day Plan Numbers where required.

Automatic Route Selection (ARS)

This section contains the network-type forms and associated instructions dedicated primarily to implementing the Automatic Route Selection (ARS) feature.

ARS routes calls over the public network based on the preferred route (normally on a customer-specified order and typically the least expensive) available at the time the call is placed. ARS provides a choice of up to 16 routes for any given public network call. The following trunk group types can be accessed by ARS:

- Foreign exchange—Used to emulate local calling in an area not served by the local central office.
- Local central office—Used for local calls and to provide access to long-distance carriers. Access to the long-distance carrier can be provided automatically by the central office or by a carrier access code.
- Integrated Services Digital Network (ISDN)—Primary Rate Interface (PRI)—Used for calls over an ISDN and provides users access to a variety of switched nodal services such as MEGACOM® telecommunications service, INWATS, and ACCUNET® digital service and allows access to other interexchange carriers.
- Tie trunks—Used to provide access to an Electronic Tandem Network (ETN), or to an Enhanced Private Switched Communications Service (EPSCS) or Common Control Switching Arrangement (CCSA) office.
- Wide Area Telecommunications Service (WATS)—Used to provide calling to predefined geographic areas at a rate based on expected usage.

For the the following discussion:

- Area Code = NPA = NIX (where N = 2–9, I = 0 or 1, X = 0–9)
- Central Office (CO) Code = NNX (where N = 2–9, X =0–9) or NIX (see Area Code)
- Foreign Number Plan Area (FNPA) Code—see Area Code
- Home Number Plan Area (HNPA) Code—see Office Code
- Partitioned Group Number (PGN) = 1–8
- Service Codes = X11 (where X = 0–9).

ARS administration has changed for DEFINITY Generic 3r. The ARS HNPA and FNPA Tables and Ten-Digit to Seven-Digit Conversion forms that were previously used have been replaced with two new forms (ARS Digit Analysis and ARS Digit Conversion). Previous assumptions about domestic numbering plan format and length have been removed, providing the following:

- A more flexible accommodation of future changes to the North American Numbering Plan by administration changes rather than software changes.
- Now able to handle NXX area codes (planned to be introduced in 1995). Currently, there are 160 area codes in the form NIX.
- Increased ability to analyze and route international calls.
- A wild card capability on the forms that allows, for example, routing by exchange, across all area codes (such as, XXX976).

Refer to ‘‘Automatic Route Selection’’ in Chapter 3 for a complete listing of all System forms and/or fields on forms that must be completed or considered when implementing ARS. Forms such as the Dial Plan, Class of Restriction, Feature Access Codes, and Feature-Related System Parameters that support both

networking and other functional areas such as voice management and data management may also require implementation.

Automatic Route Selection also supports the following features:

- Automatic Alternate Routing—Provides automatic routing of ETN calls over private or public network facilities.
- Call by Call Service Selection—Allows users to gain access to a variety of switched nodal services such as MEGACOM service, WATS, ACCUNET digital service, and various inter-exchange carriers.
- Generalized Route Selection—Provides separate routes for voice and data calls. Also provides for the integration of voice and data over the same trunking facilities, when required.

ARS Forms

The following ARS forms are included in this section:

NOTE:
The Automatic Route Selection option must be enabled on the System-Parameters Customer-Options form before the ARS forms can be administered.

- ARS Analysis
- ARS Digit Conversion
- Remote Home Numbering Plan Area (RHNPA)
- Automatic Route Selection Toll Table
- Routing Patterns
- Time of Day Routing.

The following provides an overview of the System's ARS forms and their purpose. A description of the forms and how software uses their associated data entries to process a call is described. In addition, dialing patterns such as operator dialed calls, prefix 1 Direct Distance Dialing (DDD) calls, special service calls, international calls, and inter-exchange carrier calls are described.

Figure 4-1 is a high-level presentation on the use of the various System forms in the processing of ARS and Automatic Alternate Routing (AAR) calls. AAR call processing is included here because of the interrelationship that exists between the two features when both have been activated in a System. If your System does not have Private Networking (AAR) optioned for, disregard all call processing functionality using AAR as shown on the flow diagram.

The forms are shown in the general order that software accesses them when processing a call. Actual software processing may differ in some cases. The flow diagram does not show all software processes and decision making routines

that occur. It is intended only to show the use of the forms and their various parameters in call processing.

The flow chart assumes that the associated optional features have been enabled on the System-Parameters Customer-Options form. For those features not enabled, consider the flow as through the associated form(s) and through any decision making blocks that occur as a result of using the form. The optional features include:

- Automatic Route Selection
- Private Networking (AAR)
- AAR/ARS Partitioning
- Time of Day Routing

Immediately following the flow diagram is a summary of each of the forms (Figure 4-2) and the parameters that may be administered on the forms. Use this summary as a ''quick reference'' when you need an overview of just what is on each form.

Following this introduction are detailed instructions for completing each form.

As shown in Figure 4-1, an ARS call begins with the dialing of an ARS access code (typically 9). If the facility (such as, voice terminal) is Origination or Outward restricted or the user (by COR assignment to the facility) is Controlled Outward or Total Restricted, intercept treatment is provided. Second Dial Tone is provided to the calling party if AAR/ARS Dial Tone is optioned for on the Feature-Related System Parameters form. The caller then dials a ''1'' (if ''ARS Prefix 1 required?'' is administered on the System's Dial Plan form), if the call is a 10-digit FNPA call or dials one of a variety of dialing patterns including 7-digit numbers, 10-digit DDD numbers, International Direct Distance Dialing (IDDD) numbers, service codes, Customer-Dialed Operator-Serviced (CDOS) numbers, and Inter-Exchange Carrier (IXC) numbers.

The dialed digits are compared to numbers entered on the ARS Digit Conversion and ARS Digit Analysis forms. If a match occurs, the conversion is performed and the resulting number is re-analyzed in the specified ''net''. Dialed digit strings may be routed (via their conversion) to the attendant, an announcement, an extension, an AAR/ARS route, or intercept if required. If an analysis match is found, the dialed string is compared with digit string entries on the System's Toll Analysis form for a relationship with the System's Toll List, Restricted Call List, or Unrestricted Call List (see ''Toll Analysis'' in Chapter 5). Calls that are not allowed to complete are given intercept treatment. If the call is allowed, call processing continues based on how the ARS Partitioning and Time of Day Routing (TDR) options are administered on the System-Parameters Customer-Options form as follows:

- ARS Partitioning Enabled and TDR Not Enabled:

  The Partitioned Group Number (PGN) of the calling party (1–8, administered via COR assignment to station) is used to make the choice of an ARS Analysis form with a PGN of the same number (1–8).

- ARS Partitioning Enabled and TDR Enabled:

  The Time of Day Plan Number of the calling party (1–8, administered via COR assignment to station) is used to make the choice of a Time of Day (TOD) Routing form of the same number (1–8). On the form, a Plan Number (1–8) is identified based on the day and time of day. This Plan Number is used to select an ARS Analysis form with a PGN of the same number (1–8).

- ARS Partitioning and TDR Not Enabled:

  The ARS Analysis form (only one form in the System when ARS Partitioning and TDR not enabled) is accessed for continued call processing. The PGN displayed will be a ''1''.

The ARS Analysis form is used to map dialed strings to routing patterns or node numbers. Each dialed string entry on the form is associated with a routing pattern and a call type (such as, HNPA, FNPA, operator, service, etc.). Table 4-2 provides default translations for typical dialing strings. Operator, Inter-Exchange Carrier, 7-digit (first 2–9 with a total of seven digits min/max) are initially defaulted to routing pattern 1. If, for certain dialed digit strings, Remote Home Numbering Plan Area (RHNPA) translations are required, an appropriate entry of r1–r32 is entered in the Routing Pattern field on the ARS Analysis Table form. The RHNPA form is used for translating 3-digit codes in the range 000–999. The table is used typically for the DDD of central office codes in a nonlocal NPA. The first three digits of a nonlocal FNPA are translated on the ARS Analysis Table form and, where appropriate, the form points to a RHNPA table (1–32) where further translations occur.

If the ARS Analysis table points to an RHNPA table, the next three dialed digits are compared with codes in the selected RHNPA table. Each code on the table may have an administered reference to a routing pattern number (1–640).

The Routing Pattern form is used to route a call over one of 16 possible trunk groups. Up to 640 Routing Patterns may be assigned in the System. Based on entries on the form, up to 18 leading digits may be deleted from the dialed number and up to 36 (after digit deletion) may be inserted. Up to 56 digits may be outpulsed (includes special symbols ''~w'', ''~p'', and ''~m''). When used, special symbols count as two digits each. An ARS Toll Table, when referenced from the routing pattern, is used to specify whether HNPA and FNPA calls are toll or local type calls.

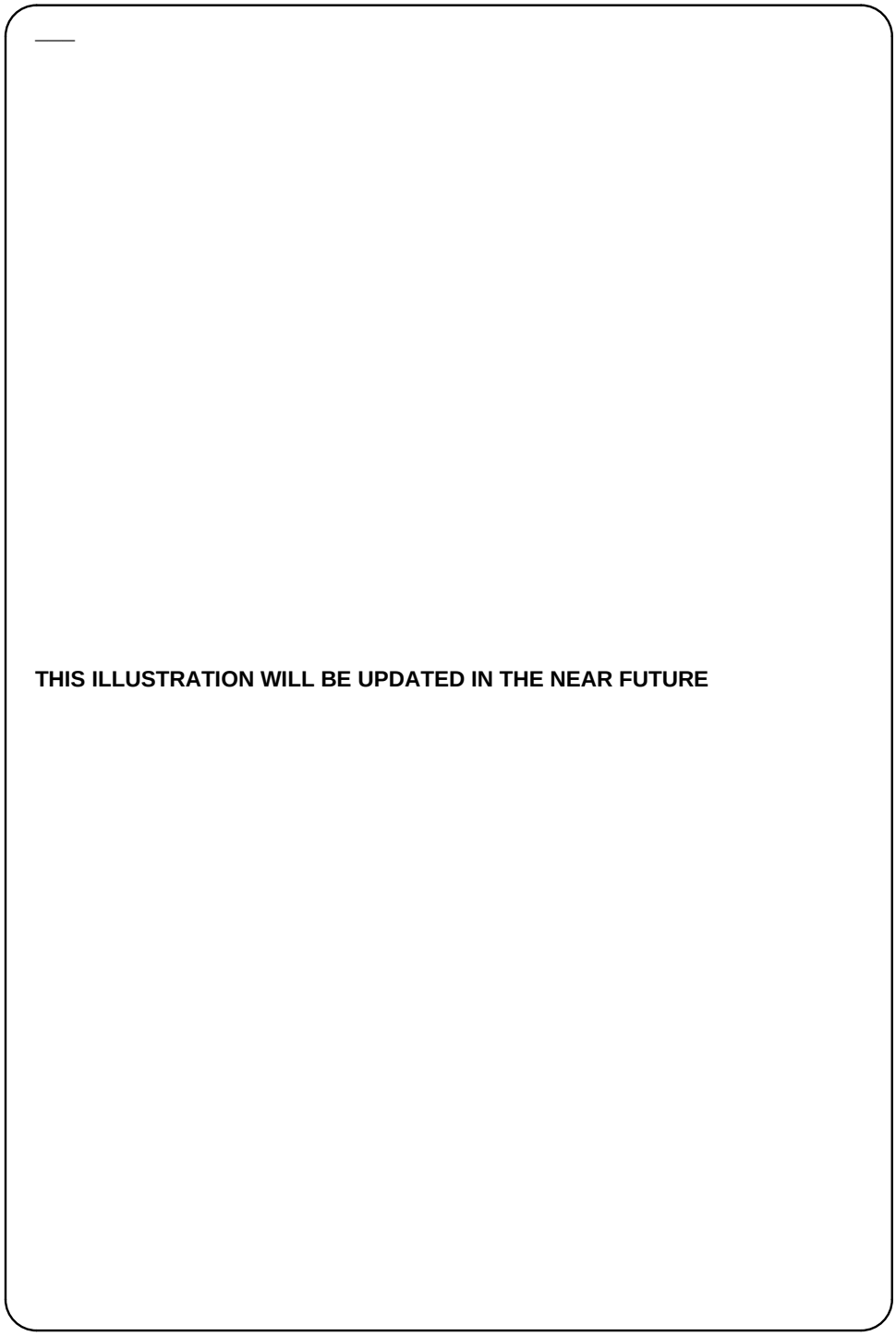


Figure 4-1. ARS Call Processing—Flow Diagram (Sheet 1 of 3)

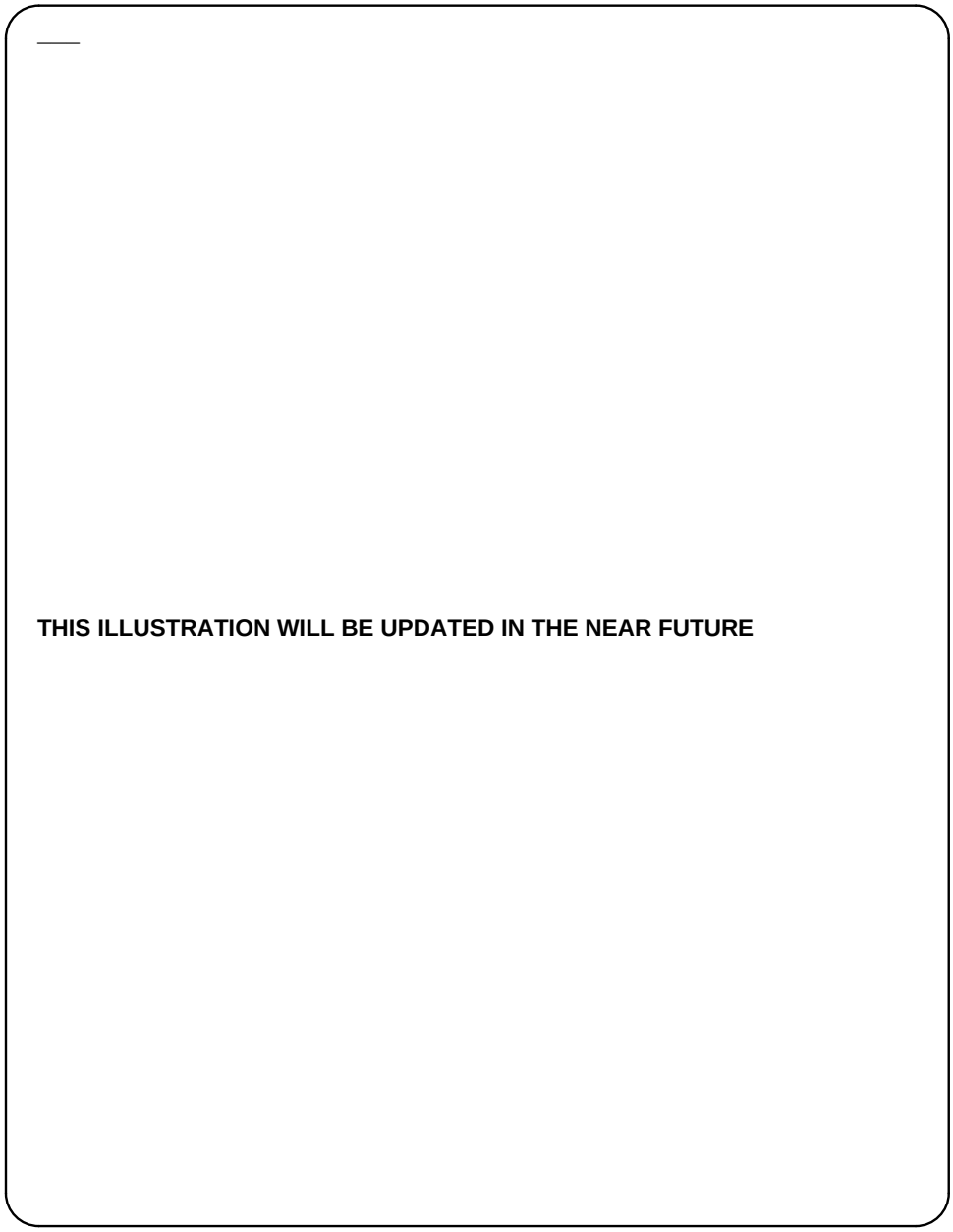


Figure 4-2. ARS Call Processing—Flow Diagram (Continued)

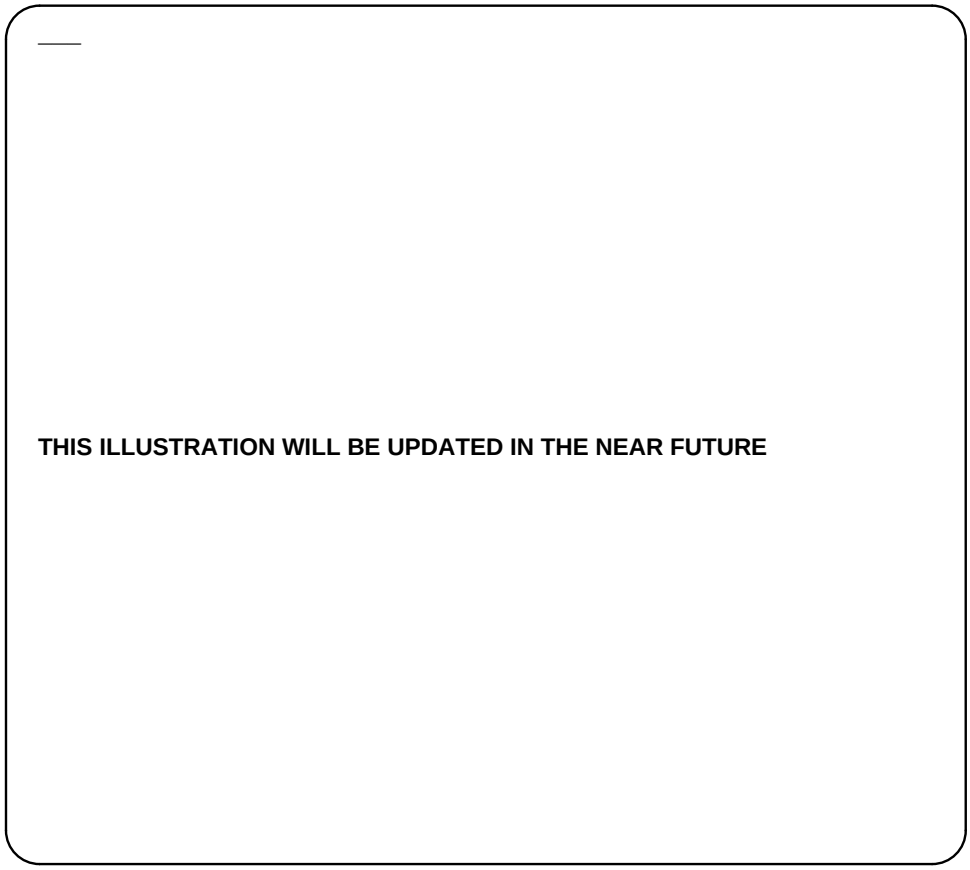


Figure 4-3. ARS Call Processing—Flow Diagram (Continued)

Finally, compatibility checks ensure that the calling party's FRL is greater than or equal to the routing preference's FRL, the BCC of the calling party matches the BCC specified for the routing preference if ISDN-PRI is optioned for on the System Parameters Customer Options form, and there is an unused circuit (trunk port) available in the selected trunk group. When all checks are okay, digits are outpulsed over a selected trunk group member.

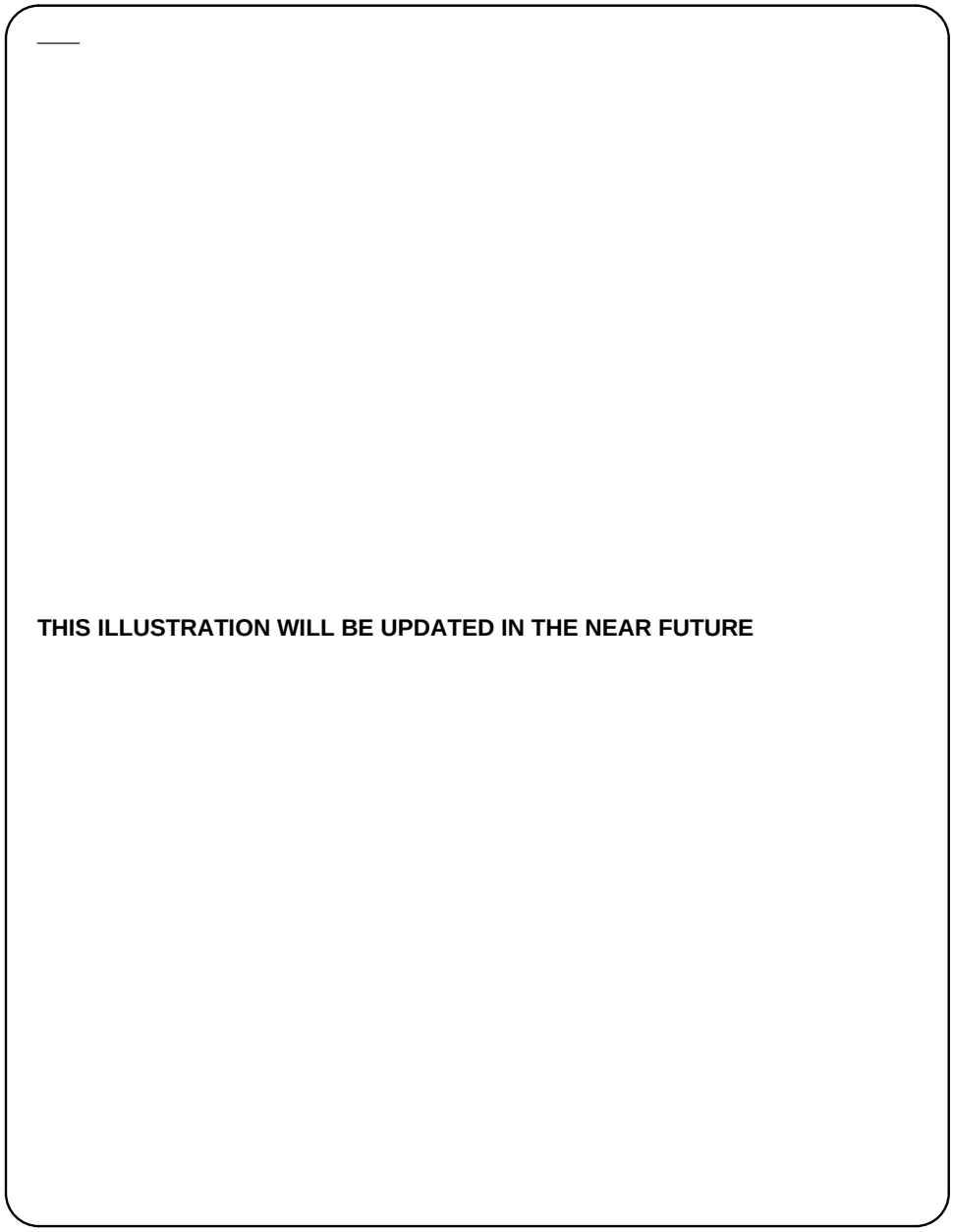


Figure 4-4. ARS Forms Summary

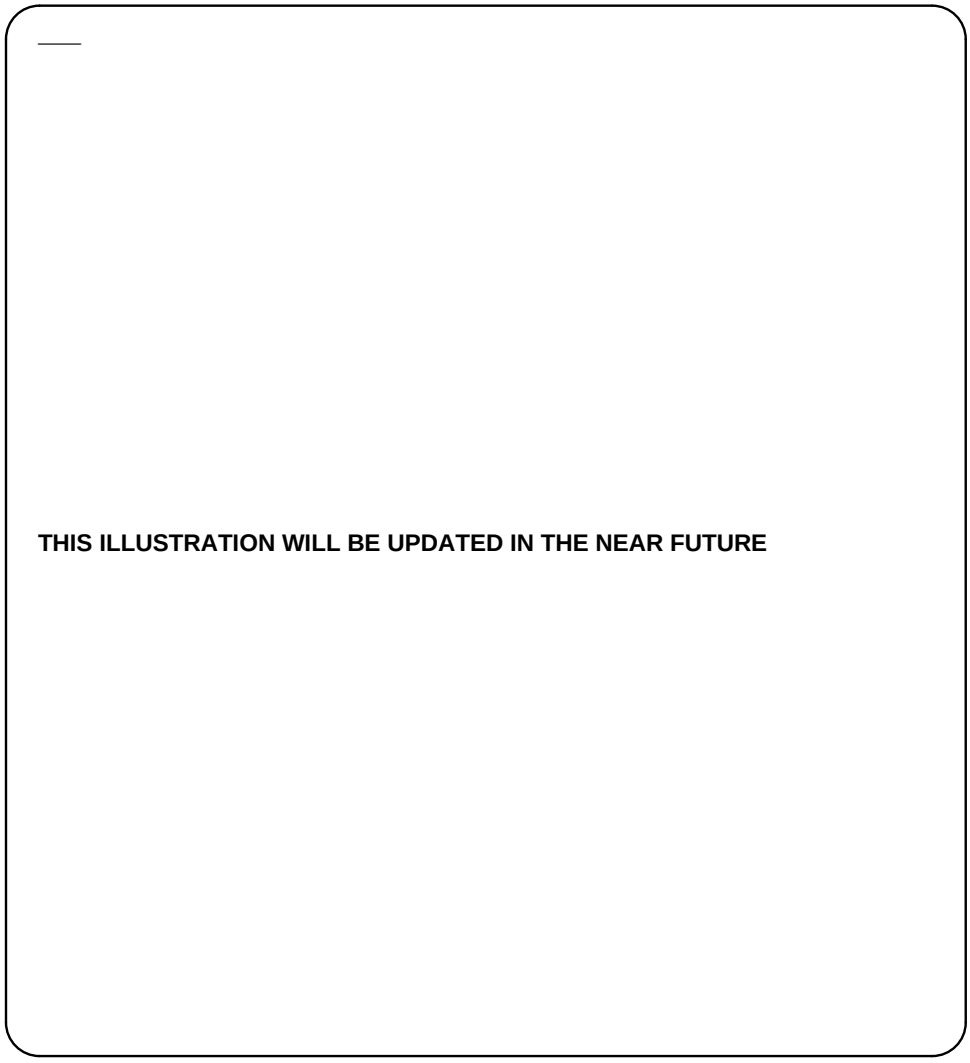


Figure 4-5. ARS Forms Summary (Continued)

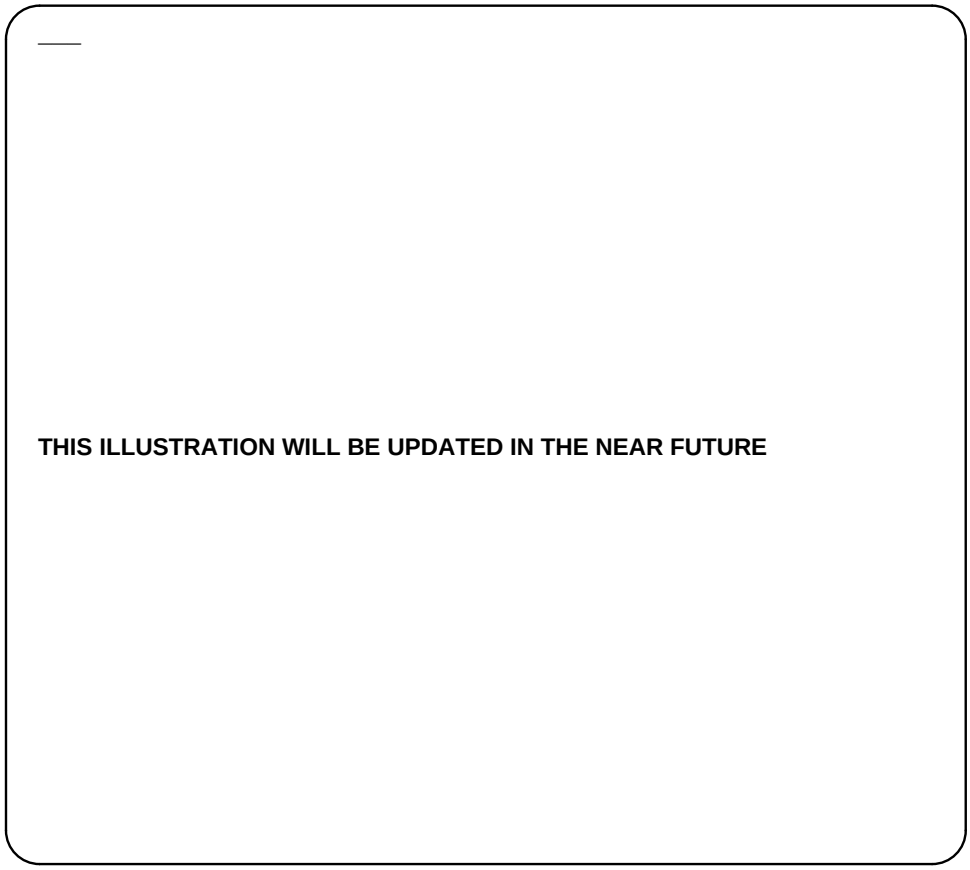


Figure 4-6. ARS Forms Summary (Continued)

Dialing Patterns

The System can be administered to recognize different types of dialing patterns on outgoing calls and can route the call accordingly. The following dialing patterns are supported.

NOTE:
Refer to Table 4-2 for default translations associated with the following.

- Operator Assistance Calls—The first digit following the ARS access code is a 0. If a 0 is dialed by itself to access an operator, a special interdigit time-out occurs, the route for dial 0 calls is selected and a 0# is outpulsed. If the user dials another 0, the route for 00 is selected, and a 00# is outpulsed. The call is routed to the toll operator (if one exists) instead of the local operator in this case.
- DDD Calls with Prefix Digit 1 Required—The Prefix Mark field (on the System's Routing Pattern form) can be administered as follows for each of the six possible routing choices on each form:

NOTE:
Prefix Mark operations only apply to fnpa or hnpa call types.

0 Do not outpulse prefix digit 1.

NOTE:
Prefix Mark 0 suppresses a user-dialed Prefix digit 1 for 10-digit FNPA calls, but leaves a user-dialed Prefix digit 1 for 7-digit HNPA calls. This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

1 Outpulse Prefix digit 1 for 10-digit calls. Prefix Mark 1 should be selected for those HNPAs that require users to dial 1 to indicate a toll call.

2 Outpluse prefix digit 1 for all toll calls and 7- and 10-digit calls whether the user dials 1 or not.

3 Outpulse prefix digit 1 all toll calls. These calls are always outpulsed as 10-digit numbers, even those within the HNPA.

4 Suppress a user-dialed Prefix digit 1.

NOTE:
This capability is required, for example, when routing ISDN-PRI calls to an AT&T 4ESS. If the prefix digit 1 were not suppressed, then the 4ESS would reject such calls.

NOTE:
Prefix Marks 2 and 3 must refer to a Toll Table.

One reason to dial a ''1'' prefix digit is to indicate a 7-digit toll call within the HNPA. This is particularly useful when there is a toll CO code in the HNPA, in addition to the same CO code (non-protected) in an adjacent NPA which can be accessed locally by dialing a 7-digit number. In order to permit 7-digit dialing for both calls, the toll call is prefixed by ''1''. When the user dials a ''1'' prefix followed by a 7-digit number, it will be treated as a toll call in the HNPA (even if the ARS Toll Table indicates local). When the user dials the same number without the ''1'' prefix, it is treated as a local call across the NPA boundary.

- DDD Calls with Prefix Digit 1 Not Required—The first digit of a long distance call following the ARS access code may or may not be a 1 (dialing the ''1'' prefix before a 10-digit call is optional). In Systems where the 1 prefix is dialed (even though not required), the prefix will be ignored.
- Operator Assisted and International Calls—The first digits following the ARS access code are a ''0'' (operator), 00 (toll operator), and optionally followed by a 10-digit DDD number, or by 01 or 010 (international operator) for international dialing and optionally followed by international

destination address digits. Because of the variable number of digits required for these calls, an interdigit time-out is used to recognize end of dialing.

The System employs a short inter-digit timer and a long inter-digit timer during the dialing process. If the digits dialed so far are a valid address (such as, ‘‘0’’) but more digits may follow, the short inter-digit timer will be started. If dialing does not continue before the timer expires, it is assumed that no more digits will follow. To override the short or long inter-digit timer for faster call processing, the originator may dial ‘‘#’’ to indicate end of dialing. A 10 s long inter-digit timer is used when the digits dialed so far are not a valid destination. Time-out of this timer results in Intercept tone to the caller. The user may, however, dial the # character on any of these calls to cancel the time-out interval and indicate end of dialing. The use of the # symbol to indicate end of dialing is applicable only with touch-tone stations and data modules.

A trailing # is outpulsed for a range of digits in the dialed string (such as, international calls) except when outputting dial pulses. An option on the trunk group form can be used to suppress ‘‘#’’ outpulsing. The dialed digits, including the prefix 0 and the trailing #, are always outpulsed as dialed except that # is never outpulsed when outputting dial pulses.

- International Direct Distance Dialing—An international telephone number consists of a Country Code (CC) plus the National Number (NN). The NN is simply the number used when calling within the country. In the North American Numbering Plan (NANP), NN is a 10-digit address. The CC is one to three digits and the combination of CC and NN is up to 12-digits. In the NANP, the System is alerted to the fact that an international number is being dialed by use of a special prefix code as follows:
  - 011—indicates that the caller is making a station paid direct international call and CC plus NN digits follow. The term IDDD (International Direct Distance Dialing) is normally associated with 011 plus (011+) station calls.
  - 01—indicates that the caller desires operator assistance in an international call, such as person-to-person, credit card, collect call, etc., and CC and NN digits follow. The term ICDOS (International Customer-Dialed and Operator-Serviced) reflects the nature of 01+ dialing options.

    A ‘‘01+’’ (ICDOS) call is similar to ‘‘0+’’ or ‘‘00+’’ (operator-assisted North American Network) call, whereas a ‘‘011+’’ (IDDD) call is similar to a ‘‘1+’’ call.
- Special Service Codes—The first digit following the ARS access code is a special system or service code. Such codes consist of only three digits in the form X11 (where X = 0–9) with or without dialing the 1 prefix digit. These are recognized as complete addresses, if no further digits are dialed, and are routed to the appropriate facility. The interdigit time-out determines whether the call is a 3- or 7-digit call. For example, if the user

dials 911, the call will route to the police/emergency operator, and if the user dials 811-XXXX, the call will be translated as a 7-digit call for the repair bureau corresponding to the last four digits (811 is a service code for repair).

- Call Dialed with Inter-Exchange Carrier (IXC) Access—The first digits following the ARS access code is a 5- or 7-digit IXC code. The System then makes a determination of the number of digits to collect based on the digits following the code. The IXC code may be followed by a DDD or IDDD number. This gives the user control over which carrier or facilities should be used for routing the call. However, the call will be routed based on administration of the IXC code in the ARS Analysis Table (see ARS Analysis Table).

  The System supports three general IXC access arrangements which are commonly referred to as Feature Group A, B, and D (FG A, FG B, FG D). From a callers perspective, the major differences between use of the various groups are:

  - To select an IXC, FG A and FG B require the dialing of seven digits (NXX-XXXX or 950-0/1XXX, respectively) but FG D requires just five digits (10XXX).
  - Single-stage dialing is supported for FG D but FG A and FG B require 2-stage dialing. (Two-stage dialing means that there is a pause for dial tone between the two groups of dialed digits.) FG A and FG B calls are analyzed and routed just like normal calls.
  - No customer identification digits are required for FG D.
  - A touch-tone telephone is required to enter a Personal Identification Number code when using FG A or FG B. (These digits are not collected or analyzed by the PBX.) A dial pulse or touch-tone telephone may be used with FG D.

  System default translation used for IXC call types are shown on Table 4-2.

ARS Analysis Table

This form is used to map customer dialed numbers (dialed strings) to routing patterns, using up to 18 digits.

NOTE:
The Automatic Route Selection feature must be enabled on the System-Parameters Custom-Options form before associated ARS forms can be administered.

Administration Commands

The following administration commands can be used to access the ARS Analysis Table form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2

for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	ars analysis	Enter digits between 0–9, ‘x’ or ‘X’ (dialed string) [‘part’ 1–8] [‘min’ 1–23]
display	ars analysis	Enter digits between 0–9, ‘x’ or ‘X’ (dialed string) [‘part’ 1–8] [‘min’ 1–23] [’print’ or ’schedule’]
list	ars analysis	[start-dialed string] [‘count’ 1–2000 [‘rp’ 1–640 or r1–r32] [‘part’ 1–8] [’print’ or ’schedule’]
list	ars route chosen	Enter dialed number, [partition (1–8)], [’print’ or ’schedule’]

Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form.

- Percent Full—3-character display-only field. Displays the percentage of the System’s memory resources that have been used. A common pool of memory resources is shared between the ARS and AAR Analysis tables, the ARS and AAR Digit Conversion tables, and the Toll Analysis table.

  If this field display indicates that the System memory resources are in jeopardy of becoming full (100%), perform any of the following to ‘‘free-up’’ memory resources:

  — Delete unnecessary entries from any of the shared resources tables.

  — Utilize RHNPA tables for 6-digit ARS routing.

  — Reduce dialed string field entries to shortest possible length that accomplishes the desired function.

- Partitioned Group Number (PGN)—When completing a paper form, enter the PGN to be associated with this table. Valid entries are 1–8; default is 1.

- Dialed String—Enter the dialed string of significant digits. Up to 18 characters consisting of the digits 0–9 are allowed. A wild card letter ‘‘x’’ or ‘‘X’’ may be used to substitute for any digit occurring in the string at the character position where used. Valid entries are 0–9, ‘‘x’’, ‘‘X’’, or blank; default is blank.

  NOTE:
  The user dialed digits are matched to the Dialed String field entry that most closely matches the dialed number (referred to as the

''longest match''). For example, if a user dials 957-1234 and the ARS Analysis Table has Dialed String entries of 957-1 and 957-123, the match is on the 957-123 entry. In addition, an exact match is made on Dialed string entries of the same number of digits in cases where wild card characters (Xs) are used. For example, if 411 is dialed and the table has Dialed String entries of 411 and X11, the match is on the 411 entry.

- Min—Enter the minimum number of digits needed to validate and route the call. Valid entries are 1–23; default is blank.
- Max—Enter the maximum number of digits needed to validate and route the call. Valid entries are 1–23; default is blank.
- Route Pat (Routing Pattern)—Enter the routing pattern number (1–640), a pointer to an associated Remote Home Number Plan Area (RHNPA) form (r1–r32) to be used to route the call once all identifying digits have been received, ''node'' to use node number routing, ''n/a'' to indicate that routing is not applicable to this PGN, ''deny'' to block the call, or blank; default is blank.
- Call Type—Valid call types are:

CALL TYPE	DESCRIPTION
fnpa	10-digit call (11 digits with Prefix Digit ''1'')
hnpa	7-digit call
int	international
iop	international operator
natl	(no special attribute—used for international applications)
op	operator
svc	service

- Node Num—The number of the destination node for the dialed string, if node number routing is used.

Table 4-2 provides a listing of all ARS Analysis default translations.

NOTE:
Any dialed digit string not accounted for on the table is considered invalid and the call is routed to intercept. These default translations are used for call processing regardless of whether ARS has been optioned for on the switch.

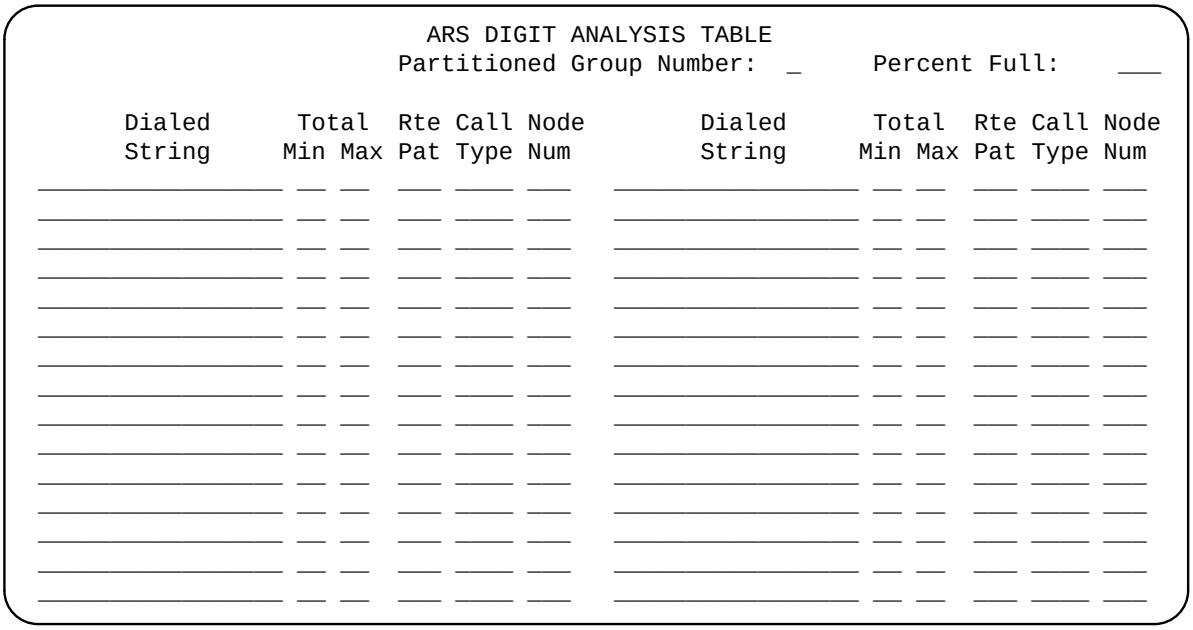
The translations shown on Table 4-2 appear only once in the switch's memory but are displayed in sorted order (including additions) on each of the eight possible ARS Analysis Table forms when displayed.

Table 4-2. ARS Analysis Default Translations

Dialed String	Total Digits Min.	Total Digits Max.	Route Pattern	Call Type	Node Num
0	1	1		op	-
0	11	11		op	-
00	2	2		op	-
00	12	12		op	-
01	10	23		iop	-
010	3	3		iop	-
011	10	23		int	-
1	11	11		fnpa	-
10XXX	5	5		op	-
10XXX0	6	6		op	-
10XXX0	16	16		op	-
10XXX00	7	7		op	-
10XXX00	17	17		op	-
10XXX01	15	23		iop	-
10XXX010	8	8		iop	-
10XXX011	15	23		int	-
2	7	7	1	hnpa	-
3	7	7	1	hnpa	-
4	7	7	1	hnpa	-
5	7	7	1	hnpa	-
6	7	7	1	hnpa	-
7	7	7	1	hnpa	-
8	7	7	1	hnpa	-
9	7	7	1	hnpa	-
X11	3	3		svc	-

Legend:

fnpa - foreign number plan area (10-digit call)
hnpa - home number plan area (7-digit call)
int - international
iop - international operator
op - operator
svc - service
X - any digit (0–9)



```
                          ARS DIGIT ANALYSIS TABLE
                        Partitioned Group Number:  _     Percent Full:    ___

      Dialed       Total  Rte Call Node        Dialed       Total  Rte Call Node
      String     Min Max Pat Type Num         String     Min Max Pat Type Num
____________________ __ __ ___ ____ ___   ____________________ __ __ ___ ____ ___
____________________ __ __ ___ ____ ___   ____________________ __ __ ___ ____ ___
____________________ __ __ ___ ____ ___   ____________________ __ __ ___ ____ ___
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```

ARS Analysis Table Form

ARS Digit Conversion Table

This form is used to convert public network numbers (ARS). Its purpose is to save toll charges and to allow users to dial all calls using a public network number. Also, unauthorized public network calls can be routed to an attendant or given intercept tone.

The form allows for the replacement of all or part of a dialed digit string with a modified string. The modified string represents an alternative equivalent address and results in the call being analyzed according to the modified string and specified type. If the ARS Access Code is dialed (or a number is converted to ARS), this table is accessed during call processing. Up to 400 entries in software can be shared between this table and the AAR Digit Conversion Table.

The ARS Digit Conversion feature enhances the capabilities of the ARS feature so that outgoing public network calls and private network calls can be changed to local, private, or public network destinations. The calls are then analyzed via the UDP, AAR, or ARS feature respectively.

The Automatic Route Selection feature must be enabled on the System-Parameters Customer-Options form before associated forms and fields on forms can be administered.

Administration Commands

The following administration commands can be used to access the ARS Digit Conversion Table form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	ars digit-conversion	Enter digits between 0–9 ‘x’ or ‘X’
display	ars digit-conversion	Enter digits between 0–9, ‘x’ or ‘X’ ['print' or 'schedule']
list	ars digit-conversion	Enter ['start' matching pattern] ['count' (1–400)] ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form.

NOTE:
When the form is accessed via an administration command such as *display* or *change*, the entries are sorted separately in the order of the matching pattern. Specific digits are sorted before the wild card character ''x'' or ''X''.

- Percent Full—3-character display-only field. Displays the percentage of the System's memory resources that have been used. A common pool of memory resources is shared between the ARS and AAR Digit Conversion tables.

  If the Percent Full field display indicated that the System memory resources are in jeopardy of becoming full (100%) perform any of the following to ''free-up'' memory resources:

  — Delete unnecessary entries from any of the shared resources tables.

  — Utilize RHNPA tables for 6-digit ARS routing.

  — Reduce dialed string field entries to shortest possible length that accomplishes the desired function.

- Matching Pattern—Enter a 1- to 18-digit string to be matched against a dialed number. Matching Pattern entries must be unique within the table. The string may contain the digits 0–9 and wild card character ‘‘x’’ or ‘‘X’’ which is used to match any digit in the range of 0–9.

  If the associated Replacement String field has an entry, the Matching Pattern field must have an entry.

- Min—The minimum number of digits in the dialed string.
- Max—The maximum number of digits in the dialed string.
- Del—The number of digits to delete from the beginning of the dialed string (this may be ‘‘0’’).
- Replacement String—Enter a 1- to 18-digit string which will replace the deleted portion of the dialed number. The string may contain the digits 0–9, a # character, or be blank (no entry). The # character, when used, must be at the end of the digit string and is used to signify end of dialing.

  NOTE:
  A blank replacement string has the effect of just deleting the matched portion of the dialed digit string. The # character in the replacement string signifies the end of the modified digit string so that any digits dialed by the user after the matched portion of the string are ignored by the AAR/ARS features. Deletion of digits and blank replacements are used to crossover from ARS to AAR.

- Net—The network in which to analyze the resulting number. Enter ‘‘ext’’, ‘‘aar’’, or ‘‘ars’’.
- Conv—Enter ‘‘y’’ or ‘‘n’’. To allow further conversion enter ‘‘y’’.

Table 4-3 provides several ARS Digit Conversion examples.

The following conditions are assumed: ARS Access Code = 9, AAR Access Code = 8, Home RNX = 222, Prefix ‘‘1’’ required on all long-distance DDD calls, Dashes (‘‘-’’) shown on table are for readability only.

Table 4-3. AAR/ARS Digit Conversion Examples

DDD Call to ETN:

Actual Digits Dialed	Min/ Max	Matching Pattern	Digits Deleted	Replace-ment String	Modified Address	Net-work Used	Note
9-1-303-538-1345	11/11	1-303-538	7	362	362-1345	AAR	1
Terminating local DDD call to an internal station:							
1-201-957-5567	11/11	1-201-957	7	none	5567	Ext	2
957-5567	7/7	957	3	none	5567	Ext	2
Unauthorized call to intercept:							
9-1-212-976-7777	11/11	1-XXX-976	11	#	blank	Ext	3
International Calls to Attendant:							
9-011-91-672530	4/23	011-91	none	222-0111#	222-0111	AAR	4
International DDD Calls to Attendant:							
9-011-91-672530	4/23	011-91	Note 5	4567#	4567	Ext	5,6
Call to Local NPA:							
1-201-956-2222	11/11	1-201-956	7	956	956-2222	ARS	7

NOTE:

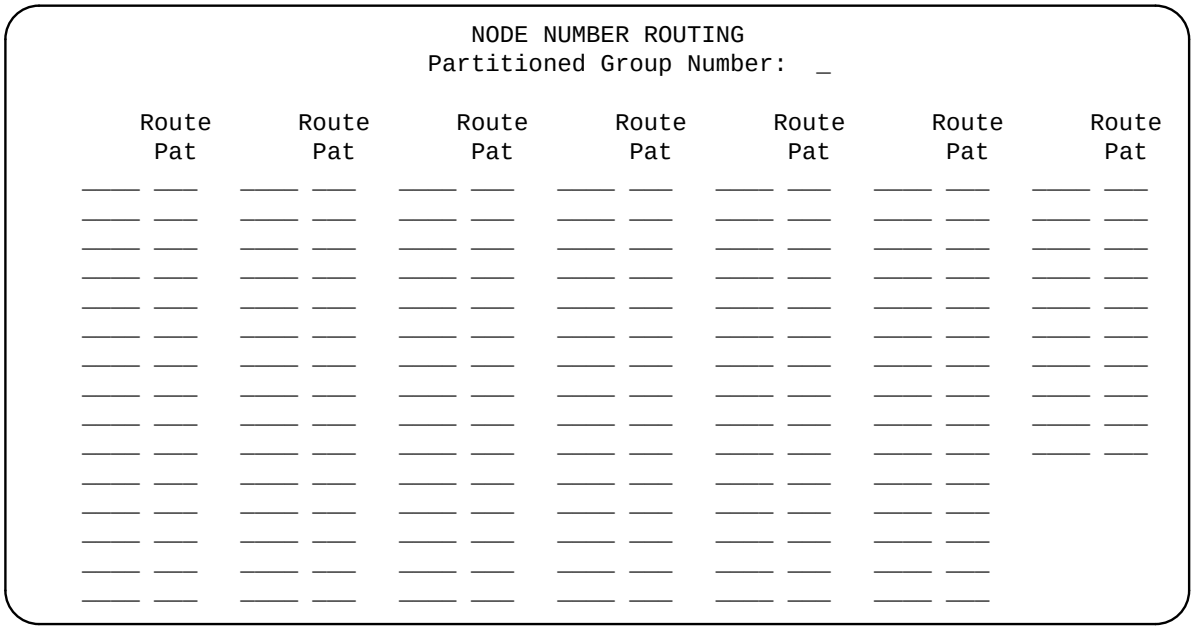
1. Routing pattern associated with RNX 362 will be selected.
2. Call terminated to 222, Extension 5567.
3. # Signifies the end of dialing. All calls to CO code 976 are blocked.
4. Call routed to local switch (RNX 222), then the attendant (0111). May also be used to block unauthorized IDDD calls. Route call to announcement by replacing 0111 with an announcement extension.
5. The # sign in a replacement string ends the digit string so non-deleted digits are discarded as well.
6. Call routed to announcement extension.
7. Call routed to local CO.

NOTE:
The dialed digits within the Min/Max range are matched to the Matching Pattern that most closely matches the dialed number (called the longest match). For example, if the dialed string is 957-1234 and matching patterns 957-1 and 957-123 are in the table, the match is on pattern 957-123. If a match is found (with the same number of digits) on entries both employing and not employing wild card characters (Xs), the match not employing wild card characters is used. For example, if 411 is dialed and the table has Matching Pattern entries of 411, X11, 4X1, and 41X are used, the match is on the 411 entry.

```
                    ARS DIGIT CONVERSION TABLE
                                              Percent Full: ___

Matching Pattern     Min   Max   Del   Replacement String   Net  Conv
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
____________________ __    __    __    ____________________ ___   _
```

ARS Digit Conversion Table Form



Node Number Routing Form

ARS Toll Table

This form is used to specify whether calls to central office codes listed on the table are, with respect to the distant end of the trunk group, toll or nontoll calls.

The form is used to assign Toll Tables as required for ARS subnet trunking. One form is required for each block of 100 central office codes.

Administration Commands

The following administration commands can be used to access the ARS Toll Table form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	ars toll	n:xxx (1–32:office code)
display	ars toll	n:xxx (1–32:office code) [’print’ or ’schedule’]

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

- ARS TOLL TABLE—Enter the Toll Table number from 1–32. Up to eight forms may be required for each table, one for each hundreds block, 2–9.
- OFFICE CODES—Enter a hundreds block, that is, 200–299 through 900–999. A separate form is required for each hundreds block.
- 00: through 99:—Enter ‘‘n’’ beside each central office code to be designated as non-toll. These fields represent the last two digits of the codes within the hundreds block. If no changes are made, the codes are implemented as toll-type codes (default).

```
                              ARS TOLL TABLE: __              Page 1 of 1

                            OFFICE CODES: x00-x99
00: y   10: y   20: y   30: y  40: y  50: y  60: y  70: y  80: y  90: y
01: y   11: y   21: y   31: y  41: y  51: y  61: y  71: y  81: y  91: y
02: y   12: y   22: y   32: y  42: y  52: y  62: y  72: y  82: y  92: y
03: y   13: y   23: y   33: y  43: y  53: y  63: y  73: y  83: y  93: y
04: y   14: y   24: y   34: y  44: y  54: y  64: y  74: y  84: y  94: y
05: y   15: y   25: y   35: y  45: y  55: y  65: y  75: y  85: y  95: y
06: y   16: y   26: y   36: y  46: y  56: y  66: y  76: y  86: y  96: y
07: y   17: y   27: y   37: y  47: y  57: y  67: y  77: y  87: y  97: y
08: y   18: y   28: y   38: y  48: y  58: y  68: y  78: y  88: y  98: y
09: y   19: y   29: y   39: y  49: y  59: y  69: y  79: y  89: y  99: y
```

ARS Toll Table Form (Page 1 of 1)

Automatic Transmission and Measurement System (ATMS)

To be provided.

Centralized Attendant Service

Allows services performed by attendants in a private network of switching systems to be concentrated at a central, or main, location. Each branch in a Centralized Attendant Service (CAS) has its own listed directory number (LDN) or other type of access from the public network. Incoming trunk calls to the branch, as well as attendant-seeking voice terminal calls, are routed to the centralized attendants over release link trunks (RLTs).

The only network-type form that requires implementation in support of the Centralized Attendant Service feature is the Release Link Trunk Group form. The form and its associated instructions are provided in the Trunk Groups section of this chapter.

Refer to ''Centralized Attendant Service'' in Chapter 3 for a complete listing of all System forms and/or fields on forms that must be completed or considered when implementing Centralized Attendant Service. Forms such as the Attendant Console, Console Parameters, Feature Access Codes, etc., that support both networking and other functional areas such as voice and data management may also require implementation.

NOTE:
The Centralized Attendant Service (branch) or Centralized Attendant Service (main) feature, as applicable, must be enabled on the System-Parameters Customer-Options form before the Centralized Attendant feature can be implemented.

CPN Prefix Table

This form is used to support the ISDN Call Identification Display feature. The feature provides a name/number display for display-equipped stations within an ISDN-PRI network. The System uses the calling party's name/number information and displays it on the called party's display, if provided. Likewise, the called party's name/number can be displayed on the calling party's display.

The ISDN-PRI option must be enabled on the System-Parameters Customer-Options form before this form can be administered.

The CPN (Calling Party Number) Prefix Table provides the following:

- Allows the calling party's number to be displayed on the called party's display and the connected party's number to be displayed at the calling party's display. The information display may be disabled for privacy reasons.
- Allows a 10-digit CPN number to be displayed instead of the calling party's number.
- Allows up to 240 entries with up to 48 entries per page.

Administration Commands

The following administration commands can be used to access the CPN Prefix form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier
change	isdn	cpn-prefix
display	isdn	cpn-prefix

Form Instructions

Make assignments as required for the following fields on each page of the form.

Pages 1–5 of the Form

- Ext Len—Specifies the number of digits the extension can have. Enter a number from 1 to 5 that corresponds to the extension lengths allowed by the dial plan.
- Ext Code—Allows for groups of extensions to be administered. The Ext Code can be up to five digits long depending on the Ext Len field entry. The entry cannot be greater than the Ext Len field entry. For example, in the case of a 4-digit Ext Len field entry, an Ext Code of 12 is the equivalent of all extensions of the form 12xx, excluding any explicitly listed longer codes. If a code of 123 is also listed, the 12 code is equivalent of all extensions of the form 12xx except extensions of the form 123x. The coding precludes having to list all the applicable 12xx extensions. Valid digits are 0–9.

  NOTE:
  When ‘‘0’’ alone is entered, the Ext Len field must be ‘‘1’’ and the DDD number must be 10-digits long.

- CPN Prefix—Specifies the number that is added to the beginning of the extension to form a 10-digit CPN number. The CPN Prefix can be a 6- to 10-digit number, or can be blank. If it is a 10-digit number, the extension number is not used to formulate the 10-digit CPN number. Only digits are allowed in the CPN Prefix column. Leading spaces, or spaces in between the digits, are not allowed.

  If the number of digits in the CPN Prefix plus the extension length exceeds ten, excess leading digits of the extension are deleted when formulating the 10-digit CPN number. If the number of CPN Prefix digits plus the extension length is less than ten, the entry is disallowed except for a blank entry. If the CPN Prefix entry is left blank, no calling party number information is provided to the called party and no connected party number information is provided to the calling party.

CPN PREFIX TABLE Page 1 of 5

Ext Len	Ext Code	CPN Prefix	Ext Len	Ext Code	CPN Prefix	Ext Len	Ext Code	CPN Prefix
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________
_	_____	__________	_	____	__________	_	____	__________

CPN Prefix Table Form (Page 1 of 5)

(To reduce repetition, pages 2–5 are not shown.)

DS1 Trunk Service

DS1 Trunk Service provides a set of digital trunks utilizing the DS1 circuit pack (TN464C, TN722B, or TN767) that support both voice and data communications.

Digital interfaces for the following types of trunks are supported:

- Alternate Voice/Data (AVD) DS1 Tie Trunks
- Central Office Trunks
- Digital Multiplexed Interface (DMI) Tie Trunks
- Direct Inward Dialing Trunks
- Direct Inward and Outward Dialing Trunks
- Foreign Exchange (FX) Trunks
- ISDN-PRI Trunks
- Off-Premises Stations
- Remote Access Trunks
- Voice-Grade DS1 Tie Trunks

- Wide Area Telecommunications (WATS) Trunks.

Refer to Chapter 3 for a complete listing of all forms that must be completed or considered when assigning DS1 Tie Trunk Service. The DS1 circuit pack form instructions are provided following this introduction.

The following paragraphs provide a brief description of each of the types of trunks supported by the DS1 digital interface.

Alternate Voice/Data (AVD) Tie Trunks

AVD DS1 tie trunks permit alternate voice and data calling between DEFINITY systems, System 75s, and System 85s.

AVD DS1 tie trunks can be used to connect the System with other digital switches.

The TN722B, TN767, or TN464C DS1 circuit pack is used to support AVD DS1 tie trunks in the Common Channel Signaling mode. The Common Channel Signaling mode supports 23 trunks for data transmission and 1 trunk for signaling purposes.

This type of tie trunk uses DS1 transmission facilities in the ''Domestic DS1'' format, which is a 1.544-Mbps digital signal that consists of a 1.536-Mbps signal multiplexed with an 8-kbps framing signal.

CO, FX, and WATS Trunks

When the DS1 interface (TN767 or TN464C DS1 circuit pack) is used to provide CO, FX, or WATS trunk group service with incoming and outgoing types of ground start or loop start, Robbed Bit Signaling must be used.

When the DS1 interface is used to provide CO, FX, or WATS trunk group service with incoming/outgoing dial types administered as auto/auto, auto/delay, auto-immediate, or auto/wink, either Common Channel Signaling or Robbed Bit Signaling can be used.

When the DS1 interface is used to provide CO, FX, or WATS trunk group service with incoming and outgoing types of ground start or loop start, outgoing trunk calls do not receive answer supervision. Instead, the answer supervision is simulated by the DS1 circuit pack.

DMI Tie Trunks

DMI tie trunks use Bit Oriented Signaling or ISDN-PRI signaling to interface with a host computer, another PBX, or a public or private network.

In addition, the TN767 or TN464C DS1 circuit pack supports DMI tie trunks in the ISDN-PRI signaling mode. This mode supports 23 trunks for data transmission and one trunk for signaling purposes.

This type of tie trunk uses DS1 transmission facilities in the ‘‘Domestic DS1’’ format, which is a 1.544-Mbps digital signal that consists of a 1.536-Mbps signal multiplexed with an 8-kbps framing signal.

When the DS1 circuit pack is assigned ISDN-PRI signaling, Robbed Bit Signaling and ISDN-PRI signaling can be used over the same DS1 interface. Trunk groups administered with a communication type of ‘‘voice’’ can use Robbed Bit signaling and trunk groups administered with a communication type of ‘‘isdn’’ can use the ISDN-PRI signaling.

DID Trunks

When the DS1 interface is used to provide DID trunk group service, Robbed Bit Signaling must be used.

ISDN-PRI Trunks

When the DS1 interface is used to provide ISDN-PRI trunk group service, a TN767 or TN464C DS1 circuit pack must be used. ISDN-PRI trunks provide end-to-end digital connectivity within the network and can provide national and international digital connectivity to other ISDNs that support the PRI standard.

ISDN-PRI trunks can carry calls for various switched services and/or features such as MEGACOM 800 service, MEGACOM service, OUTWATS, and LDS (Long-Distance Service). Inter-exchange carrier calls may also be processed. The trunks support integrated voice and data transmission.

A TN767 or TN464C DS1 circuit pack utilizing ‘‘isdn-pri’’ signaling must be used when supporting ISDN-PRI trunks. This mode of signaling supports 23 trunks for data transmission and 1 trunk for signaling.

Off-Premises Stations

DS1 off-premises stations do not receive System message waiting indications.

When the DS1 interface is used to provide off-premises stations, Robbed Bit Signaling (RBS) must be used.

Remote Access Trunks

Signaling for remote access trunks depends on the trunk group and incoming/outgoing dial types.

Voice-Grade DS1 Tie Trunks

The Voice-Grade DS1 tie trunks are an alternative to 4-wire analog E&M tie trunks and may be used to interface with other properly-equipped switching systems.

Voice-Grade DS1 tie trunks can also be used as the following:

- Electronic Tandem Network (ETN) or Tandem Tie Trunk Network (TTTN) tie trunks
- Main/Satellite tie trunks
- Tie trunks used to interface with Enhanced Private Switched Communications Service (EPSCS) and Common Control Switching Arrangement (CCSA) networks
- Release link trunks for Centralized Attendant Service (CAS)
- Access Trunks.

The TN722B, TN767, or TN464C DS1 circuit pack is used to support Voice-Grade DS1 tie trunks in the RBS mode. The RBS mode supports 24 trunks for transmission on the circuit pack because the least significant bit (''robbed'') in every sixth frame of data transmission is replaced by a signaling bit.

This type of tie trunk uses DS1 transmission facilities in the ''Domestic DS1'' format, which is a 1.544-Mbps digital signal that consists of a 1.536-Mbps signal multiplexed with an 8-kbps framing signal.

DS1 Circuit Pack

This form is used to administer parameters for the TN722, TN722B, TN767, and TN464C DS1 circuit packs. If the circuit pack has not been physically installed, it must be logically installed using the Circuit Pack Administration form before the parameters on this form can be administered.

The DS1 circuit pack provides a DS1 format (digital data rate of 1.544-Mbps), digital, multi-channel interface between the System and T1 transmission facilities, or it may be directly connected to local DS1 terminal equipment (if the distance is relatively short—that is, less than a quarter of a mile) which includes a DS1 interface to another switch, a D4 channel bank, a channel division multiplexer, or a channel expansion multiplexer. On the switch side, the DS1 interface provides 23 unrestricted (voice or 64 kb data) or 24 restricted (voice) digital trunks depending on signaling mode. When configured for 64 kb data, these trunks support voice and data communication including Alternate Voice and Data (AVD), Digital Multiplexed Interface (DMI), and Integrated Services Digital Network—Primary Rate Interface (ISDN—PRI) services.

The TN722B must be used instead of a TN722 when supporting DMI-Bit Oriented Signaling. A TN464C must be used for ISDN-PRI and can also support TIE, CO, DID, and Off-Premises Station signaling, when required.

After DS1 circuit pack parameters have been administered, the following must also be considered:

- Signaling Groups must be assigned using the Signaling Group form.
- Individual trunks must be assigned using appropriate trunk group forms.
- Parameters that govern automatic control of clock synchronization may be administered using the Synchronization Plan form for those DS1 circuit packs that are to be primary or secondary synchronization sources.

Administration Commands

The following administration commands can be used to access the DS1 Circuit Pack form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	ds1	[P]Css**
change	ds1	[P]Css(board)
display	ds1	[P]Css
list	measurements ds1	location
list	measurements ds1-log	location
remove	ds1	[P]Css

* Brackets [ ] indicate the qualifier is optional.

** [P] — part of qualifier representing pnn
C — part of qualifier representing carrier (A–F)
ss — part of qualifier representing slot number (01–20).

Form Instructions

Make assignments as required for the following fields on the form:

- Location—Display-only field when accessed using an administration command such as *add* or *change*. Enter the DS1 Interface circuit pack port location when completing a paper form. Enter 5 to 6 characters. The first character identifies the port network (1–22, default is 1); the second character identifies the carrier (A–E); the third and fourth characters identify the slot number in the carrier (01–20 for multi-carrier cabinets [depending on carrier type] or 01–18 for single-carrier cabinets [depending on cabinet type]); the last two characters identify the circuit number (01–24). The location should also be identified for record purposes on the Port Assignment Record and the Circuit Pack Administration form as described in *Generic 1 and Generic 3—Installation and Test* (555-230-104).

- Name—Enter the name of the DS1 link (limit 15 characters). Typically, this is the destination of the link.
- Line Compensation—Enter a number from 1–5 as follows (default is 1):
  - — For 22-gauge ABAM cable terminated on a DSX-1 cross-connect:

Compensation	Length (feet)
1	000 - 133
2	133 - 266
3	266 - 399
4	399 - 533
5	533 - 655

  - — For 22-gauge ABAM cable terminated on DS1 terminal equipment such as a D4 Channel Bank or another System:

Compensation	Length (feet)
1	0000 - 0266
2	0266 - 0532
3	0532 - 0798
4	0798 - 1066
5	1066 - 1310

- Zero Code Suppression—Enter ‘‘b8zs’’ (bipolar eight zero substitution) or ‘‘zcs’’ (zero code suppression). This method must match the method used on the other end of the link. This entry indicates which line coding format will be used to ensure that the data meets T1-carrier requirements. When the DS1 circuit pack is used for ISDN, the ISDN D-channel data is inverted when ‘‘zcs’’ is entered and not inverted when ‘‘b8zs’’ is used. Far-end System 85 Generic 2 system and 4 ESS™ switch administer whether or not the the D-channel data will be inverted.

  Binary eight zero code suppression (b8zs) is an alternate line coding technique which uses a bipolar violation to ensure adequate ‘‘ones’’ density in a bit sequence. Eight zeros in an 8-bit sequence triggers the bipolar violation.

  Zero code suppression (zcs) is a line coding method that checks for all zeros in an 8-bit time slot and, if all zeros exist, bit 2 is changed from a 0 to a 1. This method of line coding ensures adequate timing recovery of regenerative 56-kbps or less digital facilities.
- Framing Mode—Enter ‘‘d4’’ or ‘‘esf (default is ‘‘esf’’)’’. This mode must match the method used on the other end of the link. The network diagram should indicate which choice for the particular DS1/T1-span. D4 is a framing format of 12 frames for analog representation on T1 carrier using

DS1 signals. ESF is an extended frame format on T1 carrier using DS1 signals in which 24 frames are used to convey signaling for the channels.

- Signaling Mode—Enter ''common-chan'', ''robbed-bit'', or ''isdn-pri'' (default is ''common-chan''). This mode must match the method used on the other end of the link.

  Common Channel Signaling (common-chan) is an industry standard signaling technique in which the signals on one facility control the operation of several facilities. When applied to DS1 operation, it is a signaling technique in which any 1 of the 24 channels carries the signals for the other 23 channels. AT&T implementation of common channel signaling uses the 24th channel for carrying the signals. This signaling technique is a much broader concept than 24th channel signaling and is not limited to DS1 facilities [also called clear channel, out-of-band, or Alternate Voice Data (AVD) signaling]. (AVD signaling is a term that is often used; however, the term is incorrectly used. AVD is a term used when referring to a trunk group that can be used for both voice and digital applications.)

  Robbed-Bit Signaling (robbed-bit) is a per-channel signaling technique for transmitting signaling bits within each band on each of the 24 channels in a DS1 facility. The least significant bit in every sixth transmitted information frame is ''robbed'' and replaced by a signaling bit. Also called ''in-band'' signaling. For voice tie trunks, enter ''robbed-bit'' and ''common-chan'' for alternate voice data (avd) trunks.

  The choice of ''isdn-pri'' requires that the TN464C DS1 Interface circuit pack be used. This choice will enable ISDN-PRI signaling to be carried over the 24th channel of the DS1 interface, and will cause the DMI-BOS field not to be displayed and the Connect field to be displayed on the form.

- DMI-BOS—Enter ''y'' (default) to activate the Digital Multiplexed Interface Bit Oriented Signaling (DMI BOS) mode when the signaling mode is common-channel and a TN722B, TN767, or TN464C circuit pack has been installed. Valid entries are ''y'' or ''n''. This field is not displayed if ''isdn-pri'' is entered in the Signaling Mode field.

  Digital Multiplexed Interface/Bit-Oriented Signaling (DMI/BOS) is a 24th channel signaling scheme using a DS1 facility which uses 23 message channels and 1 signaling channel (24th). DMI/BOS has greater capacity (ability to carry 64-kbps channels) than the 24th channel Robbed-Bit Signaling scheme. Entering ''n'' indicates the DS1 will provide the AT&T proprietary format; ''y'' indicates the DS1/DMI interface will provide the DMI format.

- Connect—Displayed when Signaling Mode is ''isdn-pri''. Specify what is on the far end of the PBX in order to control Layer 3 protocol properly. If ''pbx'' is entered, the Interface field is displayed. Valid entries are ''network'' (default), ''host'', and ''pbx''.

- Interface—Displayed when Connect is ‘‘pbx’’. Specify whether the PBX corresponds to the ‘‘network’’ or ‘‘user’’ (default) side of the interface, which is needed for the Layer 2 protocol and is also used at Layer 3 to handle glare conditions. For other cases, the required entry is inferred from the Connect field entry: a ‘host’’ connection implies a ‘‘network’’ interface, and a ‘‘network’’ connection implies a ‘‘user’’ interface.

  NOTE:
  When the far-end is a DEFINITY Generic 3i or Generic 3r system, the Interface field on one end of the connection must be ‘‘user’’ and the other end must be translated as ‘‘network’’.

- Slip Detection—Enter ‘‘y’’ to enable the slip-rate status of this circuit pack to be used by maintenance software to determine whether an excessive frame slip rate exists. Enter ‘‘n’’ (default) when DMI is used or when testing is not required.

  NOTE:
  Those DS1/T1 facilities that are used to provide the primary and secondary synchronization references should be administered for slip detection ‘‘y’’. Typically, those other DS1/T1 spans that are used for data applications and which are deemed very important should also be administered for slip detection. This excludes all T1-spans connecting channel banks, unless the channel bank is externally timed. Normally, those DS1/T1 spans that are used exclusively for voice and which are not designed as the primary or secondary synchronization source should be administered for slip detection ‘‘y’’. Refer to the network synchronization diagram to determine which option to choose.

  The digital switch maintains a slip count record for each DS1 interface. The slip count is used to determine if the T1-span is experiencing errors and, if so, the severity of the errors (type alarm). Option ‘‘y’’ enables switching between the primary, secondary, or internal high-accuracy clock.

  NOTE:
  If as many as 50 percent of those spans that are administered for slip detection are experiencing slips (with respect to the primary), then a decision is made to switch to the secondary.

- Remote Loop-Around Test—Enter ‘‘y’’ to allow testing or ‘‘n’’ (default) to deny testing. This test is not possible unless the DS1 is connected to appropriate equipment such as a DSX-1 cross-connect or a DMI interface. Enter ‘‘n’’ unless the testing is extremely important.

```
                              DS1 CIRCUIT PACK                 Page 1 of 1

          Location: _____                            Name: _________________
 Line Compensation: 1                Zero Code Suppression: zcs_
      Framing Mode: esf                     Signaling Mode: common-chan____
           DMI-BOS? n

                           MAINTENANCE PARAMETERS
    Slip Detection? n              Remote Loop-Around Test? n
```

DS1 Circuit Pack Form (Defaults)

```
                              DS1 CIRCUIT PACK                 Page 1 of 1

          Location: _____                            Name: _________________
 Line Compensation: 1                Zero Code Suppression: zcs_
      Framing Mode: esf                     Signaling Mode: isdn-pri
                                                  Connect: network

                           MAINTENANCE PARAMETERS
    Slip Detection? n              Remote Loop-Around Test? n
```

DS1 Circuit Pack Form (Signaling Mode field is ‘‘isdn-pri’’ and the Connect field is ‘‘pbx’’)

Integrated Services Digital Network—Primary Rate Interface

This section contains the network-type forms and associated instructions required to implement the Integrated Services Digital Network (ISDN)—Primary Rate Interface (PRI) feature.

See ‘‘Integrated Services Digital Network—Primary Rate Interface’’ in Chapter 3 for a complete listing of all forms and/or fields on forms that must be completed or considered when implementing ISDN-PRI. Forms such as the Dial Plan, Class of Restriction, and Feature-Related System Parameters that support both networking and other functional areas such as voice and data management may also require implementation.

ISDN-PRI provides end-to-end digital connectivity within the network and can provide national and international digital connectivity to other ISDNs that support the PRI standard. An ISDN-PRI trunk group can carry calls for various switched services and/or features such as MEGACOM 800 service, MEGACOM service, outwats, and LDS (long-distance service). Inter-exchange carrier calls may also be processed. The trunk group uses common channel signaling and integrated voice and data transmission.

ISDN-PRI supports the following (refer to each feature description in Chapter 3 for a complete listing of forms to be administered):

- Call by Call Service Selection feature
- Distributed Communications System connectivity
- Electronic Tandem Network (ETN) connectivity
- Generalized Route Selection feature
- ISDN Call Identification Display—Calling Party Number/Billing Number (CPN/BN)
- Administered Connection/Access Endpoint feature (supports administered connections over a Software Defined Data Network)
- Interworking (mixture of ISDN-PRI and non-ISDN-PRI trunking)
- Facility/Non-Facility Associated Signaling.

The following ISDN-PRI forms are provided in this section.

NOTE:
The ISDN-PRI option must be enabled on the System-Parameters Customer-Options form before associated ISDN forms can be administered.

- ISDN-PRI Trunk Group
- Network Facilities (supports the Call by Call Service Selection feature).
- CPN Prefix Table (used by the ISDN Call Identification Display feature)
- Signaling Group (group of B-channels for which a given D-channel or D-channel pair will carry the signaling information).

ISDN TSC Gateway Channel Assignments

This form is required when the switch is to act as a gateway between a switch that supports the Temporary Signaling Connections (TSC) feature and a non-TSC-compatible PBX. The gateway provides interface protocols necessary for communications to exist between a switch administered with Non-Call Associated TSCs in a Signaling Group on the ISDN side and a processor channel (BX.25) on the non-ISDN side. A NCA-TSC is a type of virtual connection established for exchanging user information messages on ISDN D-channels. There is no B-channel related to the connection.

Administration Commands

The following administration commands can be used to access the ISDN TSC Gateway Channel Assignments form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command. You may also wish to refer to the ''Signaling Group'' and ''Processor Channel Assignment'' forms.

Action	Object	Qualifier*
change	isdn tsc-gateway	
display	isdn tsc-gateway ['print']	

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on each page of the from:

- Sig Group—Used to indicate the Signaling Group that the NCA-TSC belongs to. Valid entry is 1–166; default is blank.
- Adm'd NCA TSC Index—Used to indicate the administered NCA-TSC that acts as one end point of the gateway. Valid entry is 1–64; default is blank.
- Processor Channel—Used to indicate the processor channel to which the administered NCA-TSC index will be mapped. This processor channel is used as another end point of the connection in this gateway assignment. Valid entry is 1–128; default is blank.
- Application—Used to indicate the feature this gateway is used for. Gateway channels can be used for DCS+ or ISDN-PRI DCS AUDIX feature. Valid entries are ''audix'' or ''dcs''; default is blank.

```
                          ISDN TSC GATEWAY CHANNEL ASSIGNMENT      Page 1 of 4

  Sig   Adm'd NCA   Processor  Appli-      Sig   Adm'd NCA   Processor  Appli-
 Group  TSC Index   Channel    cation     Group  TSC Index   Channel    cation
 1: _     __         ___       _______   17: __     __         ___       _______
 2: _     __         ___       _______   18: __     __         ___       _______
 3: _     __         ___       _______   19: __     __         ___       _______
 4: _     __         ___       _______   20: __     __         ___       _______
 5: _     __         ___       _______   21: __     __         ___       _______
 6: _     __         ___       _______   22: __     __         ___       _______
 7: _     __         ___       _______   23: __     __         ___       _______
 8: _     __         ___       _______   24: __     __         ___       _______
 9: _     __         ___       _______   25: __     __         ___       _______
10: _     __         ___       _______   26: __     __         ___       _______
11: _     __         ___       _______   27: __     __         ___       _______
12: _     __         ___       _______   28: __     __         ___       _______
13: _     __         ___       _______   29: __     __         ___       _______
14: _     __         ___       _______   30: __     __         ___       _______
15: _     __         ___       _______   31: __     __         ___       _______
16: _     __         ___       _______   32: __     __         ___       _______
```

ISDN TSC Gateway Channel Assignment Form

Interface Links

This form is used to identify, describe, and BX.25 enable Interface Links. There is one Interface Link form per System. Interface Links provide a physical interface between the System and the other nodes in a DCS, ISDN, a Message Server Adjunct, a CMS, an ISDN Gateway adjunct (supports CPN/BN), or AUDIX.

Administration Commands

The following administration commands can be used to access the Interface Links form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	communication-interface	links
display	communication-interface	links ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

- Link—This is a display-only field. Indicates the interface link number that connects to another node in a DCS network, a Message Server, CMS, ISDN Gateway, or AUDIX. Interface Links always terminate on a port in a PGATE board.
- Enable—Enter ‘‘y’’ to enable the link. A ‘‘n’’ (default) suppresses any message flow over the link.
- X.25 Extension—The extension of a previously-administered X.25 data module connected to the Adjunct.
- Destination Number—To connect the Adjunct via the cable on the back of the PGATE board, enter ‘‘external’’ here.

  To connect the Adjunct via the TDM bus, enter blank (the Adjunct will wait for the other side of the connection to call it) or a string of digits (the Adjunct will establish the connection by dialing this string of digits).
- Establish Connection—Displayed when a string of digits is entered in the Destination Number field. Enter ‘‘y’’ if the System is responsible for any part of the call setup required for the link between the System and the far-end data module.
- Identification—Enter a 15-character name for the link. It is used for identification purposes only. It may be used to identify the destination machine or the field may be left blank.

```
                          INTERFACE LINKS                          Page 1 of 1

 Link  Enabled    X.25      Destination    Establish
                Extension     Number      Connection    Identification
   1:    _       _____      ________       _____       ________________
   2:    _       _____      ________       _____       ________________
   3:    _       _____      ________       _____       ________________
   4:    _       _____      ________       _____       ________________
   5:    _       _____      ________       _____       ________________
   6:    _       _____      ________       _____       ________________
   7:    _       _____      ________       _____       ________________
   8:    _       _____      ________       _____       ________________
```

Interface Links Form (Page 1 of 1)

Network Facilities

This display-only form of the Network Facilities Services/Features that support the Call by Call Service Selection feature. All administration on this form is performed by the Technical Service Center (TSC).

Administration Commands

The following administration commands can be used to access the Network Facilities form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

NOTE:
The ''change'' command is only available for services personnel via entry of an appropriate login and password.

Action	Object	Qualifier
change	isdn network facilities	
display	isdn network facilities	

Predefined Services/Features (see Table 4-4) and 12 fields for new Services/Features are shown on the form.

Table 4-4. Predefined Services/Features—Network Facilities

Administration Mnemonic	Description
accunet	ACCUNET Switched Digital Service—part of ACI (AT&T Communications ISDN) phase 2.
i800	International 800 Service—allows a subscriber to receive international calls without a charge to the call originating party.
inwats	INWATS—provides OUTWATS-like pricing and service for incoming calls.
lds	Long-Distance Service—part of ACI (AT&T Communications ISDN) phase 2.
outwats-bnd	OUTWATS Band-WATS—is a voice-grade service providing both voice and low speed data transmission capabilities from the user's location to defined service areas commonly referred to as bands. Currently, the widest band is 5.
megacom	MEGACOM service—an AT&T communications service that provides unbanded long-distance services using special access (PBX to 4 ESS switch) from an AT&T communications node.
megacom-800	MEGACOM 800 service—an AT&T communications service that provides unbanded 800 service using special access (4 ESS switch to PBX) from an AT&T communications node.
multiquest	AT&T MULTIQUEST® Telecommunications Service—dial 700 service. A terminating users service supporting interactive voice service between callers at switched access locations and service providers directly connected to the AT&T Switched Network (ASN).
operator	Network Operator—provides access to the network operator.
sdn	Software Defined Network (SDN)—an AT&T communications offering that provides a virtual public network using the public switched network. SDN can carry voice and data between customer locations as well as off-net locations.
sddn	Software Defined Data Network—provides a virtual private line connectivity via the AT&T switched network (4 ESS switch). Services include voice, data, and video applications. These services complement the SDN service.
sub-operator	Presubscribed Common Carrier Operator—provides access to the presubscribed common carrier operator.
wats-max-bnd	Maximum Banded Wats—a WATS-like offering for which a user's calls are billed at the highest WATS band subscribed to by the user.

The fields on the form are as follows:

- Name—Contains up to 15 alphanumeric characters to specify the name of the indicated Service/Feature.
- Facility Type—A ‘‘0’’ indicates that the associated entry is a feature, and a ‘‘1’’ indicates the associated entry is a service.
- Facility Coding—Contains five binary values which specify the ISDN-PRI encoding value of the associated Service/Feature.

The additional Services/Features area on the form is available for new services and features.

```
                          NETWORK-FACILITIES

Predefined Services/Features
                    Facility                              Facility
    Name          Type   Coding              Name         Type  Coding
  outwats-bnd       1     00001            mega800         1    00010
  operator          0     00101            megacom         1    00011
  sub-operator      0     00110            inwats          1    00100
  sdn               1     00001            wats-max-bnd    1    00101
  accunet           1     00110            lds             1    00111
  i800              1     01000            multiquest      1    10000

Additional Services/Features
                    Facility                              Facility
    Name          Type   Coding              Name         Type  Coding
  _____________     _    ______           _____________    _   ______
  _____________     _    ______           _____________    _   ______
  _____________     _    ______           _____________    _   ______
  _____________     _    ______           _____________    _   ______
  _____________     _    ______           _____________    _   ______
  _____________     _    ______           _____________    _   ______
```

Network Facilities Form

Node Number Routing

Used to specify the routing pattern associated with each node in a public or private network. NNR is a required capability for Extension Number Portability (ENP) and is associated with the Uniform Dial Plan (UDP).

Administration Commands

The following administration commands can be used to access the Node Number Routing form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	node-routing	Enter digits between 1–999 [‘partition’ 1–8]
display	node-routing	Enter digits between 1–999 [‘partition’ 1–8]
list	node-routing	Enter digits between 1–999 [‘partition’ 1–8]

* Brackets [ ] indicate the qualifier is optional. Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form.

- Partitioned Group Number—This read-only field displays the partitioned group number associated with the node numbers being administered. The partitioned group number is either specified on the command line or defaults to partitioned group number 1.
- Node Number—This read-only field lists the node number to be changed (1–999).

  NOTE:
  Two pages are displayed at a time for a total of 200 nodes (100 per page). For example, entering ''change node-routing 87'' displays nodes 1–199; and entering ''change node-routing 151'' displays nodes 100–299; However, entering ''change node-routing 999'' displays nodes 900–999 on one page.

- Route Pat—Enter the routing pattern associated with the corresponding node number. This field is repeated the same number of times as there are node numbers on the page; default is blank.

```
change node-routing 87 partition 2                              Page  1 of  2
                              NODE NUMBER ROUTING
                           Partitioned Group Number: 2

      Route      Route      Route      Route      Route      Route      Route
       Pat        Pat        Pat        Pat        Pat        Pat        Pat
              15: ___    30: ___    45: ___    60: ___    75: ___    90: ___
    1: ___    16: ___    31: ___    46: ___    61: ___    76: ___    91: ___
    2: ___    17: ___    32: ___    47: ___    62: ___    77: ___    92: ___
    3: ___    18: ___    33: ___    48: ___    63: ___    78: ___    93: ___
    4: ___    19: ___    34: ___    49: ___    64: ___    79: ___    94: ___
    5: ___    20: ___    35: ___    50: ___    65: ___    80: ___    95: ___
    6: ___    21: ___    36: ___    51: ___    66: ___    81: ___    96: ___
    7: ___    22: ___    37: ___    52: ___    67: ___    82: ___    97: ___
    8: ___    23: ___    38: ___    53: ___    68: ___    83: ___    98: ___
    9: ___    24: ___    39: ___    54: ___    69: ___    84: ___    99: ___
   10: ___    25: ___    40: ___    55: ___    70: ___    85: ___
   11: ___    26: ___    41: ___    56: ___    71: ___    86: ___
   12: ___    27: ___    42: ___    57: ___    72: ___    87: ___
   13: ___    28: ___    43: ___    58: ___    73: ___    88: ___
   14: ___    29: ___    44: ___    59: ___    74: ___    89: ___
```

To reduce repetition, page 2 of this form is not shown.

Processor Channel Assignment

This form is used to assign up to 128 Processor Channels to the System's interface links and hop channels.

Administration Commands

The following administration commands can be used to access the Processor Channel Assignment form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	communication-interface	processor channels
display	communication-interface	processor channels ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Pages 1–8 of the Form

- Proc Chan—This field is display-only and indicates each of the 128 processor channels. It is recommended that channels 1, 2, 3, 4, and 8 be reserved for Message Server Adjunct (MSA) connectivity since the MSA uses fixed channel numbers. Channel 9 should be reserved for AUDIX.
- Appl.—Enter the type of application that connects to this processor channel. Valid entries are noted in the Entry column in Table 4-5.

  NOTE:
  MSA applications, if administered, must be assigned to fixed processor and remote processor (MSA) channels (1, 2, 3, 4, and 8, respectively) as shown on the table. A link used for ISDN-PRI cannot be multiplexed to provide other applications. If a processor channel is not assigned, leave this field blank.

Table 4-5. Processor Channel Applications

Appl. Entry	Processor Description
audix	AUDIX
cpn/bn	CPN/BN (ISDN Gateway)
dcs	DCS
gateway	ISDN Over PRI D-channel Gateway
mis	CMS
msaamwl	MSA Automatic Message Waiting Lamp
msaclk	Switch/MSA Clock Synchronization
msahlwc	MSA High Priority Leave Word Calling
msallwc	MSA Low Priority Leave Word Calling
msamcs	MSA Message Center Service

- Interface Link—Enter the interface link (1–16) to which to connect the processor channel.
- Interface Chan—This field, together with the Interface Link field, identifies the link/channel pair that is associated with the local processor channel. Enter a number from 1–64 to identify the interface channel that is associated with the local processor channel. The Interface Link/Channel association establishes a network channel to the remote machine. (This field and the Interface Chan field must be assigned as a pair or both left blank). Valid entries are 1–64, or leave blank.

  Once a Link/Channel Pair is assigned on the Processor Channel Assignments form, the pair cannot be assigned on the Hop Channel Assignments form (see ‘‘Hop Channel Assignments’’ elsewhere in this chapter).

- Local Port—The port (1–64) on which this PBX expects the connection to be established.
- Remote Port—The port (1–64) on which the far end expects the connection to be established.

  For a far-end Generic 3r, this Remote Port entry should match the the far-end Generic 3r's Local Port entry.
- Adjunct Name—The AUDIX or MSA Application chooses which Adjunct this processor channel is communicating with (names are from the Adjunct Names form).
- Machine-ID—Enter the Machine ID number (1–99, or blank) associated with the port if the Appl field is ''dcs, ''audix'', or ''cpn/bn''. When supporting AUDIX, the Machine ID must agree with the AUDIX field entry on the AUDIX Data Link form (part of AUDIX translations). Typically, with just one AUDIX, this entry is ''1''.

```
                        PROCESSOR CHANNEL ASSIGNMENT        Page 1 of 8

Proc                     Interface   Local  Remote  Adjunct
Chan   Application      Link   Chan   Port   Port    Name    Machine-ID
 1:      _______         __     __     __     __    _______    __
 2:      _______         __     __     __     __    _______    __
 3:      _______         __     __     __     __    _______    __
 4:      _______         __     __     __     __    _______    __
 5:      _______         __     __     __     __    _______    __
 6:      _______         __     __     __     __    _______    __
 7:      _______         __     __     __     __    _______    __
 8:      _______         __     __     __     __    _______    __
 9:      _______         __     __     __     __    _______    __
10:      _______         __     __     __     __    _______    __
11:      _______         __     __     __     __    _______    __
12:      _______         __     __     __     __    _______    __
13:      _______         __     __     __     __    _______    __
14:      _______         __     __     __     __    _______    __
15:      _______         __     __     __     __    _______    __
```

Processor Channel Assignment Form (Page 1 of 8)

To reduce repetition, pages 2–8 of the form are not shown.

Signaling Group

This form is used to identify groups of ISDN DS1 interface B-channels for which a given D-channel or D-channel pair will carry associated signaling information. The Non-Facility Associated Signaling (NFAS) feature allows a D-channel to

convey signaling information for B-channels that are located on DS1 facilities other than the one containing the D-channel. With NFAS, a signaling group does not necessarily correspond to a single DS1 interface. The Signaling Group form is administered to show how B-channels and D-channels are related.

The Signaling Group form also supports the Facility Associated Signaling feature. The form is used to establish the fact that a D-channel will carry signaling information for all B-channels on its associated DS1 interface and for no others.

In addition, the form is used to administer Temporary Signaling Connections (TSC) used in support of DCS Over ISDN PRI D-channel (includes ISDN-PRI D-channel DCS AUDIX™).

Administration Commands

The following administration commands can be used to access the Signaling Group form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	signaling-group	1–166 or next
change	signaling-group	1–166
display	signaling-group	1–166 ['print' or 'schedule']
list	signaling-group	1–166 ['print' or 'schedule']
remove	signaling-group	1–166

* Brackets [ ] means that the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on each page of the from:

- Group Number—Display-only field when the form is accessed using an administration command such as *display* or *change*. Enter a group number from 1–166 when completing a paper form.
- Associated Signaling—Enter ''y'' (default) to indicate Facility Associated Signaling (FAS) or ''n'' to indicate Non-Facility Associated Signaling. (As stated earlier, for FAS, the D-channel can only carry signaling information for B-channels located on the same DS1 circuit pack.)
- Primary D-channel—Enter a 6- to 7-character port number associated with the DS1 Interface circuit pack port: cabinet 1–22 (default is 1); carrier (A–E); slot number (01–20); port (24). The port number 24 is used to assign the primary D-channel in the Signaling Group. Currently, with FAS

and NFAS it is always the 24th port on the DS1 Interface circuit pack. Default is blank.

- Secondary D-channel—Displayed when Associated Signaling is ''n'' (indicates NFAS). Enter a 6- to 7-character port number associated with the DS1 Interface port used for secondary D-channel signaling: cabinet 1–22 (default is 1); carrier (A–E); slot number (01–20); port (24) (currently, with FAS and NFAS it is always the 24th port on the DS1 Interface circuit pack). Default is blank.
- Max Number of NCA TSC—The maximum number of simultaneous Non-Call Associated Temporary Signaling Connections (NCA-TSCs) that can exist in the Signaling Group. This number includes all NCA-TSCs that are administered on Pages 2–5 of the form and those NCA-TSCs that tandem through the switch in-route to another switch in the network. Valid entries are 0–256; default is 0.
- Max number of CA TSC—The maximum number of simultaneous Call Associated Temporary Signaling Connections (CA-TSCs) that can exist in the Signaling Group. Typically the number of ISDN-PRI trunk group members controlled by the Signaling Group. Valid entries are 0–400; default is 0.
- Trunk Group For NCA TSC—The ISDN-PRI trunk group number whose incoming call handling table will be used to handle incoming NCA-TSCs through the signaling group. Enter the assigned ISDN-PRI trunk group number whose call handling table will be used to route the incoming NCA TSCs. Valid entries are 1–666; default is blank.
- Trunk Brd—Displayed when Associated Signaling is ''n'' (indicates NFAS). Enter a 5-character DS1 Interface circuit pack number that has trunk members belonging to this Signaling Group: cabinet 1–22 (default is 1); carrier (A–E); slot number (01–20). Default is blank.
- Interface ID—Displayed when Associated Signaling is ''n'' (indicates NFAS). Enter an interface ID (0–31) for the corresponding DS1 Interface circuit pack. In an NFAS Signaling Group, an Interface ID must be assigned to each DS1 facility so that it can be referenced by both interfacing switches. When a call is established between switches, the Interface ID at each end is used to determine which B-channel is to be used to establish the call. The Interface ID numbers on both ends must be the same.

Pages 2–5 of the Form

- Service/Feature—The service type for all administered NCA-TSCs assigned in this Signaling Group. Valid entries are: ''accunet'', ''i800'', ''inwats'', ''lds'', ''mega800'', ''megacom'', ''multiquest'', ''nca-tsc'', ''operator'', ''sdn'', ''sub-operator'', ''wats-max-bnd'', and [user-defined services]; default is blank.

- As-needed Inactivity Time-out (min)—The inactivity time-out for as-needed NCA-TSCs assigned in the Signaling Group. An as-needed administered NCA-TSC staying inactive in this time period will be removed from service. Valid entries are 10–90; default is blank.
- TSC Index—Display only field. Specifies the administered NCA-TSCs assigned. The administered NCA TSC index represents one DCS or DCS AUDIX logical channel connecting any two PBXs. The Index number ranges from 1–64.
- Local Ext—Used to assign an extension on the switch to the administered NCA-TSC. Enter an unassigned extension number.

  NOTE:
  The extension cannot be previously assigned to another administered NCA-TSC, station, or data module, etc.

- Enabled—Enter ''y'' to enable the administered NCA-TSC or enter ''n'' to disable the administered NCA-TSC. Valid entries are ''y'' or ''n''.
- Establish—Used to indicate the strategy for establishing this administered NCA-TSC. An entry of ''permanent'' means that the administered NCA-TSC can be established by either the near-end or the far-end. An entry of ''as-needed'' means the administered NCA-TSC will be established the first time the administered NCA-TSC is needed. It can be set up either by the near-end or far-end switch. Valid entries are ''permanent'' and ''as-needed''; default is blank.
- Dest. Digits—Used to route the administered NCA-TSC to the far-end switch. Valid entries are digits 0–9 and the ''+'', ''*'', and ''#'' special characters, and can include up to 15 digits; default is blank.

  NOTE:
  These digits are sent as entered to the far-end; no routing or other digit manipulation is performed.

- Appl.—Specifies the application this administered NCA-TSC is going to be used for. Valid entries are ''audix'', ''dcs'', and ''gateway''. The ''audix'' entry is used for ISDN-PRI D-channel DCS AUDIX feature. The ''dcs'' entry is used for the DCS Over ISDN-PRI D-channel feature. The ''gateway'' entry is used when the administered NCA-TSC will be used as one end in the gateway channel connecting to a BX.25 link. If ''gateway'' is entered, then the ISDN TSC Gateway Channel Assignments form must be completed. Default is blank.
- Adjunct Name—Displayed when the Appl. field is ''audix''. Enter the name of the AUDIX as it appears on the ''Adjunct Names'' form.
- Machine ID—Used to indicate the far-end PBX or the AUDIX machine this administered NCA-TSC is to be connected to. Valid entries are 1–63 for DCS or 1–99 for AUDIX, or blank (default).

```
                          SIGNALING GROUP                          Page 1 of 5

Group Number : _    Associated Signaling? n           Max number of NCA TSC: __
                       Primary D-channel: _______      Max number of CA TSC: __
                     Secondary D-channel: _______   Trunk Group for NCA TSC: __
     Trunk Brd    Interface ID       Trunk Brd    Interface ID
      1: _____          __            11:  _____        __
      2: _____          __            12:  _____        __
      3: _____          __            13:  _____        __
      4: _____          __            14:  _____        __
      5: _____          __            15:  _____        __
      6: _____          __            16:  _____        __
      7: _____          __            17:  _____        __
      8: _____          __            18:  _____        __
      9: _____          __            19:  _____        __
     10: _____          __            20:  _____        __
```

Signaling Group Form (Page 1 of 1)

Implementation Note:

The following fields are only displayed if the Associated Signaling field is ‘‘n’’ (indicates NFAS).

- Secondary D-channel
- Trunk Brd
- Interface ID

```
                    ADMINISTERED NCA TSC ASSIGNMENT                Page 2 of 5

Service/Feature: __________          As-needed Inactivity Time-out (min): __
 TSC   Local                                                      Adj.      Mach.
Index   Ext.  Enabled Established   Dest. Digits    Appl.        Name       ID
  1:   _____     _     _________   ________________ _______  ________     __
  2:   _____     _     _________   ________________ _______  ________     __
  3:   _____     _     _________   ________________ _______  ________     __
  4:   _____     _     _________   ________________ _______  ________     __
  5:   _____     _     _________   ________________ _______  ________     __
  6:   _____     _     _________   ________________ _______  ________     __
  7:   _____     _     _________   ________________ _______  ________     __
  8:   _____     _     _________   ________________ _______  ________     __
  9:   _____     _     _________   ________________ _______  ________     __
 10:   _____     _     _________   ________________ _______  ________     __
 11:   _____     _     _________   ________________ _______  ________     __
 12:   _____     _     _________   ________________ _______  ________     __
 13:   _____     _     _________   ________________ _______  ________     __
 14:   _____     _     _________   ________________ _______  ________     __
 15:   _____     _     _________   ________________ _______  ________     __
 16:   _____     _     _________   ________________ _______  ________     __
```

Signaling Group Form (Page 2 of 5)

To reduce repetition, pages 3–5 of this form are not shown.

Trunk Groups

This section contains the forms and instructions required to implement trunk groups in the System. A System can be administered to have up to 666 trunk groups and up to 4,000 trunks.

NOTE:
If the Hospitality Parameters Reduction Option is enabled on the System-Parameters Customer-Options form, up to 50 trunk groups may be administered.

The Basic Call Management System can measure up to 32 trunk groups.

Trunks and Access Endpoints consume the same resource. Thus, the sum of trunks and Access Endpoints cannot exceed 4,000.

The following trunk group forms are included in this section:

- Access Trunk Group
- Administerable Timers

- Advanced Private Line Termination (APLT) Trunk Group
- Central Office Trunk Group
- CPE Trunk Group
- Digital Multiplexed Interface (DMI)—BOS Trunk Group
- Direct Inward Dialing Trunk Group
- Foreign Exchange Trunk Group
- Integrated Services Digital Network—Primary Rate Interface Trunk Group
- Personal Central Office Line Group (PCOLG)
- Release Link Trunk Group
- Tandem Trunk Group
- Tie Trunk Group
- Wide Area Telecommunications Service (WATS) Trunk Group.

Trunking—General

The following provides a reference source for various trunk-related terms. Refer to this material for additional information when administering the System's trunk group forms. In addition, refer to *AT&T Network and Data Services Reference Manual*, 555-025-201, and *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.

Trunk Characteristics

A trunk is named for its transmission characteristics and can be analog or digital depending on the type of signals it carries. One transmission characteristic is signaling which is the transmission of supervision, address, alerting, or other switching information between switches.

A trunk is further classified as one of the following:

- 1-way incoming trunk—A local trunk that can be selected (seized) by the far-end connected switch.
- 1-way outgoing trunk—A trunk that can be seized by the local switch to call the far-end switch.
- 2-way trunk—A trunk that can be seized at either end of the connected switches.

Transmission of Supervision

Supervisory signaling establishes or sets up the connection of the local switch to the distant switch. In general, supervisory signaling can be thought of in two phases: the seizure signal (the originating office's signal for a request for service

from the distant office) and the start dial signal (the distant office's acknowledgement that it is ready to accept dialing from the originating office).

The following four types of supervision signaling are used in trunks:

1. E & M (Ear & Mouth) supervision—A symmetric signaling scheme used on private network trunks in which dc voltage levels are sent over E and M leads. The E and M leads are separate from the transmission path (T & R leads). E & M signals indicate on-/off-hook states of each end of the connection path. E & M signaling is further divided into types (Type I-V). DIMENSION PBX systems use only Type I and DEFINITY, System 75, and System 85 can use Type I or V. Type I is signaling from the trunk interface to the far-end over the M lead using nominal -48 volts for off-hook and local ground for on-hook. Signaling from the far-end is over the E lead using far-end ground for off-hook and open for on-hook. Type V is signaling in both directions by means of open for on-hook and ground for off-hook.
2. GS (Ground Start) supervision—A supervisory signaling scheme used on public network trunks in which ground is applied on the Tip (T) lead by the CO and on the Ring (R) lead by the PBX. For example, the calling PBX on a call to a central office using an outgoing trunk interface seizes the outgoing trunk by placing a ground on the trunk interface R lead. The CO recognizes the trunk seizure as a request for service and grounds the trunk T lead to indicate to the calling PBX that the CO is ready to receive digits. Ground Start trunks are preferred over trunks using Loop Start signaling (description follows) for the following reasons:
   - The tip ground seizure that the distant switch sends minimizes the interval during which a 2-way trunk can be seized from both ends (called glare) since the System (PBX) can make trunks busy to outgoing calls almost immediately.
   - Ground Start trunks provide a positive indication of a distant switch's disconnect. The removal of the tip ground can be acted upon by the PBX:
     — to prevent a station line from being connected to CO dial tone by remaining off-hook after completing a call. This prevents a restricted station from making an unauthorized call after placing an authorized call via the attendant.
     — to hold the the trunk busy until the CO disconnects so that another PBX station cannot seize the trunk and be connected to the CO party of the previous call.
3. LS (Loop Start) supervision—A supervisory signaling scheme used between a telephone and a PBX in which the telephone or far-end office completes the loop current path formed by the trunk leads (wires). The circuit provides one signaling state when it is open and another when it is closed. A third signaling state is achieved by changing the direction or

magnitude of current in the loop. The most preferred method of loop start signaling is reverse battery signaling. Disconnect times when using Loop Start signaling can result in delays of up to 10–20 s. In addition, glaring as described in Ground Start is possible.

4. RB (Reverse Battery) supervision—A supervisory technique on 1-way trunks that uses open and closure signals from the originating end and reversals of battery and ground from the terminating end (normally used on direct inward dialing trunks).

Transmission of Address

With signaling there are three types of transmission of address. Transmission of address is the method of signaling used to represent digits and/or characters for called numbers, calling numbers, etc. The methods of addressing are dial pulse (DP), dual tone multi-frequency (DTMF), and multi-frequency (MF) addressing.

- DP addressing—A means of signaling that consists of regular momentary interruptions of a direct or alternating current at the sending end in which the number of interruptions corresponds to the value of a digit or character (alternating current is not used by PBXs). The interruptions are usually produced by a rotary telephone dial, or may be produced by a sender in a switching system.
- DTMF addressing—Signaling arrangements (commonly known as touch-tone) consist of dialing signals of two simultaneous tones. One tone from a low group of four frequencies and the other from a high group of four frequencies correspond to digits, letters, or characters (0–9, A–Y, or * and #). One of the tones (1633 Hz) from the high group is a spare.
- MF addressing—Signaling arrangements that make use of two frequencies, and only two, out of six to represent ten decimal digits (0–9) and five auxiliary signals. MF signals are used for called number addressing, calling number identification, ringback, and coin control.

Transmission of Alerting

Network trunks operate as automatic, immediate start, dial tone, wink start, or delay dial according to the type of start dial signal (alerting) the switch sends out or expects to receive. The different transmissions of alerting are as follows:

- Automatic—The originating switch sends no digits or start dial signal, expecting the terminating switch to complete the call. The call is usually completed by the attendant or other service such as Centralized Attendant Service (CAS).

- Immediate start—The originating switch sends digits immediately without waiting for a start dial signal from the terminating switch.
- Dial tone—The terminating switch sends precise dial tone to the originating switch, indicating that the terminating switch is ready to receive digits.
- Wink start—The terminating switch sends a wink start (momentary off-hook) signal to the originating switch, indicating that the terminating switch is ready to receive digits.
- Delay dial—The terminating switch sends a delay dial signal (an off-hook signal followed by an on-hook signal) to the originating switch, indicating that the terminating switch is ready to receive digits.

With digital trunks, signaling schemes are basically the same as for analog trunks when establishing a call. Supervisory, addressing, and alerting have been carried over to the digital trunks. These schemes are handled in a variety of ways to indicate particular calling states, such as on-hook, off-hook, ringing, not ringing, etc., by using ''A'' and ''B'' bit timed signaling. ''A'' and ''B'' bits carry a 0 or 1 depending on the type of trunk, the near-end channel unit type, far-end channel type, trunk condition (open loop, loop closure, reverse battery, etc.), and whether it is transmit or receive signaling.

In addition to the above, refer to ''DS1 Circuit Pack'' in this chapter for trunk-related terms associated with DS1 trunk interfaces.

Private Network Trunks

Private network trunks are referred to as tie trunks, tandem trunks, or both. The tie trunks that interconnect the switches of a private network are ''universal'' which means that the trunks can be administered with a variety of translation encodes. The originating switch can recognize any start dial signal (precise dial tone, wink start, or delay dial) that the terminating switch sends. If the originating switch does not receive one of these start dial signals, it can be administered to send digits after an administered time-out interval. The time-out interval is the amount of time the originating switch waits before sending digits.

Tie trunks are further classified according to the type of signal (analog or digital) they carry.

Analog Tie Trunks

Analog tie trunks are communications paths that carry voice and voiceband data communication. The term voice implies that sound is transferred into electrical form and transmitted within an approximate voiceband of 300 Hz to 3400 Hz. Voiceband data implies that data is transmitted within the voiceband and requires a conversion resource (modem) at both ends of the connection. The data transmission rate for analog tie trunks depends on the data-handling capability of the modems in the connection. Other factors that affect the data rate are the number of tie trunks in the connection and the technology of any multiplex systems used in the facilities. Generally, for data rates up to 300 bps, a connection can have five tie trunks in tandem. For data rates greater than 300 bps up to 2400 bps, a connection can have up to three tie trunks in tandem. For data rates greater than 2400 bps up to 4800 bps, a connection can have up to two tie trunks in tandem.

Analog tie trunks used in unswitched connections can support up to 9600 bps.

A special type of private network tie trunk is a Release Link Trunk. The Release Link Trunk (RLT) is used between a central or main location and a branch location to provide Centralized Attendant Service. It functions as a 1-way outgoing circuit from the branch locations and a 1-way incoming to the main location. RLTs participate in the redirection of incoming calls originally directed to the branch location to attendants at the main location and handle call completion back to the branch location.

Another special type of trunk is the Advanced Private Line Termination (APLT) trunk. APLT provides access to and termination from central office based private networks; namely, Common Control Switching Arrangements (CCSA) and Enhanced Private Switched Communications Service (EPSCS). APLT trunks are physically the same as those used for analog tie trunks where the trunk signaling is compatible with EPSCS and CCSA network switches. The outgoing APLT trunk repeats any number of digits to the private network as dialed. APLT trunks can tandem through the PBX from EPSCS network only; CCSA networks require an attendant to complete the call.

Digital Tie Trunk (DS1)

The digital tie trunk is a high-speed and a high-volume trunk interface to T1 carrier. It uses digital signal (DS1) on the T1 carrier. By multiplexing twenty-four 64-kbps digital channels onto a single 1.544-Mbps T1 carrier, DS1 offers an economical alternative to the analog tie trunk as well as a high-speed fully digital (without modems) connection between the switches.

The maximum per-channel data rate for DS1 is 64 kbps, and it can carry voice, voiceband data, or high-speed data communications.

The DS1 tie trunk is also used for Digital Multiplexed Interface (DMI). DMI provides high-speed communications over digital transmission facilities between a host computer and a DEFINITY system, System 75, or System 85. The DMI trunk uses the ''A'' bit for signaling to provide wink-start dial-repeating into the switch and automatic out or 2-way wink start.

Public Network Trunks

Public network trunks are classified according to the type of signal (analog or digital) they carry. Public network trunks are used to connect a private network switch to a public network switch (central office). In reference to a central office, the term ''local'' applies to a switch within the local exchange area. An exchange area has a single uniform set of charges for telephone service and may be served by more than one central office (CO). Within an exchange area, a call between any two points is a local call.

Public network trunks also function as ''special access'' to AT&T Communications (AT&T-C) toll network. AT&T-C provides such services as MEGACOM service, MEGACOM 800 service, and ACCUNET telecommunications service.

Analog Trunks

Analog public network trunks are as follows:

- Central Office (CO) Trunk—A 1-way outgoing, 1-way incoming, or 2-way trunk connecting the switch to a CO within the local exchange area.
- Foreign Exchange (FX) Trunk—A 1-way outgoing, 1-way incoming, or 2-way trunk connecting the switch to a CO that is outside the local exchange area. These trunks give a caller direct access to a central office outside the local exchange area without having to use the public network.
- Wide Area Telecommunications Service (WATS) Trunk—A 1-way outgoing or 1-way incoming trunk connecting the switch to a CO equipped to handle WATS calls. The outgoing trunks allow a customer, for a monthly charge, to place outgoing station-to-station calls to telephones in a defined service area. The service area has one or more geographic areas known as WATS bands. Incoming trunk calls are completed by the attendant or other service.

- 800-Service Trunk—A 1-way incoming trunk connecting the switch to a CO equipped to handle 800 Service calls (also known as Inward WATS). These trunks allow a customer, for a monthly charge, to receive incoming station-to-station calls from telephones in a defined service area without charge to the caller.
- Direct Inward Dialing (DID) Trunk—A 1-way incoming trunk connecting the switch to a local CO. These trunks allow calls from the public network to complete to terminals (stations) assigned to a private network switch without attendant assistance.
- Direct Outward Dialing (DOD) Trunk—A 1-way outgoing trunk for outgoing calls connecting the switch to a CO. These trunks allow terminal (station) users to place calls to a public network central office directly (without attendant assistance).

Digital Trunks

The digital public network trunk provides a DS1 interface to the central office over T1 carrier. The DS1 public network trunk provides an interface to CO, FX, WATS, and DID. The DS1 interface supports incoming and outgoing dial types of ground-start, loop-start, auto/auto, auto/delay, auto/immed, and auto/wink. Signaling may be robbed-bit or common channel depending on the trunk type and the incoming/outgoing dial type. The interface may be used to connect the switch to a toll office directly using wink-start tie trunks for 2-way access to the toll network.

Access Trunk Group

This form is used to provide the System with the ability to communicate with another PBX as either a main or tandem switch in an Electronic Tandem Network arrangement. This trunk group does not send or receive Traveling Class Marks.

Administration Commands

The following administration commands can be used to access the Access Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ''access'' to identify the trunk group type.
- CDR Reports—Enter ''y'' (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''outside call''.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Direction—Enter whether the trunk group is ''incoming'', ''outgoing'', or ''two-way'' (default).
- Outgoing Display—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ''y'' or ''n'' (default).
- Dial Access—Enter ''y'' (default) to allow the trunk group to be accessed via a TAC. Access via the ARS feature is allowed regardless of this entry.
- Busy Threshold—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is ''255''.

- Night Service—Enter the extension number assigned to Night Service. The extension number entered will receive all incoming calls when Night Service is activated and the individual trunk member Night field is not administered to override this group extension. Valid entries are an extension number (can be a VDN extension), the attendant group access code (usually ''0''), **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''.
- Queue Length—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ''0'' (default) indicates no calls will be held in queue. Enter ''0'' for DCS trunks. This field is turned off if the Direction field is ''incoming''.
- Incoming Destination—Indicates where incoming calls will terminate. Valid entries are an extension number, the attendant group access code (usually ''0''), VDN, **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''. If ''0'' is entered, a call is treated as an LDN call.
- Comm Type—Indicates if the trunk is to be used for voice, data, alternate voice-data (avd), or alternate voice/voice grade data and 56-kbps digital data (rbavd) calls. Valid entries are ''avd'', ''rbavd'', ''voice'' (default), or ''data''. Type ''rbavd'' supports access to voice/data SDN service on robbed-bit transmission facilities.

  NOTE:
  ''avd'' and ''rbavd'' types require trunk member ports on a DS1 circuit pack. An ''rbavd'' type requires that the DS1 circuit pack be administered for robbed-bit, ISDN-EXT, or ISDN-PRI.

- Auth Code—Enter ''y'' if an authorization code must be dialed to complete incoming calls on the trunk group; otherwise, enter ''n'' (default). This field can only be ''y'' if the Authorization Codes feature is enabled on the System-Parameters Customer-Options form.
- Administrable Timers Page—Enter a ''y'' to add the Administrable Timers page to the Trunk Group form as Page 3 of X. Valid entries are ''y'' or ''n'' (default).
- ITC (Information Transfer Capability)—Displayed for non-ISDN trunk groups, and when Comm Type is ''data'', ''avd'', or ''rbavd'' and BCC is not ''0''. Used by the GRS feature and enables the system to route calls to restricted (default) or unrestricted facilities according to the endpoint's information transfer capability.
- BCC (Bearer Capability Class)—Displayed when the ISDN—PRI is optioned on the System-Parameters Customer-Options form and Comm Type is ''avd'' or ''data''. Used by the Generalized Route Selection feature and identifies the type of traffic on trunks in the group. The BCC entry is used by far-end tandem switches to select outgoing routing facilities with equivalent BCC classes. Valid entries are 0, 1, 2, 3, and 4. Default is 0 for ''avd'' and 2 for ''data''.

NOTE:
Refer to ‘‘Generalized Route Selection’’ in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls.

- Trunk Type (in/out)—Identifies the physical type of incoming and outgoing trunks. Valid entries are listed below.

auto/auto	auto/delay	auto/immed	auto/wink
delay/auto	delay/delay	delay/immed	delay/wink
immed/auto	immed/delay	immed/immed	immed/wink
wink/auto	wink/delay	wink/immed	wink/wink

NOTE:
For immed/immed trunks (on incoming trunks), the far-end PBX seizes the trunk and then sends digits without waiting for acknowledgement from the receiving PBX. When heavily loaded, the receiving PBX may incur a short delay in attaching a Touch Tone Receiver to this call and, therefore, cause it to lose digits. Using wink-start trunks or increasing the dial-guard timer value on the far-end PBX avoids this problem.

- Incoming Rotary Timeout (sec)—Is the timing interval required by the central office that the System is connected to. If the System is connected to a step-by-step office, 18 s or more must be used; if the System is not connected to a step-by-step office, 5 s or more may be used. Valid entries are 5–99, or blank; default is 5.
- Outgoing Dial Type—Identifies the type of pulsing required on an outgoing call. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.
- Incoming Dial Type—Indicates the type of pulses required on an incoming trunk group. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.
- Disconnect Timing (msec)—Specifies the minimum time period in ms that is required for recognition of disconnect by the serving central office or far-end PBX. The time interval must be in increments of 10 (from 140–2550 ms); default is 500.
- Digit Treatment—Indicates if digits are to be absorbed or inserted. A blank indicates no digit absorption or insertion. Valid entries are ‘‘absorption’’ or ‘‘insertion’’, or leave blank.
- Digits—Indicates the digits to be inserted or number of digits to be absorbed. This field is used with the Digit Treatment field. No entry indicates no digit absorption or insertion is done. Valid entries are the number of digits to be absorbed (1–5) or the actual digits to be inserted (up to 5 digits) (incoming).

- Connected to Toll—Enter ‘‘y’’ if connected to a CO toll office; otherwise, enter ‘‘n’’ (default). This field is displayed when the Trunk Type field contains an entry of ‘‘auto/...’’, ‘‘delay/...’’, ‘‘wink/...’’, or ‘‘immed/...’’.
- Wink Timer—To be provided.
- STT Loss (Satellite PBX Tie Trunk Loss)—Displayed when Connected to Toll is ‘‘n’’. Specifies the loss plan to be used for the trunk group. Valid entries are ‘‘normal’’ (default) or ‘‘low’’. This option affects the transmission performance of a private PBX network.

  Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ‘‘low’’ option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should be used when:

  1. Stations on the satellite PBX complain of too much loss on calls to the public network.
  2. The PBX network consists of **no more** than three PBXs: one main and one or two satellite PBXs.
  3. All PBXs have the ‘‘low’’ option available.
  4. The total DS1 trunk connection length is less than 100 miles.

  If the preceding conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

  — normal—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

  — low—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.

- DTT to DCO Loss (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan used for the trunk group that connects a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). Displayed when the Trunk Type field is auto/..., delay/..., wink/..., or immed/....

  This option affects the transmission performance of public network access via a private PBX network. Choose the ‘‘low’’ option if private network users complain about too much loss on calls to the public network, otherwise, the ‘‘normal’’ option should be used. Valid entries are ‘‘normal’’ (default) and ‘‘low’’. The entry is based on the following:

— normal—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

— low—Corresponds to (+3, -3) dB gain pair. Low is used for inter-network applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- Incoming Dial Tone—Indicates whether or not the trunk group will pass on incoming dial tone to the calling party. Valid entries are ‘‘y’’ or ‘‘n’’.

The next three fields are displayed for Alternate Voice Data (AVD) and Robbed Bit AVD:

- Bit Rate—Displayed when Comm Type is ‘‘avd’’. Specifies the baud rate to be used by pooled modems. Valid entries are 300, 1200 (default), 2400, 4800, 9600, and 19200.
- Synchronization—Displayed when Comm Type is ‘‘avd’’. Enter whether the trunk group will use synchronous or asynchronous communications. Valid entries are ‘‘async’’ (default) and ‘‘sync’’.
- Duplex—Displayed when Comm Type is ‘‘avd’’. Specifies either full or half duplex for the trunk group. Valid entries are ‘‘full’’ (default) or ‘‘half’’.
- Disconnect Supervision-Out—To Be Provided.
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250; default is ‘‘10’’.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, complete the next three fields.

- Long Holding Time (hours)—Is the length in hours that the System will consider as being a long holding time. If ‘‘0’’ is entered, the System will not consider long holding calls. Valid entries are 0–10; default is ‘‘1’’. Field must be ‘‘0’’ for a Service Type field entry of ‘‘sddn’’.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ‘‘internal’’, ‘‘external’’, ‘‘both’’, ‘‘none’’. Enter ‘‘internal’’ if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ‘‘external’’ to send the data to the Call Management System Adjunct. Enter ‘‘both’’ to send the data to both systems for measurement reports. Enter ‘‘none’’ (default) if trunk group measurements are not required.
- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Used for DCS—Specifies whether the trunk group will send and receive messages on a DCS signaling link. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- PBX ID—Displayed when the Used for DCS field is ‘‘y’’. Enter the ID of the PBX at the other end of this trunk.

  NOTE:
  This field cannot be activated if the tie trunk group number is greater than 255, if there are more than 255 members in the trunk group, or if the Trunk Access code is more than 3 digits long.

- DCS Signaling—Displayed when the Used for DCS field is ‘‘y’’. Enter ‘‘bx.25’’ for the standard DCS feature or ‘‘d-chan’’ for the DCS over ISDN-PRI D-channel feature.
- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ‘‘#’’ when ‘‘y’’ is entered here. The final # is suppressed in cases where System would normally outpulse it. This field should be ‘‘y’’ when the Central Office (for example, rotary) or any other facility treats # as an error; default is ‘‘n’’.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ‘‘y’’ (default) or ‘‘n’’.

Page 3 of the Form (If administrable timers used)

NOTE:
This page is displayed when Administrable Timers Page on page 1 is ''y''. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Incoming Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an incoming call from the serving CO. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Incoming Dial Guard (msec)—Enter the interval (in msec) between the detection of an incoming seizure and the acceptance of the first digit. The PBX will not accept digits before this timer expires. This timer is administrable on DID and TIE trunk groups. Valid entries are 10–2550 in increments of 10; default is 70.
- Incoming Partial Dial (sec)—Enter the time (in sec) allowed between digits on rotary DID and TIE trunks. Valid entries are 5–255 in increments of 1; default is 18.
- Incoming First Digit (msec)—Enter the length of time (in msec) for the switch to wait for a first digit. This timer limits the interval after incoming seizure but before the first digit is received on incoming DID or TIE calls over trunks using rotary signaling. Valid entries are 100–25500 in increments of 100; default is 1800.
- Incoming Incomplete Dial Alarm (sec)—Enter the time (in sec) between incoming seizure of a DID or TIE trunk and receipt of all digits. Intervals greater than this generate an inline error. Valid entries are 1–255 in increments of 1; default is 255.
- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ''y'' has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.
- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member's location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).
- Night—Enter the extension of the night destination for the trunk. This individual night destination overrides the group night service destination on the first page of the trunk group form. Incoming calls are routed to this destination when the system is placed in night service mode. (If ''attd'' is entered, night service will be to the attendant.)
- Mode—Specifies the signaling mode used on Tie Trunks with TN722A, TN722B, TN760B, TN767, or TN464C circuit packs. Valid entries are ''e&m'' (interface), ''simplex'' (phantomed), or ''protected''. This entry must correspond to associated dip switch settings on the circuit pack.
- Type—Specifies the type of trunk used. Valid entries are ''t1-stan'' (Type 1 Standard), ''t1-comp'' (Type 1 Compatible), or ''type-5''.

- Ans Delay—Specifies the length of the wait for answer supervision delay in ms for DS1 or Tie Trunks using the TN722A, TN722B, TN760 (B, C, or D), TN767, or TN464C circuit packs. Valid entries are 20–5100 in increments of 20; default is blank and internally treated as a zero. This delay serves two purposes:

  1. Used to assure that the answer supervision signal is valid and not a secondary delay-dial or wink-start signal.
  2. Used to bridge over momentary off-hook signals resulting from connections made off-network through certain No. 5 Crossbar CCSA switches as the connection is being established.

```
                                TRUNK GROUP                Page 1 of X

Group Number: xxx             Group Type: access      CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                  TAC: ____
   Direction: two-way_ Outgoing Display? n
 Dial Access? y          Busy Threshold: 255        Night Service: _____
Queue Length: 0__                           Incoming Destination: _____
   Comm Type: voice           Auth Code? n
              Administrable Timer Page? y

TRUNK PARAMETERS
Trunk Type(in/out): _____________       Incoming Rotary Timeout: 5_
Outgoing Dial Type: tone____                 Incoming Dial Type: tone__
                                        Disconnect Timing(msec): 500_
   Digit Treatment: __________                          Digits: _____
Incoming Dial Tone? y
Disconnect Supervision-Out? n
Answer Supervision Timeout: _10
```

Access Trunk Group Form (Page 1 of X)

Implementation Notes:

BCC is displayed when ISDN-PRI is optioned on the System-Parameters Customer-Options form and Comm Type is ‘‘avd’’ or ‘‘data’’.

Connected to Toll and DTT to DCO Loss are displayed when Trunk Type is ‘‘auto/...’’, ‘‘delay/...’’, ‘‘immed/...’’, or ‘‘wink/...’’.

STT Loss is displayed when Connected to Toll is ‘‘n’’.

Bit Rate, Synchronization, and Duplex are displayed when Comm Type is ‘‘avd’’.

ITC is displayed for non-ISDN trunk groups when Comm Type is ‘‘data’’, ‘‘avd’’, or ‘‘rbavd’’ and BCC is ‘‘0’’.

```
TRUNK FEATURES                                    Page 2 of X

        ACA Assignment? n                      Measured: none
                                          Data Restriction? n
          Used for DCS? n                Maintenance Tests? y
 Suppress # Outpulsing? n  Seized When Maintenance Busy: neither-end
```

Access Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when ACA Assignment is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold.

The PBX ID field is not displayed if the Used for DCS field is ‘‘n’’.

```
                                TRUNK GROUP              Page 3 of X
                                  TIMERS
                                              Outgoing Dial Guard (msec): ____
 Outgoing Glare Guard (msec): ___           Outgoing Glare Guard (msec): _____
                                 Outgoing Rotary Dial Interdigit (sec): ___
         Ring Monitor (msec): ____              Incoming Seizure (msec): ____
  Outgoing End of Dial (sec): __        Outgoing Seizure Response (sec): ___
Programmed Dial Pause (msec): ____

END TO END SIGNALING
   Tone (msec):____     Pause: (msec):____

OUTPULSING TIMING
     PPS: __       Make (msec): __     Break (msec): __
```

Access Trunk Group Administrable Timers Form (Page 3 of X)

Implementation Note:

This page is displayed when Administrable Timers Page on Page 1 is ‘‘y’’.

```
                                TRUNK GROUP                    Page 4 of X

                                        Administered Members(min/max): xxx/yyy
                                           Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name         Night    Mode     Type     Ans Delay
    1: _______  _____    _   ___________  _____  ________  _______    ____
    2: _______  _____    _   ___________  _____  ________  _______    ____
    3: _______  _____    _   ___________  _____  ________  _______    ____
    4: _______  _____    _   ___________  _____  ________  _______    ____
    5: _______  _____    _   ___________  _____  ________  _______    ____
    6: _______  _____    _   ___________  _____  ________  _______    ____
    7: _______  _____    _   ___________  _____  ________  _______    ____
    8: _______  _____    _   ___________  _____  ________  _______    ____
    9: 01a0304  TN767    _   denver       81324  ________  _______    ____
   10: _______  _____    _   ___________  _____  ________  _______    ____
   11: 02b0102  TN767    _   middletown   81345  ________  _______    ____
   12: _______  _____    _   ___________  _____  ________  _______    ____
   13: _______  _____    _   ___________  _____  ________  _______    ____
   14: _______  _____    _   ___________  _____  ________  _______    ____
   15: _______  _____    _   ___________  _____  ________  _______    ____
```

Access Trunk Group Forms (Pages 4–X)
(To reduce repetition, pages 5–X are not shown.)

APLT Trunk Group

This form is used to provide access to and termination from private line networks. APLT trunks are used with a Common Control Switching Arrangement (CCSA) or Enhanced Private Switched Communications Service (EPSCS) network.

Administration Commands

The following administration commands can be used to access the APLT Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ''aplt'' to identify the trunk group type.
- CDR Reports—Enter ''y'' (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''OUTSIDE CALL''.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Direction—Enter whether the trunk group is ''incoming'', ''outgoing'', or ''two-way'' (default).
- Outgoing Display—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ''y'' or ''n'' (default).
- Dial Access—Enter ''y'' (default) to allow the trunk group to be accessed via a TAC. Access via the ARS feature is allowed regardless of this entry.
- Busy Threshold—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.

- Night Service—Enter the extension number assigned to Night Service. The extension number entered will receive all incoming calls when Night Service is activated and the individual trunk member Night field is not administered to override this group extension. Valid entries are an extension number (can be a VDN extension), the attendant group access code (usually ‘‘0’’), **or** leave blank if the Trunk Type (in/out) field is not ‘‘auto/...’’.
- Queue Length—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ‘‘0’’ indicates no calls will be held in queue. Enter ‘‘0’’ (default) for DCS trunks. This field is turned off if the Direction field is ‘‘incoming’’.
- Incoming Destination—Indicates where incoming calls will terminate. Valid entries are an extension number, the attendant group access code (usually ‘‘0’’), VDN, **or** leave blank if the Trunk Type (in/out) field is not ‘‘auto/...’’. If ‘‘0’’ is entered, a call is treated as an LDN call.
- Auth Code—Enter ‘‘y’’ if an authorization code must be dialed to complete incoming calls on the trunk group; otherwise, enter ‘‘n’’ (default). This field can only be ‘‘y’’ if the Authorization Codes feature is enabled on the System-Parameters Customer-Options form.
- Administrable Timers Page—Entering ‘‘y’’ causes an Administrable Timers page to be added to the trunk group form. The Administrable Timers page then becomes Page 3 of X. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Trunk Type (in/out)—Identifies the physical type of incoming and outgoing trunks. Valid entries are listed below.

auto/auto	auto/delay	auto/immed	auto/wink
delay/auto	delay/delay	delay/immed	delay/wink
immed/auto	immed/delay	immed/immed	immed/wink
wink/auto	wink/delay	wink/immed	wink/wink

NOTE:
For immed/immed trunks (on incoming trunks), the far-end PBX seizes the trunk and then sends digits without waiting for acknowledgement from the receiving PBX. When heavily loaded, the receiving PBX may incur a short delay in attaching a Touch Tone Receiver to this call and, therefore, cause it to lose digits. Using wink-start trunks or increasing the dial-guard timer value on the far-end PBX avoids this problem.

- Incoming Rotary Timeout (sec)—Is the timing interval required by the central office that the System is connected to. If the System is connected to a step-by-step office, 18 s or more must be used; if the System is not connected to a step-by-step office, 5 s or more may be used. Valid entries are 5–99, or leave blank; default is 5.

- Outgoing Dial Type—Identifies the type of pulsing required on an outgoing call. Valid entries are ''tone'' (default) or ''rotary''.
- Incoming Dial Type—Indicates the type of pulses required on an incoming trunk group. Valid entries are ''tone'' (default) or ''rotary''.
- Disconnect Timing (msec)—Specifies the minimum time period in ms that is required for recognition of disconnect by the serving central office or far-end PBX. The time interval must be in increments of 10 (from 140–2550 ms); default is 500.
- Connected to Toll—Enter ''y'' if connected to a CO toll office; otherwise, enter ''n'' (default). This field is displayed when the Trunk Type field contains an entry of ''auto/...'', ''delay/...'', ''wink/...'', or ''immed/...''.
- STT Loss (Satellite PBX Tie Trunk Loss)—Displayed when Connected to Toll is ''n''. Specifies the loss plan to be used for the trunk group. Valid entries are ''normal'' (default) or ''low''. This option affects the transmission performance of a private PBX network.

  Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ''low'' option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should be used when:

  1. Stations on the satellite PBX complain of too much loss on calls to the public network.
  2. The PBX network consists of **no more** than three PBXs: one main and one or two satellite PBXs.
  3. All PBXs have the ''low'' option available.
  4. The total DS1 trunk connection length is less than 100 miles.

  If the preceding conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

  — normal—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

  — low—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.

- DTT to DCO Loss (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan used for the trunk group that connects a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). Displayed when the Trunk Type field contains an entry of auto/..., delay/..., wink/..., or immed/....

  This option affects the transmission performance of public network access via a private PBX network. Choose the ''low'' option if private network users complain about too much loss on calls to the public network, otherwise, the ''normal'' option should be used. Valid entries are ''normal'' (default) and ''low''. The entry is based on the following:

  — normal—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

  — low—Corresponds to (+3, -3) dB gain pair. Low is used for internetwork applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- Incoming Dial Tone—Indicates whether or not the trunk group will pass on incoming dial tone to the calling party. Valid entries are ''y'' or ''n''.
- Disconnect Supervision-Out—To Be Provided.
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250. The default is 10.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ''y'' (default) or ''n''. If ''y'' is entered, complete the next three fields.
- Long Holding Time (hours)—Is the length in hours that the System will consider as being a long holding time. If ''0'' is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. Field must be ''0'' for a Service Type of ''sddn''.

- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ''0'' is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ''internal'', ''external'', ''both'', ''none''. Enter ''internal'' if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ''external'' to send the data to the Call Management System Adjunct. Enter ''both'' to send the data to both systems for measurement reports. Enter ''none'' (default) if trunk group measurements are not required.
- Internal Alert—Specifies if internal ringing and coverage will be used for incoming calls. Valid entries are ''y'' or ''n'' (default).
- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ''y'' or ''n'' (default).
- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ''#'' when ''y'' is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ''y'' when the Central Office (for example, rotary) or any other facility treats # as an error; default is ''n''.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ''y'' (default) or ''n''.

Page 3 of the Form (If administrable timers used)

NOTE:
This page is displayed when Administrable Timers Page on page 1 is ''y''. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Incoming Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an incoming call from the serving CO. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.

- Incoming Dial Guard (msec)—Enter the interval (in msec) between the detection of an incoming seizure and the acceptance of the first digit. The PBX will not accept digits before this timer expires. This timer is administrable on DID and TIE trunk groups. Valid entries are 10–2550 in increments of 10; default is 70.
- Incoming Partial Dial (sec)—Enter the time (in sec) allowed between digits on rotary DID and TIE trunks. Valid entries are 5–255 in increments of 1; default is 18.
- Incoming First Digit (msec)—Enter the time (in msec) for the switch to wait for a first digit. This timer limits the interval after incoming seizure but before the first digit is received on incoming DID or TIE calls over trunks using rotary signaling. Valid entries are 100–25500 in increments of 100; default is 1800.
- Incoming Incomplete Dial Alarm (sec)—Enter the time (in sec) between incoming seizure of a DID or TIE trunk and receipt of all digits. Intervals greater than this generate an inline error. Valid entries are 1–255 in increments of 1; default is 255.
- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ‘‘y’’ has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.
- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

NOTE:
When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member's location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

  NOTE:
  Previously, Generic 1 Night Service and Balance/Loss information was entered in the Name field as ''NT#...'' and ''TT#)...''. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

- Night—Enter the extension of the night destination for the trunk. This individual night destination overrides the group night service destination on the first page of the trunk group form. Incoming calls are routed to this destination when the system is placed in night service mode. (If ''attd'' is entered, night service will be to the attendant.)
- Mode—Specifies the signaling mode used on Tie Trunks with TN722A, TN722B, TN760B, TN767, or TN464C circuit packs. Valid entries are ''e&m'' (interface), ''simplex'' (phantomed), or ''protected''. This entry must correspond to associated dip switch settings on the circuit pack.
- Type—Specifies the type of trunk used. Valid entries are ''t1-stan'' (Type 1 Standard), ''t1-comp'' (Type 1 Compatible), or ''type-5''.

- Ans Delay—Specifies the length of the wait for answer supervision delay in ms for DS1 or Tie Trunks using the TN722A, TN722B, TN760 (B, C, or D), TN767, or TN464C circuit packs. Valid entries are 20–5100 in increments of 20; default is blank and internally treated as a zero. This delay serves two purposes:

  1. Used to assure that the answer supervision signal is valid and not a secondary delay-dial or wink-start signal.
  2. Used to bridge over momentary off-hook signals resulting from connections made off-network through certain No. 5 Crossbar CCSA switches as the connection is being established.

```
                                TRUNK GROUP                  Page 1 of X

Group Number: xxx             Group Type: aplt         CDR Reports? y
  Group Name: OUTSIDE CALL          COR: 1                    TAC: ____
   Direction: two-way  Outgoing Display? n
 Dial Access? y          Busy Threshold: 255       Night Service: _____
Queue Length: 0                             Incoming Destination: _____
                             Auth Code? n
               Administrable Timer Page? y

TRUNK PARAMETERS
Trunk Type(in/out): _____________       Incoming Rotary Timeout: 5
Outgoing Dial Type: tone                     Incoming Dial Type: tone
                                        Disconnect Timing(msec): 500
        Incoming Dial Tone? y
Disconnect Supervision-Out? n
Answer Supervision Timeout: 10
```

Advanced Private Line Termination Trunk Group Form (Page 1 of X)

Implementation Notes:

Connected to Toll and DTT to DCO Loss are displayed when Trunk Type is ‘‘auto/...’’, ‘‘delay/...’’, ‘‘immed/...’’, or ‘‘wink/...’’.

STT Loss is displayed when the Connected to Toll field is ‘‘n’’.

```
                        TRUNK GROUP                      Page 2 of X
TRUNK FEATURES
         ACA Assignment? n                        Measured: none
                                                Internal Alert? n
                                              Data Restriction? n
                                             Maintenance Tests? y
  Suppress # Outpulsing? n   Seized When Maintenance Busy: neither-end
```

Advanced Private Line Termination Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when ACA Assignment is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold.

```
                                TRUNK GROUP              Page 3 of X
                                  TIMERS
                                                Outgoing Dial Guard (msec): ____
 Outgoing Glare Guard (msec): ___            Outgoing Glare Guard (msec): _____
                                 Outgoing Rotary Dial Interdigit (sec): ___
         Ring Monitor (msec): ____               Incoming Seizure (msec): ____
  Outgoing End of Dial (sec): __         Outgoing Seizure Response (sec): ___
Programmed Dial Pause (msec): ____

END TO END SIGNALING
   Tone (msec):____     Pause: (msec):____

OUTPULSING TIMING
     PPS: __       Make (msec): __     Break (msec): __
```

Advanced Private Line Termination Trunk Group Timers Form (Page 3 of X)

Implementation Note:

This page is displayed when Administrable Timers Page on Page 1 is ‘‘y’’.

```
                                TRUNK GROUP                    Page 4 of X

                                       Administered Members(min/max): xxx/yyy
                                          Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name         Night    Mode     Type     Ans Delay
    1: _______  _____    _   ___________  _____  ________  _______    ____
    2: _______  _____    _   ___________  _____  ________  _______    ____
    3: _______  _____    _   ___________  _____  ________  _______    ____
    4: _______  _____    _   ___________  _____  ________  _______    ____
    5: _______  _____    _   ___________  _____  ________  _______    ____
    6: _______  _____    _   ___________  _____  ________  _______    ____
    7: _______  _____    _   ___________  _____  ________  _______    ____
    8: _______  _____    _   ___________  _____  ________  _______    ____
    9: 01a0304  TN767    _   denver       81324  ________  _______    ____
   10: _______  _____    _   ___________  _____  ________  _______    ____
   11: 02b0102  TN767    _   middletown   81345  ________  _______    ____
   12: _______  _____    _   ___________  _____  ________  _______    ____
   13: _______  _____    _   ___________  _____  ________  _______    ____
   14: _______  _____    _   ___________  _____  ________  _______    ____
   15: _______  _____    _   ___________  _____  ________  _______    ____
```

Advanced Private Line Termination Trunk Group Form (Pages 4–X)
(To reduce repetition, pages 5–X are not shown.)

Central Office Trunk Group

This form is used to connect the System to the public telecommunications network via a local CO.

Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ‘‘co’’ to identify the trunk group type.
- CDR Reports—Enter ‘‘y’’ (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.

- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ‘‘OUTSIDE CALL’’.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Direction—Enter whether the trunk group is ‘‘incoming’’, ‘‘outgoing’’, or ‘‘two-way’’ (default).
- Outgoing Display—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Dial Access—Enter ‘‘y’’ (default) to allow the trunk group to be accessed via a TAC. Access via the ARS feature is allowed regardless of this entry.
- Busy Threshold—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.
- Night Service—Enter the extension number assigned to Night Service. The extension number entered will receive all incoming calls when Night Service is activated and the individual trunk member Night field is not administered to override this group extension. Valid entries are an extension number (can be a VDN extension), the attendant group access code (usually ‘‘0’’), **or** leave blank if the Trunk Type (in/out) field is not ‘‘auto/...’’.
- Queue Length—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ‘‘0’’ indicates no calls will be held in queue. Enter ‘‘0’’ (default) for DCS trunks. This field is turned off if the Direction field is ‘‘incoming’’.
- Trunk Flash—To Be Provided.
- Incoming Destination—Indicates where incoming calls will terminate. Valid entries are an extension number, the attendant group access code (usually ‘‘0’’), VDN, **or** leave blank if the Trunk Type (in/out) field is not ‘‘auto/...’’. If ‘‘0’’ is entered, a call is treated as an LDN call.
- Comm Type—Indicates if the trunk is to be used for voice, data, alternate voice-data (avd), or alternate voice/voice grade data and 56-kbps digital data (rbavd) calls. Valid entries are ‘‘avd’’, ‘‘rbavd’’, ‘‘voice’’ (default), or ‘‘data’’. Type ‘‘rbavd’’ supports access to voice/data SDN service on robbed-bit transmission facilities.

NOTE:
''avd'' and ''rbavd'' types require trunk member ports on a DS1 circuit pack. An ''rbavd'' type requires that the DS1 circuit pack be administered for robbed-bit, ISDN-EXT, or ISDN-PRI signaling.

- Auth Code—Enter ''y'' if an authorization code must be dialed to complete incoming calls on the trunk group; otherwise, enter ''n'' (default). This field can only be ''y'' if the Authorization Codes feature is enabled on the System-Parameters Customer-Options form.
- Digit Absorption List—Enter a digit list absorption number, if required, when this trunk group terminates at a step-by-step office. This field specifies the type of absorption as specified on the System Digit Absorption form. Up to five different forms (lists 0–4) may be administered in the System.
- Prefix-1—Specifies if the prefix 1 is required for N(0/1)X calls. Valid entries are ''y'' and ''n'' (default).
- Administrable Timers Page—Entering ''y'' causes an Administrable Timers page to be added to the trunk group form. The Administrable Timers page then becomes Page 3 of X. Valid entries are ''y'' or ''n'' (default).
- ITC (Information Transfer Capability)—Displayed for non-ISDN trunk groups when the Comm Type field is ''data'', ''avd'', or ''rbavd'' and the BCC field is not ''0''. Used by the GRS feature and enables the system to route calls to restricted or unrestricted facilities according to the endpoint's information transfer capability. Default is ''restricted''.
- BCC (Bearer Capability Class)—Displayed when the Integrated Services Digital Network—Primary Rate Interface is optioned for on the System-Parameters Customer-Options form and the Comm Type field is ''avd'' or ''data''. Used by the Generalized Route Selection feature and identifies the type of traffic on trunks in the group. The BCC entry is used by far-end tandem switches to select outgoing routing facilities with equivalent BCC classes. Valid entries are 0, 1, 2, 3, and 4; default is 0 for ''avd'' and 2 for ''data''.

  NOTE:
  Refer to ''Generalized Route Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls.

- Toll Restricted—Enter ''y'' (default) if this trunk group is to be toll restricted. This field only applies for outgoing TAC calls if the originating party is toll restricted.

- Trunk Type—Identifies the physical type of CO trunk. It may differ for incoming and outgoing types. Valid entries are ''ground-start'', ''loop-start'', ''auto/auto'', ''auto/delay'', ''auto/immed'', and ''auto/wink''.
- Outgoing Dial Type—Identifies the type of pulsing required on an outgoing call. Valid entries are ''tone'' (default) or ''rotary''.
- Trunk Termination—Specifies how the trunk group is terminated. Valid entries are ''600ohms'' or ''rc'' (default). Enter 600ohms when the PBX trunk port is connected to terminal equipment (for example, SLC® carrier or compensators optioned for 600 ohms input impedance) and the distance to the terminal equipment from the System is less than 3000 feet.
- Disconnect Timing (msec)—Specifies the minimum time period in ms that is required for recognition of disconnect by the serving central office or far-end PBX. The time interval must be in increments of 10 (from 140–2550); default is 500.
- Cyclical Hunt—Displayed when Direction is ''2-way'' and Trunk type is ''loop-start''. Enter ''y'' (default) if a preferential hunting algorithm is to be used. Otherwise, a linear hunting algorithm will be used.
- Connected to Toll—Enter ''y'' if connected to a CO toll office; otherwise, enter ''n'' (default). This field is displayed when the Trunk Type field contains an entry of ''auto/...'', ''delay/...'', ''wink/...'', or ''immed/...''.
- STT Loss (Satellite PBX Tie Trunk Loss)—Displayed when Connected to Toll is ''n''. Specifies the loss plan to be used for the trunk group. Valid entries are ''normal'' (default) or ''low''. This option affects the transmission performance of a private PBX network.

  Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ''low'' option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should only be used when:

  1. Stations on the satellite PBX complain of too much loss on calls to the public network.
  2. The PBX network consists of **no more** than three PBXs: one main and one or two satellite PBXs.
  3. All PBXs have the ''low'' option available.
  4. The total DS1 trunk connection length is less than 100 miles.

If the preceding conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

— normal—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

— low—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.

- DTT to DCO Loss (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan to be used for the trunk group for interconnections from a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). This field is displayed when the Trunk Type field contains an entry of auto/..., delay/..., wink/..., or immed/....

  This option affects the transmission performance of public network access via a private PBX network. Choose the ''low'' option when private network users complain about too much loss on calls to the public network, otherwise, the ''normal'' option should be used. Valid entries are ''normal'' (default) and ''low''. The entry is based on the following:

  — normal—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

  — low—Corresponds to (+3, -3) dB gain pair. Low is used for internetwork applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- Terminal Balanced—Displayed when the Trunk Type field is ‘‘ground-start’’ or ‘‘loop-start’’. Enter ‘‘y’’ for terminally balanced trunks or ‘‘n’’ (default) for unbalanced trunks. Typically, a Trunk Termination field of ‘‘600ohm’’ signifies a balanced trunk group and a field of ‘‘rc’’ signifies a non-balanced trunk group. If the trunks in this group pass the Low Frequency Return Loss test requirements, then they are terminally balanced, and this field should be ‘‘y’’.
- RA Trunk Loss—(Remote Access Trunk Loss)—Displayed when the Terminal Balanced entry is ‘‘n’’. Specifies the type of dB loss to be applied to non-terminally balanced trunks (Terminal Balanced field = ‘‘n’’). If unsatisfactory echo performance (hollowness) is experienced, the field should be changed to 2dB. Valid entries are ‘‘0db’’ (default) and ‘‘2db’’.
- Bit Rate—Displayed when the Comm Type field is ‘‘avd’’. Specifies the baud rate to be used by pooled modems. Valid entries are 300, 1200 (default), 2400, 4800, 9600, and 19200.
- Synchronization—Displayed when the Comm Type field is ‘‘avd’’. Enter whether the trunk group will use synchronous or asynchronous communications. Valid entries are ‘‘async’’ (default) and ‘‘sync’’.
- Duplex—Displayed when the Comm Type field is ‘‘avd’’. Specifies either full or half duplex for the trunk group. Valid entries are ‘‘full’’ (default) or ‘‘half’’.
- Disconnect Supervision-Out—To Be Provided.
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250; default is 10.

- Receive Answer Supervision—Specifies whether or not the trunks provide answer supervision from the network, and is used by the CDR feature. Answer supervision refers to notification from the far-end that the called party has gone off-hook to answer the call. When answer supervision is not provided, the originating PBX can classify a call as answered using the Answer Supervision Timeout field entry. For trunks over which answer supervision is provided by the network (for example, certain ground-start CO trunks), this field should be ‘‘y’’ and the Answer Supervision Timeout field ‘‘0’’ to disable the firmware time-out. Receive Answer Supervision must be ‘‘n’’ (default) if the Direction field is ‘‘incoming’’.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, complete the next three fields.
- Long Holding Time (hours)—Is the length in hours that the System will consider as being a long holding time. If ‘‘0’’ is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. Field must be ‘‘0’’ for a Service Type field entry of ‘‘sddn’’.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ‘‘internal’’, ‘‘external’’, ‘‘both’’, ‘‘none’’. Enter ‘‘internal’’ if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ‘‘external’’ to send the data to the Call Management System Adjunct. Enter ‘‘both’’ to send the data to both systems for measurement reports. Enter ‘‘none’’ if trunk group measurements are not required. System default is ‘‘none’’.
- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Abandoned Call Search—Administered when the Trunk Type is ‘‘ground-start’’. Enter a ‘‘y’’ if this trunk group will conduct an Abandoned Call Search to identify a ghost call; otherwise, enter ‘‘n’’ (default).

NOTE:
Abandoned Call Search is designed to work with CO trunks (ground start - analog) that *do not* provide disconnect supervision. Central offices that provide disconnect supervision do not require use of the Abandoned Call Search feature. The CO must support Abandoned Call Search for the feature to work properly.

- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ''#'' when ''y'' is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ''y'' when the Central Office (for example, rotary) or any other facility treats # as an error; default is ''n''.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ''y'' (default) or ''n''.

Page 3 of the Form (If administrable timers used)

NOTE:
This page is displayed when a ''y'' is entered in the Administrable Timers Page field on page 1 of the form. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Incoming Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an incoming call from the serving CO. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an outgoing call. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing Dial Guard (msec)—Enter the minimum time (in msec) between seizure of the trunk and outpulsing of digits. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1600.
- Incoming Glare Guard (msec)—Enter the incoming guard time (in msec) between the time the incoming trunk is released and the same trunk can be seized again. This guard time will ensure the far-end has released all equipment after the incoming trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.
- Outgoing Glare Guard (msec)—Enter the outgoing guard time (in msec) between the time the outgoing trunk is released and reseized. This guard time ensures that the far-end has released all equipment after the outgoing trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.

- Outgoing Rotary Dial Interdigit (msec)—Enter the interval (in msec) between rotary dial digits being outpulsed by the system (that is, PBX). Valid entries are 150–2550 in increments of 10. The field cannot be blank; default is 800.
- Ring Monitor (msec)—Enter the minimum time (in msec) required to determine if the trunk is disconnected. If the ringing signal disappears for a duration longer than the time specified in this field, the call will be assumed to be disconnected. Valid entries are 200–51000 in increments of 200. The field cannot be blank; default is 5200.
- Incoming Seizure (msec)—Enter the minimum time (in msec) required for recognition of incoming ringing signal from the serving CO. Valid entries are 20–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing End of Dial (sec)—Enter the time (in sec) a trunk may wait for answer supervision after dialing an outgoing call. During cut through operation, timing begins after each outgoing digit is sent by the PBX and timing ceases after the far end sends answer supervision. If the timer expires, the PBX acts as if it had received answer supervision when the timer expires. On senderized operation, the timer begins after the last digit collected is sent by the PBX. The timer ceases when the far end sends answer supervision. If the timer expires, the PBX acts as if it has received answer supervision. This field will not appear if the Receive Answer Supervision field is y(es) but a zero (0) value will be sent down to the firmware to disable the timer. This timer applies to the outgoing and two-way CO trunk groups. Valid entries are 1–254 in increments of 1; default is 10.
- Outgoing Seizure Response (sec)—Enter the time (in sec) by which the PBX should receive the proceed-to-dial indication from the far end after sending the seize signal. If the indication is not received in this time, a seizure failure response is uplinked. This timer is administrable per CO or TIE trunk group. Valid entries are 1–255 in increments of 1; default is 5.
- Programmed Dial Pause (msec)—Enter the length (in msec) of a pause during abbreviated dialing, ARS outpulsing, and terminal dialing operations. This timer is administrable for all outgoing and two-way trunk groups. Valid entries are 100–25500 in increments of 100; default is 1500.
- Disconnect Signal Error (sec)—Enter the time (in sec) within which a disconnect signal from the far end is expected after the internal party (a station or a tie trunk) goes on-hook. If the timer expires, the system can assume a disconnect failure and take an appropriate action (such as, error message). This timer is administrable on TIE or GS CO trunk groups. Valid entries are 1–255 in increments of 1; default is 240.

- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.
- PPS—Enter either ''10'' or ''20'' to specify the PPS (pulses per second) assigned to rotary dial pulse trunk groups. Valid entries are ''10'' or ''20''; default is 10.
- Make (msec)—Enter the duration of the make interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ''10'', the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 40.

  If the PPS field is ''20'', the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 20.
- Break (msec)—Enter the duration of the break interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ''10'', the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 60.

  If the PPS field is ''20'', the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 30.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ''y'' has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.

- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is ‘‘1’’ if no entry); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member’s location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

  NOTE:
  Previously, Generic 1 Night Service and Balance/Loss information was entered in the Name field as ‘‘NT#...’’ and ‘‘TT#)...’’. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

- Night—Enter the extension of the night destination for the trunk. This individual night destination overrides the group night service destination on the first page of the trunk group form. Incoming calls are routed to this destination when the system is placed in night service mode. (If ‘‘attd’’ is entered, night service will be to the attendant.)
- Mode—Specifies the signaling mode used on Tie Trunks with TN722A, TN722B, TN760B, TN767, or TN464C circuit packs. Valid entries are ‘‘e&m’’ (interface), ‘‘simplex’’ (phantomed), or ‘‘protected’’. This entry must correspond to associated dip switch settings on the circuit pack.
- Type—Specifies the type of trunk used. Valid entries are ‘‘t1-stan’’ (Type 1 Standard), ‘‘t1-comp’’ (Type 1 Compatible), or ‘‘type-5’’.
- Ans Delay—Specifies the length of the wait for answer supervision delay in ms for DS1 or Tie Trunks using the TN722A, TN722B, TN760 (B, C, or D), TN767, or TN464C circuit packs. Valid entries are 20–5100 in increments of 20; default is no entry (blank) and internally treated as a zero. This delay serves two purposes:

1. Used to assure that the answer supervision signal is valid and not a secondary delay-dial or wink-start signal.
2. Used to bridge over momentary off-hook signals resulting from connections made off-network through certain No. 5 Crossbar CCSA switches as the connection is being established.

```
                                TRUNK GROUP                Page 1 of X

Group Number: xxx            Group Type: co          CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                 TAC: ____
   Direction: two-way_ Outgoing Display? n
 Dial Access? y          Busy Threshold: 255        Night Service: _____
Queue Length: 0__           Trunk Flash? n   Incoming Destination: _____
   Comm Type: voice           Auth Code? n Digit Absorption List: _
    Prefix-1? y Administrable Timer Page? y      Toll Restricted? y

TRUNK PARAMETERS
               Trunk Type: ____________
        Outgoing Dial Type: tone____
         Trunk Termination: rc____       Disconnect Timing(msec): 500_
             Cyclical Hunt? y
Disconnect Supervision-Out? n
Answer Supervision Timeout: _10       Receive Answer Supervision? n
```

Central Office Trunk Group Administrable Timers (Page 1 of X)

Implementation Notes:

The BCC field is displayed when ISDN-PRI is optioned for on the System-Parameters Customer-Options form and the Comm Type field is ‘‘avd’’ or ‘‘data’’.

The Connected to Toll and DTT to DCO Loss fields are displayed when the Trunk Type field is ‘‘auto/...’’.

The STT Loss field is displayed when the Connected to Toll field is ‘‘n’’.

The Terminal Balanced field is displayed when the Trunk Type field is ‘‘ground-start’’ or ‘‘loop-start’’. The RA Trunk Loss field is displayed when the Terminal Balanced field is ‘‘n’’.

The Bit Rate, Synchronization, and Duplex fields are displayed when the Comm Type field is ‘‘avd’’.

The Trunk Flash field is displayed when the Group Type field is ‘‘co’’, ‘‘fx’’, or ‘‘wats’’.

```
                              TRUNK GROUP                Page 2 of X
TRUNK FEATURES
         ACA Assignment? n                        Measured: none
                                               Data Restriction? n
  Abandoned Call Search? n
  Suppress # Outpulsing? n                 Maintenance Tests? y
```

Central Office Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when the ACA Assignment field is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold.

```
                                  TRUNK GROUP              Page 3 of X
                                    TIMERS
                                                Outgoing Dial Guard (msec): ____
 Outgoing Glare Guard (msec): ___             Outgoing Glare Guard (msec): _____
                                 Outgoing Rotary Dial Interdigit (sec): ___
         Ring Monitor (msec): ____               Incoming Seizure (msec): ____
  Outgoing End of Dial (sec): __         Outgoing Seizure Response (sec): ___
Programmed Dial Pause (msec): ____

END TO END SIGNALING
   Tone (msec):____     Pause: (msec):____

OUTPULSING TIMING
     PPS: __       Make (msec): __     Break (msec): __
```

Central Office Trunk Group Form (Page 3 of X)

Implementation Note:

The Administrable Timers Form page is displayed when a ‘‘y’’ is entered in the Administrable Timers Page field on Page 1 of the form.

```
                                TRUNK GROUP                      Page 4 of X

                                          Administered Members(min/max): xxx/yyy
                                             Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name         Night    Mode     Type     Ans Delay
    1: ________ ______    _   ____________ _____ _________ ________   ____
    2: ________ ______    _   ____________ _____ _________ ________   ____
    3: ________ ______    _   ____________ _____ _________ ________   ____
    4: ________ ______    _   ____________ _____ _________ ________   ____
    5: ________ ______    _   ____________ _____ _________ ________   ____
    6: ________ ______    _   ____________ _____ _________ ________   ____
    7: ________ ______    _   ____________ _____ _________ ________   ____
    8: ________ ______    _   ____________ _____ _________ ________   ____
    9: 01a0304  TN767     _   denver       81324 _________ ________   ____
   10: ________ ______    _   ____________ _____ _________ ________   ____
   11: 02b0102  TN767     _   middletown   81345 _________ ________   ____
   12: ________ ______    _   ____________ _____ _________ ________   ____
   13: ________ ______    _   ____________ _____ _________ ________   ____
   14: ________ ______    _   ____________ _____ _________ ________   ____
   15: ________ ______    _   ____________ _____ _________ ________   ____
```

Central Office Trunk Group Form (Pages 4–X)
(To reduce repetition, pages 5–X are not shown.)

CPE Trunk Group

This form is used to provide access between the System and customer-provided equipment.

Administration Commands

The following administration commands can be used to access the CPE Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ''cpe'' to identify the trunk group type.
- CDR Reports—Enter ''y'' (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''OUTSIDE CALL''.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Outgoing Display—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ''y'' or ''n'' (default).
- Dial Access—Enter ''y'' (default) to allow the trunk group to be accessed via a TAC. Access via the ARS feature is allowed regardless of this entry.
- Busy Threshold—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.

- Queue Length—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ‘‘0’’ (default) indicates no calls will be held in queue. Enter ‘‘0’’ for DCS trunks. This field is turned off if the Direction field is ‘‘incoming’’.
- Disconnect Timing (msec)—Specifies the minimum time period in ms that is required for recognition of disconnect by the serving central office or far-end PBX. The time interval must be in increments of 10 (from 140–2550 ms). default is 500.
- End-to-End Signaling—Specifies the duration (in ms) of touch-tone signal tone which is sent to the far-end for interpretation by devices at that location. Valid entries are 60–360 in increments of 10, or leave blank; default is 60.
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250. The default is ‘‘10’’.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, complete the next three fields.
- Long Holding Time (hours)—The length in hours that the System considers as being a long holding time. If ‘‘0’’ is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. This field must be ‘‘0’’ for a Service Type field entry of ‘‘sddn’’.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ‘‘internal’’, ‘‘external’’, ‘‘both’’, ‘‘none’’. Enter ‘‘internal’’ if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ‘‘external’’ to send the data to the Call Management System Adjunct. Enter ‘‘both’’ to send the data to both systems for measurement reports. Enter ‘‘none’’ if trunk group measurements are not required. System default is ‘‘none’’.

- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ‘‘#’’ when ‘‘y’’ is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ‘‘y’’ when the Central Office (for example, rotary) or any other facility treats # as an error; default is ‘‘n’’.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ‘‘y’’ (default) or ‘‘n’’.

Pages 3–X of the Form (Group Member Assignments)

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.
- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is ‘‘1’’ if no entry); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member’s location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

NOTE:
Previously, Generic 1 Night Service and Balance/Loss information was entered in the Name field as ‘‘NT#...’’ and ‘‘TT#)...’’. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

```
                                TRUNK GROUP            Page 1 of 19

Group Number: xxx          Group Type: cpe          CDR Reports? y
  Group Name: OUTSIDE_CALL____    COR: 1_                   TAC:____
                     Outgoing Display? n
 Dial Access? y        Busy Threshold: 255
Queue Length: 0__

TRUNK PARAMETERS
                                        Disconnect Timing(msec): 500_
      End-to-End Signaling: 60_
Answer Supervision Timeout: _10
```

Customer-Provided Equipment Trunk Group Form (Page 1 of 19)

```
                               TRUNK GROUP           Page 2 of 19
TRUNK FEATURES
         ACA Assignment? n                Measured: none
                                   Data Restriction? n
  Suppress # Outpulsing? n        Maintenance Tests? y

         ACA Assignment? n                      Measured: none
                                     Data Restriction? n
  Suppress # Outpulsing? n               Maintenance Tests? y
```

Customer-Provided Equipment Trunk Group Form (Page 2 of 19)

Implementation Note:

The following fields are displayed when the ACA Assignment field is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold

```
                                    TRUNK GROUP                Page 3 of 19

                                           Administered Members(min/max): xxx/yyy
                                              Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name
    1: _______  _____     _   __________
    2: _______  _____     _   __________
    3: _______  _____     _   __________
    4: _______  _____     _   __________
    5: _______  _____     _   __________
    6: _______  _____     _   __________
    7: _______  _____     _   __________
    8: _______  _____     _   __________
    9: _______  _____     _   __________
   10: _______  _____     _   __________
   11: _______  _____     _   __________
   12: _______  _____     _   __________
   13: _______  _____     _   __________
   14: _______  _____     _   __________
   15: _______  _____     _   __________
```

Customer-Provided Equipment Trunk Group Form (Pages 3–19)
(To reduce repetition, pages 4–19 are not shown.)

Digital Multiplexed Interface (DMI)—BOS Trunk Group

This form is used to allow communications to/from the System using DMI-BOS protocol.

Administration Commands

The following administration commands can be used to access the DMI-BOS Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ''dmi-bos'' to identify the trunk group type.
- CDR Reports—Enter ''y'' (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''OUTSIDE CALL''.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Direction—Enter whether the trunk group is ''incoming'', ''outgoing'', or ''two-way'' (default).
- Outgoing Display—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ''y'' or ''n'' (default).
- Dial Access—Enter ''y'' (default) to allow the trunk group to be accessed via a TAC. Access via the ARS feature is allowed regardless of this entry.
- Busy Threshold—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.

- Night Service—Enter the extension number assigned to Night Service. The extension number entered will receive all incoming calls when Night Service is activated and the individual trunk member Night field is not administered to override this group extension. Valid entries are an extension number (can be a VDN extension), the attendant group access code (usually ''0''), **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''.
- Incoming Destination—Indicates where incoming calls will terminate. Valid entries are an extension number, the attendant group access code (usually ''0''), VDN, **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''. Enter ''0'' to treat calls as LDN calls.
- Auth Code—Enter ''y'' if an authorization code must be dialed to complete incoming calls on the trunk group; otherwise, enter ''n'' (default). This field can only be ''y'' if the Authorization Codes feature is enabled on the System-Parameters Customer-Options form.
- Administrable Timers Page—Entering ''y'' causes an Administrable Timers page to be added to the trunk group form. The Administrable Timers page then becomes Page 3 of X. Valid entries are ''y'' or ''n'' (default).
- Trunk Type (in/out)—Identifies the physical type of incoming and outgoing trunks. Valid entries are listed below.

auto/auto	auto/delay	auto/immed	auto/wink
delay/auto	delay/delay	delay/immed	delay/wink
immed/auto	immed/delay	immed/immed	immed/wink
wink/auto	wink/delay	wink/immed	wink/wink

NOTE:
For immed/immed trunks (on incoming trunks), the far-end PBX seizes the trunk and then sends digits without waiting for acknowledgement from the receiving PBX. When heavily loaded, the receiving PBX may incur a short delay in attaching a Touch Tone Receiver to this call and, therefore, cause it to lose digits. Using wink-start trunks or increasing the dial-guard timer value on the far-end PBX avoids this problem.

- Incoming Rotary Timeout (sec)—Is the timing interval required by the central office that the System is connected to. If the System is connected to a step-by-step office, 18 s or more must be used; if the System is not connected to a step-by-step office, 5 s or more may be used. Valid entries are 5–99, or leave blank; default is 5.
- Outgoing Dial Type—Identifies the type of pulsing required on an outgoing call. Valid entries are ''tone'' (default) or ''rotary''.
- Incoming Dial Type—Indicates the type of pulses required on an incoming trunk group. Valid entries are ''tone'' (default) or ''rotary''.

- Disconnect Timing (msec)—Specifies the minimum time in ms to recognize a disconnect by the serving central office or far-end PBX. Valid entries are 140–2550 ms in increments of 10 ms; default is 500.
- Digit Treatment—Indicates if digits are to be absorbed or inserted. A blank indicates no digit absorption or insertion. Valid entries are ''absorption'' or ''insertion'', or leave blank.
- Digits—Indicates the digits to be inserted or number of digits to be absorbed. This field is used with the Digit Treatment field. No entry indicates no digit absorption or insertion is done. Valid entries are the number of digits to be absorbed (1–5) or the actual digits to be inserted (up to 5 digits) (incoming).
- Connected to Toll—Enter ''y'' if connected to a CO toll office; otherwise, enter ''n'' (default). This field is displayed when the Trunk Type field contains an entry of ''auto/...'', ''delay/...'', ''wink/...'', or ''immed/...''.
- STT Loss (Satellite PBX Tie Trunk Loss)—Displayed when Connected to Toll is ''n''. Specifies the loss plan to be used for the trunk group. Valid entries are ''normal'' (default) or ''low''. This option affects the transmission performance of a private PBX network.

  Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ''low'' option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should be used when:

  1. Stations on the satellite PBX complain of too much loss on calls to the public network.
  2. The PBX network consists of **no more** than three PBXs: one main and one or two satellite PBXs.
  3. All PBXs have the ''low'' option available.
  4. The total DS1 trunk connection length is less than 100 miles.

  If the preceding conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

  — normal—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

  — low—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.

- DTT to DCO Loss (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan used for the trunk group that connects a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). Displayed when the Trunk Type field is auto/..., delay/..., wink/..., or immed/....

  This option affects the transmission performance of public network access via a private PBX network. Choose the ''low'' option if private network users complain about too much loss on calls to the public network, otherwise, the ''normal'' option should be used. Valid entries are ''normal'' (default) and ''low''. The entry is based on the following:

  — normal—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

  — low—Corresponds to (+3, -3) dB gain pair. Low is used for internetwork applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- Incoming Dial Tone—Indicates whether or not the trunk group will pass on incoming dial tone to the calling party. Valid entries are ''y'' or ''n''.
- Bit Rate—Displayed when the Comm Type field is ''avd''. Specifies the baud rate to be used by pooled modems. Valid entries are 300, 1200 (default), 2400, 4800, 9600, and 19200.
- Synchronization—Displayed when the Comm Type field is ''avd''. Enter whether the trunk group will use synchronous or asynchronous communications. Valid entries are ''async'' (default) and ''sync''.
- Duplex—Displayed when the Comm Type field is ''avd''. Specifies either full or half duplex for the trunk group. Valid entries are ''full'' (default) or ''half''.
- Disconnect Supervision-Out—To Be Provided.
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250; default is ''10''.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, complete the next three fields.
- Long Holding Time (hours)—Is the length in hours that the System will consider as being a long holding time. If ‘‘0’’ is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. This field must be ‘‘0’’ for a Service Type field entry of ‘‘sddn’’.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is ‘‘15’’.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ‘‘internal’’, ‘‘external’’, ‘‘both’’, ‘‘none’’. Enter ‘‘internal’’ if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ‘‘external’’ to send the data to the Call Management System Adjunct. Enter ‘‘both’’ to send the data to both systems for measurement reports. Enter ‘‘none’’ if trunk group measurements are not required. System default is ‘‘none’’.
- Internal Alert—Specifies if internal ringing and coverage will be used for incoming calls. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ‘‘#’’ when ‘‘y’’ is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ‘‘y’’ when the Central Office (for example, rotary) or any other facility treats # as an error; default is ‘‘n’’.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ‘‘y’’ (default) or ‘‘n’’.

Page 3 of the Form (If administrable timers used)

NOTE:
This page is displayed when ‘‘y’’ is entered in the Administrable Timers Page field on page 1 of the form. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Incoming Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an incoming call from the serving CO. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Incoming Dial Guard (msec)—Enter the interval (in msec) between the detection of an incoming seizure and the acceptance of the first digit. The PBX will not accept digits before this timer expires. This timer is administrable on DID and TIE trunk groups. Valid entries are 10–2550 in increments of 10; default is 70.
- Incoming Partial Dial (sec)—Enter the time (in sec) allowed between digits on rotary DID and TIE trunks. Valid entries are 5–255 in increments of 1; default is 18.
- Incoming First Digit (msec)—Enter the time (in msec) for the switch to wait for a first digit. This timer limits the interval after incoming seizure but before the first digit is received on incoming DID or TIE calls over trunks using rotary signaling. Valid entries are 100–25500 in increments of 100; default is 1800.
- Incoming Incomplete Dial Alarm (sec)—Enter the time (in sec) between incoming seizure of a DID or TIE trunk and receipt of all digits. Intervals greater than this generate an inline error. Valid entries are 1–255 in increments of 1; default is 255.
- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ‘‘y’’ has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that is administered for the particular trunk group (displayed on all member pages).
- Total Administered Members—Indicates the total number of members administered in the trunk group (appears on all trunk group member pages).

- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is ‘‘1’’ if no entry); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member’s location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

  NOTE:
  Previously, System 75 Night Service and Balance/Loss information was entered in the Name field as ‘‘NT#...’’ and ‘‘TT#)...’’. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

- Night—Enter the extension of the night destination for the trunk. This individual night destination overrides the group night service destination on the first page of the trunk group form. Incoming calls are routed to this destination when the system is placed in night service mode. (If ‘‘attd’’ is entered, night service will be to the attendant.)
- Mode—Specifies the signaling mode used on Tie Trunks with TN722A, TN722B, TN760B, TN767, or TN464C circuit packs. Valid entries are ‘‘e&m’’ (interface), ‘‘simplex’’ (phantomed), or ‘‘protected’’. This entry must correspond to associated dip switch settings on the circuit pack.
- Type—Specifies the type of trunk used. Valid entries are ‘‘t1-stan’’ (Type 1 Standard), ‘‘t1-comp’’ (Type 1 Compatible), or ‘‘type-5’’.

- Ans Delay—Specifies the length of the wait for answer supervision delay in ms for DS1 or Tie Trunks using the TN722A, TN722B, TN760 (B, C, or D), TN767, or TN464C circuit packs. Valid entries are 20–5100 in increments of 20; default is no entry (blank) and internally treated as a zero. This delay serves two purposes:
  1. Used to assure that the answer supervision signal is valid and not a secondary delay-dial or wink-start signal.
  2. Used to bridge over momentary off-hook signals resulting from connections made off-network through certain No. 5 Crossbar CCSA switches as the connection is being established.

```
                                TRUNK GROUP              Page 1 of X

Group Number: xxx             Group Type: dmi-bos          CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                        TAC: ____
   Direction: two-way_ Outgoing Display? n
 Dial Access? y          Busy Threshold: 255            Night Service: _____
                                                 Incoming Destination: _____
                              Auth Code? n
               Administrable Timer Page? n

TRUNK PARAMETERS
Trunk Type(in/out): _____________       Incoming Rotary Timeout: 5_
Outgoing Dial Type: tone____                 Incoming Dial Type: tone__
                                        Disconnect Timing(msec): 500_
   Digit Treatment: __________                            Digits: _____
Incoming Dial Tone? y
          Bit Rate: 1200_   Synchronization: async        Duplex: full

Disconnect Supervision-Out? n
Answer Supervision Timeout: _10
```

Digital Multiplexed Interface Trunk Group Form (Page 1 of X)

Implementation Notes:

The Connected to Toll and DTT to DCO Loss fields are displayed when the Trunk Type field is ‘‘auto/...’’, ‘‘delay/...’’, ‘‘wink/...’’, or ‘‘immed/...’’.

The STT Loss field is displayed when the Connected to Toll field is ‘‘n’’.

```
                                TRUNK GROUP                    Page 2 of X
TRUNK FEATURES
         ACA Assignment? n                        Measured: none
                                              Internal Alert? n
                                           Data Restriction? n
                                          Maintenance Tests? y
  Suppress # Outpulsing? n   Seized When Maintenance Busy: neither-end
```

Digital Multiplexed Interface Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when the ACA Assignment field is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold.

```
                                TRUNK GROUP              Page 3 of X
                                  TIMERS
                                                Outgoing Dial Guard (msec): ____
 Outgoing Glare Guard (msec): ___             Outgoing Glare Guard (msec): _____
                                 Outgoing Rotary Dial Interdigit (sec): ___
         Ring Monitor (msec): ____                Incoming Seizure (msec): ____
  Outgoing End of Dial (sec): __          Outgoing Seizure Response (sec): ___
Programmed Dial Pause (msec): ____

END TO END SIGNALING
   Tone (msec):____     Pause: (msec):____

OUTPULSING TIMING
     PPS: __       Make (msec): __     Break (msec): __
```

Digital Multiplexed Interface Trunk Timers Form (Page 3 of X)

```
                                TRUNK GROUP                    Page 4 of X

                                        Administered Members(min/max): xxx/yyy
                                           Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name         Night    Mode     Type     Ans Delay
    1: _______  _____    _   ___________  _____  ________  _______    ____
    2: _______  _____    _   ___________  _____  ________  _______    ____
    3: _______  _____    _   ___________  _____  ________  _______    ____
    4: _______  _____    _   ___________  _____  ________  _______    ____
    5: _______  _____    _   ___________  _____  ________  _______    ____
    6: _______  _____    _   ___________  _____  ________  _______    ____
    7: _______  _____    _   ___________  _____  ________  _______    ____
    8: _______  _____    _   ___________  _____  ________  _______    ____
    9: 01a0304  TN767    _   denver       81324  ________  _______    ____
   10: _______  _____    _   ___________  _____  ________  _______    ____
   11: 02b0102  TN767    _   middletown   81345  ________  _______    ____
   12: _______  _____    _   ___________  _____  ________  _______    ____
   13: _______  _____    _   ___________  _____  ________  _______    ____
   14: _______  _____    _   ___________  _____  ________  _______    ____
   15: _______  _____    _   ___________  _____  ________  _______    ____
```

Digital Multiplexed Interface Trunk Group Form (Pages 4–X)
(To reduce repetition, pages 5–X are not shown.)

Direct Inward Dialing (DID) Trunk Group

This form is used to allow an incoming call from the exchange network to reach a specific extension number directly without attendant intervention.

Administration Commands

The following administration commands can be used to access the DID Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ''did'' to identify the trunk group type.
- CDR Reports—Enter ''y'' (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''OUTSIDE CALL''.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Auth Code—Enter ''y'' if an authorization code must be dialed to complete incoming calls on the trunk group; otherwise, enter ''n'' (default). This field can only be ''y'' if the Authorization Codes feature is enabled on the System-Parameters Customer-Options form.
- Administrable Timers Page—Enter a ''y'' to add the Administrable Timers page as Page 3 of X of the Trunk Group form. Valid entries are ''y'' or ''n'' (default).
- Trunk Type—Identifies the physical type of CO trunk. It may differ for incoming and outgoing types. Valid entries are ''ground-start'', ''loop-start'', ''auto/auto'', ''auto/delay'', ''auto/immed'', and ''auto/wink''.

- Incoming Rotary Timeout (sec)—Is the timing interval required by the central office that the System is connected to. If the System is connected to a step-by-step office, 18 s or more must be used; if the System is not connected to a step-by-step office, 5 s or more may be used. Valid entries are 5–99, or leave blank; default is 5.
- Incoming Dial Type—Indicates the type of pulses required on an incoming trunk group. Valid entries are ''tone'' (default) or ''rotary''.
- Trunk Termination—Specifies how the trunk group is terminated. Valid entries are ''600ohms'' or ''rc'' (default). Use 600ohms when the PBX trunk port is connected to terminal equipment (for example, SLC® carrier or compensators optioned for 600 ohms input impedance) and the distance to the terminal equipment from the System is less than 3000 feet.
- Disconnect Timing (msec)—Specifies the minimum time period in ms that is required for recognition of disconnect by the serving central office or far-end PBX. The time interval must be in increments of 10 (from 140–2550 ms); default is 500.
- Digit Treatment—Indicates if digits are to be absorbed or inserted. A blank indicates no digit absorption or insertion. Valid entries are ''absorption'' or ''insertion'', or leave blank.
- Digits—Indicates the digits to be inserted or number of digits to be absorbed. This field is used with the Digit Treatment field. No entry indicates no digit absorption or insertion is done. Valid entries are the number of digits to be absorbed (1–5) or the actual digits to be inserted (up to 5 digits).
- Expected Digits—To be provided.
- Connected to Toll—Enter ''y'' if connected to a CO toll office; otherwise, enter ''n'' (default). This field is displayed when the Trunk Type field contains an entry of ''auto/...'', ''delay/...'', ''wink/...'', or ''immed/...''.
- STT Loss (Satellite PBX Tie Trunk Loss)—Displayed when Connected to Toll is ''n''. Specifies the loss plan to be used for the trunk group. Valid entries are ''normal'' (default) or ''low''. This option affects the transmission performance of a private PBX network.

  Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ''low'' option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should be used when:

  1. Stations on the satellite PBX complain of too much loss on calls to the public network.
  2. The PBX network consists of **no more** than three PBXs: one main and one or two satellite PBXs.

3. All PBXs have the ''low'' option available.
4. The total DS1 trunk connection length is less than 100 miles.

If the preceding conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

— normal—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

— low—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.

- DTT to DCO Loss (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan to be used for the trunk group for interconnections from a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). This field is displayed when the Trunk Type field contains an entry of auto/..., delay/..., wink/..., or immed/....

  This option affects the transmission performance of public network access via a private PBX network. Choose the ''low'' option if private network users complain about too much loss on calls to the public network, otherwise, the ''normal'' option should be used. Valid entries are ''normal'' (default) and ''low''. The entry is based on the following:

  — normal—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

  — low—Corresponds to (+3, -3) dB gain pair. Low is used for internetwork applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- Terminal Balanced—Displayed when the Trunk Type field is ‘‘ground-start’’ or ‘‘loop-start’’. Enter ‘‘y’’ for terminally balanced trunks or ‘‘n’’ (default) for unbalanced trunks. Typically, a Trunk Termination field of ‘‘600ohms’’ signifies a balanced trunk group and a field of ‘‘rc’’ signifies a non-balanced trunk group. If the trunks in this group pass the Low Frequency Return Loss test requirements, then they are terminally balanced and this field should be ‘‘y’’.
- RA Trunk Loss—(Remote Access Trunk Loss) Displayed when the Terminal Balanced field is ‘‘n’’. Specifies the type of dB loss to be applied to terminally unbalanced trunks. If unsatisfactory echo performance (hollowness) is experienced, the field should be changed to 2dB. Valid entries are ‘‘0db’’ (default) and ‘‘2db’’.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, complete the next three fields.
- Long Holding Time (hours)—Is the length in hours that the System will consider as being a long holding time. If ‘‘0’’ is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. Field must be ‘‘0’’ for a Service Type field entry of ‘‘sddn’’.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ‘‘internal’’, ‘‘external’’, ‘‘both’’, ‘‘none’’. Enter ‘‘internal’’ if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ‘‘external’’ to send the data to the Call Management System Adjunct. Enter ‘‘both’’ to send the data to both systems for measurement reports. Enter ‘‘none’’ if trunk group measurements are not required. System default is ‘‘none’’.
- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ‘‘y’’ or ‘‘n’’ (default).

- Abandoned Call Search—Applicable when Trunk Type field is ‘‘ground-start’’. Enter a ‘‘y’’ if this trunk group will conduct an Abandoned Call Search to identify a ghost call; otherwise, enter ‘‘n’’ (default).

  NOTE:
  Abandoned Call Search is designed to work with CO trunks (ground start - analog) that **do not** provide disconnect supervision. Central offices that provide disconnect supervision do not require use of the Abandoned Call Search feature. The CO must support Abandoned Call Search for the feature to work properly.

- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ‘‘#’’ when ‘‘y’’ is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ‘‘y’’ when the Central Office (for example, rotary) or any other facility treats # as an error; default is ‘‘n’’.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ‘‘y’’ (default) or ‘‘n’’.

Page 3 of the Form (If administrable timers used)

NOTE:
This page is displayed when ‘‘y’’ is entered in the Administrable Timers Page field on page 1 of the form. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Incoming Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an incoming call from the serving CO. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Incoming Dial Guard (msec)—Enter the interval (in msec) between the detection of an incoming seizure and the acceptance of the first digit. The PBX will not accept digits before this timer expires. This timer is administrable on DID and TIE trunk groups. Valid entries are 10–2550 in increments of 10; default is 70.
- Incoming Partial Dial (sec)—Enter the time (in sec) allowed between digits on rotary DID and TIE trunks. Valid entries are 5–255 in increments of 1; default is 18.
- Incoming First Digit (msec)—Enter the time (in msec) for the switch to wait for a first digit. This timer limits the interval after incoming seizure but before the first digit is received on incoming DID or TIE calls over trunks using rotary signaling. Valid entries are 100–25500 in increments of 100; default is 1800.

- Incoming Incomplete Dial Alarm (sec)—Enter the time (in sec) between incoming seizure of a DID or TIE trunk and receipt of all digits. Intervals greater than this generate an inline error. Valid entries are 1–255 in increments of 1; default is 255.
- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ''y'' has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.
- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is ''1'' if no entry); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member's location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.

- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

  NOTE:
  Previously, System 75 Night Service and Balance/Loss information was entered in the Name field as ‘‘NT#...’’ and ‘‘TT#)...’’. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

```
                                TRUNK GROUP            Page 1 of X

Group Number: xxx            Group Type: did         CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                 TAC: ____
                             Auth Code? n
               Administrable Timer Page? n

TRUNK PARAMETERS
        Trunk Type: _____________         Incoming Rotary Timeout: 5_
                                               Incoming Dial Type: tone__
 Trunk Termination: rc____                Disconnect Timing(msec): 500_
   Digit Treatment: __________                             Digits: _____
   Expected Digits: __
```

Direct Inward Dialing Trunk Group Form (Page 1 of X)

Implementation Note:

The Terminal Balanced field is displayed when the Trunk Type field is ‘‘immed-start’’ or ‘‘wink-start’’.

The RA Trunk Loss field is displayed when the Terminal Balanced field is ‘‘n’’.

```
                              TRUNK GROUP             Page 2 of X
TRUNK FEATURES
         ACA Assignment? n                       Measured: none
                                              Data Restriction? n
  Suppress # Outpulsing? n                 Maintenance Tests? y
```

Direct Inward Dialing Trunk Group Form (Page 2 of X)

Implementation Notes:

The following fields are displayed when the ACA Assignment field is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold.

```
                                  TRUNK GROUP              Page 3 of X
                                    TIMERS
 Incoming Disconnect (msec): ___
 Incoming Dial Guard (msec): ___
                                        Incoming Incomplete Dial Alarm (sec): ___
END TO END SIGNALING
   Tone (msec): ____     Pause (msec): ____
```

Direct Inward Dialing Trunk Group Administrable Timers Form (Page 3 of X)

Implementation Note:

This page is displayed when ‘‘y’’ is entered in the Administrable Timers Page field on page 1.

```
                                TRUNK GROUP                Page 4 of X

                                       Administered Members(min/max): xxx/yyy
                                          Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
          Port     Code     Sfx  Name
     226: ________ ______    _   ___________
     227: ________ ______    _   ___________
     228: ________ ______    _   ___________
     229: ________ ______    _   ___________
     230: ________ ______    _   ___________
     231: ________ ______    _   ___________
     232: ________ ______    _   ___________
     233: ________ ______    _   ___________
     234: ________ ______    _   ___________
     235: 02a0103  TN753     _   holmdel
     236: 01b0205  TN753     _   allentown
     237: 01c0101  TN753     _   lincroft
     238: ________ ______    _   ___________
     239: ________ ______    _   ___________
     240: ________ ______    _   ___________
```

Direct Inward Dialing Trunk Group Form (Pages 4–X)
(To reduce repetition, pages 5–X are not shown.)

Foreign Exchange Trunk Group

This form is used to allow a connection between a distant central office and the System.

Administration Commands

The following administration commands can be used to access the FX Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- **Group Number**—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- **Group Type**—Enter ''fx'' to identify the trunk group type.
- **CDR Reports**—Enter ''y'' (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- **Group Name**—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''OUTSIDE CALL''.
- **COR**—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- **TAC**—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- **Direction**—Enter whether the trunk group is ''incoming'', ''outgoing'', or ''two-way'' (default).

- **Outgoing Display**—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- **Dial Access**—Enter ‘‘y’’ (default) to allow the trunk group to be accessed via a TAC. Access via the ARS feature is allowed regardless of this entry.
- **Busy Threshold**—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.
- **Night Service**—Enter the extension number assigned to Night Service. The extension number entered will receive all incoming calls when Night Service is activated and the individual trunk member Night field is not administered to override this group extension. Valid entries are an extension number (can be a VDN extension), the attendant group access code (usually ‘‘0’’), **or** leave blank if the Trunk Type (in/out) field is not ‘‘auto/...’’.
- **Queue Length**—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ‘‘0’’ (default) indicates no calls will be held in queue. Enter ‘‘0’’ for DCS trunks. This field is turned off if the Direction field is ‘‘incoming’’.
- **Trunk Flash**—To Be Provided.
- **Incoming Destination**—Indicates where incoming calls will terminate. Valid entries are an extension number, the attendant group access code (usually ‘‘0’’), VDN, **or** leave blank if the Trunk Type (in/out) field is not ‘‘auto/...’’. If ‘‘0’’ is entered, a call is treated as an LDN call.
- **Comm Type**—Indicates if the trunk is to be used for voice, data, alternate voice-data (avd), or alternate voice/voice grade data and 56-kbps digital data (rbavd) calls. Valid entries are ‘‘avd’’, ‘‘rbavd’’, ‘‘voice’’ (default), or ‘‘data’’. Type ‘‘rbavd’’ supports access to voice/data SDN service on robbed-bit T1 transmission facilities.

  NOTE:
  ‘‘avd’’ and ‘‘rbavd’’ types require trunk member ports on a DS1 circuit pack. An ‘‘rbavd’’ type requires that the DS1 circuit pack be administered for robbed-bit, ISDN-EXT, or ISDN-PRI signaling.

- **Auth Code**—Enter ‘‘y’’ if an authorization code must be dialed to complete incoming calls on the trunk group; otherwise, enter ‘‘n’’ (default). This field can only be ‘‘y’’ if the Authorization Codes feature is enabled on the System-Parameters Customer-Options form.
- **Digit Absorption List**—Enter a digit list absorption number, if required, when this trunk group terminates at a step-by-step office. This field specifies the type of absorption as specified on the System Digit Absorption form. Up to five different forms (lists 0–4) may be administered in the System.

- **Prefix-1**—Specifies if the prefix 1 is required for N(0/1)X calls. Valid entries are ‘‘y’’ and ‘‘n’’ (default).
- **Administrable Timers Page**— Entering a "y" causes an Administrable Timers page to be added to the trunk group form. The Administrable Timers page then becomes Page 3 of X. Valid entries are ‘‘y’’ or ‘‘n’’; default is ‘‘n’’.
- **ITC** (Information Transfer Capability)—Displayed for non-ISDN trunk groups, and when Comm Type is ‘‘data’’, ‘‘avd’’, or ‘‘rbavd’’ and BCC is not ‘‘0’’. Used by the GRS feature and enables the system to route calls to restricted (default) or unrestricted facilities according to the endpoint’s information transfer capability.
- **BCC** (Bearer Capability Class)—Displayed when ISDN—PRI is optioned for on the System-Parameters Customer-Options form and Comm Type is ‘‘avd’’ or ‘‘data’’. Used by the Generalized Route Selection feature and identifies the type of traffic on trunks in the group. The BCC entry is used by far-end tandem switches to select outgoing routing facilities with equivalent BCC classes. Valid entries are 0, 1, 2, 3, and 4. Default is 0 for ‘‘avd’’ and 2 for ‘‘data’’.

  NOTE:
  Refer to ‘‘Generalized Route Selection’’ in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls.

- **Toll Restricted**—Applies for outgoing TAC calls if the originating party is toll restricted. Enter ‘‘y’’ (default) if this trunk group is to be toll restricted.
- **Trunk Type**—Identifies the physical type of CO trunk. It may differ for incoming and outgoing types. Valid entries are ‘‘ground-start’’, ‘‘loop-start’’, ‘‘auto/auto’’, ‘‘auto/delay’’, ‘‘auto/immed’’, and ‘‘auto/wink’’.
- **Outgoing Dial Type**—Identifies the type of pulsing required on an outgoing call. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.
- **Trunk Termination**—Specifies how the trunk group is terminated. Valid entries are ‘‘600ohms’’ or ‘‘rc’’ (default). Enter 600ohms when the PBX trunk port is connected to terminal equipment (for example, SLC® carrier or compensators optioned for 600 ohms input impedance) and the distance to the terminal equipment from the System is less than 3000 feet.
- **Disconnect Timing (msec)**—Specifies the minimum time period in ms that is required for recognition of disconnect by the serving central office or far-end PBX. The time interval must be in increments of 10 (from 140–2550 ms). default is 500.
- **Cyclical Hunt**—Enter ‘‘y’’ (default) if a preferential hunting algorithm is to be used. Otherwise, a linear hunting algorithm will be used.

- **Connected to Toll**—Enter ''y'' if connected to a CO toll office; otherwise, enter ''n'' (default). This field is displayed when the Trunk Type field contains an entry of ''auto/...'', ''delay/...'', ''wink/...'', or ''immed/...''.
- **STT Loss** (Satellite PBX Tie Trunk Loss)—Displayed when Connected to Toll is ''n''. Specifies the loss plan to be used for the trunk group. Valid entries are ''normal'' (default) or ''low''. This option affects the transmission performance of a private PBX network.

  Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ''low'' option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should be used when:

  1. Stations on the satellite PBX complain of too much loss on calls to the public network.
  2. The PBX network consists of **no more** than three PBXs: one main and one or two satellite PBXs.
  3. All PBXs have the ''low'' option available.
  4. The total DS1 trunk connection length is less than 100 miles.

  If the preceding conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

  — **normal**—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

  — **low**—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.
- **DTT to DCO Loss** (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan to be used for the trunk group for interconnections from a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). This field is displayed when the Trunk Type field contains an entry of auto/..., delay/..., wink/..., or immed/....

  This option affects the transmission performance of public network access via a private PBX network. Choose the ''low'' option if private network users complain about too much loss on calls to the public network, otherwise, the ''normal'' option should be used. Valid entries are ''normal'' (default) and ''low''. The entry is based on the following:

- **normal**—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)
- **low**—Corresponds to (+3, -3) dB gain pair. Low is used for internetwork applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- **Terminal Balanced**—Displayed when the Trunk Type field is ''ground-start'' or ''loop-start''. Enter ''y'' for terminally balanced trunks or ''n'' (default) for unbalanced trunks. Typically, a Trunk Termination field of ''600ohms'' signifies a balanced trunk group and a field of ''rc'' signifies a non-balanced trunk group. If the trunks in this group pass the Low Frequency Return Loss test requirements, then they are terminally balanced, and this field should be ''y''.
- **RA Trunk Loss**—(Remote Access Trunk Loss) Displayed when Terminal Balanced is ''n''. Specifies the type of dB loss to be applied to non-terminally balanced trunks (Terminal Balanced field = ''n''). If unsatisfactory echo performance (hollowness) is experienced, set this field to ''2db''. Valid entries are ''0db'' (default) and ''2db''.
- **Bit Rate**—Displayed when Comm Type is ''avd''. Specifies the baud rate to be used by pooled modems. Valid entries are 300, 1200 (default), 2400, 4800, 9600, and 19200.
- **Synchronization**—Displayed when Comm Type is ''avd''. Enter whether the trunk group will use synchronous or asynchronous communications. Valid entries are ''async'' (default) and ''sync''.
- **Duplex**—Displayed when Comm Type is ''avd''. Specifies either full or half duplex for the trunk group. Valid entries are ''full'' (default) or ''half''.
- **Disconnect Supervision-Out**—To Be Provided.
- **Answer Supervision Timeout**—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250. The default is ''10''.

- **Receive Answer Supervision**—Specifies whether or not the trunks provide answer supervision from the network, and is used by the CDR feature. Answer supervision refers to notification from the far-end that the called party has gone off-hook to answer the call. When answer supervision is not provided, the originating PBX can classify a call as answered using the Answer Supervision Timeout field entry. For trunks over which answer supervision is provided by the network (for example, certain ground-start CO trunks), this field should be ''y'' and the Answer Supervision Timeout field ''0'' to disable the firmware time-out. Receive Answer Supervision must be ''n'' (default) if the Direction field is ''incoming''.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ''y'' or ''n'' (default). If ''y'' is entered, complete the next three fields.
- Long Holding Time (hours)—Is the length in hours that the System will consider as being a long holding time. If ''0'' is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. Field must be ''0'' for a Service Type field entry of ''sddn''.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ''0'' is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ''internal'', ''external'', ''both'', ''none''. Enter ''internal'' if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ''external'' to send the data to the Call Management System Adjunct. Enter ''both'' to send the data to both systems for measurement reports. Enter ''none'' if trunk group measurements are not required. System default is ''none''.
- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ''y'' or ''n'' (default).
- Abandoned Call Search—Applicable when Trunk Type is ''ground-start''. Enter ''y'' if this trunk group will conduct an Abandoned Call Search to identify a ghost call; otherwise, enter ''n'' (default).

NOTE:
Abandoned Call Search is designed to work with CO trunks (ground start - analog) that *do not* provide disconnect supervision. Central offices that provide disconnect supervision do not require use of the Abandoned Call Search feature. The CO must support Abandoned Call Search for the feature to work properly.

- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ''#'' when ''y'' is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ''y'' when the Central Office (for example, rotary) or any other facility treats # as an error; default is ''n''.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ''y'' (default) or ''n''.

Page 3 of the Form (If administrable timers used)

NOTE:
This page is displayed when Administrable Timers Page on page 1 is ''y''. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Incoming Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an incoming call from the serving CO. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an outgoing call. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing Dial Guard (msec)—Enter the minimum time (in msec) between seizure of the trunk and outpulsing of digits. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1600.
- Incoming Glare Guard (msec)—Enter the incoming guard time (in msec) between the time the incoming trunk is released and reseized. This guard time will ensure the far-end has released all equipment after the incoming trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.
- Outgoing Glare Guard (msec)—Enter the outgoing guard time (in msec) between the time the outgoing trunk is released and the same trunk can be seized again. This guard time will ensure that the far-end has released all equipment after the outgoing trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.

- Outgoing Rotary Dial Interdigit (msec)—Enter the interval (in msec) between rotary dial digits being outpulsed by the system (that is, PBX). Valid entries are 150–2550 in increments of 10. The field cannot be blank; default is 800.
- Ring Monitor (msec)—Enter the minimum time (in msec) required to determine if the trunk is disconnected. If the ringing signal disappears for a duration longer than the time specified in this field, the call will be assumed to be disconnected. Valid entries are 200–51000 in increments of 200. The field cannot be blank; default is 5200.
- Incoming Seizure (msec)—Enter the minimum time (in msec) required for recognition of incoming ringing signal from the serving CO. Valid entries are 20–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing End of Dial (sec)—Enter the time (in sec) a trunk may wait for answer supervision after dialing an outgoing call. During cut through operation, timing begins after each outgoing digit is sent by the PBX and timing ceases after the far end sends answer supervision. If the timer expires, the PBX acts as if it had received answer supervision when the timer expires. On senderized operation, the timer begins after the last digit collected is sent by the PBX. The timer ceases when the far end sends answer supervision. If the timer expires, the PBX acts as if it has received answer supervision. This field will not appear if the Receive Answer Supervision field is y(es) but a zero (0) value will be sent down to the firmware to disable the timer. This timer applies to the outgoing and two-way CO trunk groups. Valid entries are 1–254 in increments of 1; default is 10.
- Outgoing Seizure Response (sec)—Enter the time (in sec) by which the PBX should receive the proceed-to-dial indication from the far end after sending the seize signal. If the indication is not received in this time, a seizure failure response is uplinked. This timer is administrable per CO or TIE trunk group. Valid entries are 1–255 in increments of 1; default is 5.
- Programmed Dial Pause (msec)—Enter the length (in msec) of a pause during abbreviated dialing, ARS outpulsing, and terminal dialing operations. This timer is administrable for all outgoing and two-way trunk groups. Valid entries are 100–25500 in increments of 100; default is 1500.
- Disconnect Signal Error (sec)—Enter the time (in sec) within which a disconnect signal from the far end is expected after the internal party (a station or a tie trunk) goes on-hook. If the timer expires, the system can assume a disconnect failure and take an appropriate action (such as, error message). This timer is administrable on TIE or GS CO trunk groups. Valid entries are 1–255 in increments of 1; default is 240.

- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.
- PPS—Enter either ''10'' or ''20'' to specify the PPS (pulses per second) assigned to rotary dial pulse trunk groups. Valid entries are ''10'' (default) or ''20''.
- Make (msec)—Enter the duration of the make interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ''10'', the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 40.

  If the PPS field is ''20'', the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 20.
- Break (msec)—Enter the duration of the break interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ''10'', the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5; the field cannot be blank. default is 60.

  If the PPS field is ''20'', the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 30.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ''y'' has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.

- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is ‘‘1’’ if no entry); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member’s location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

  NOTE:
  Previously, Generic 1 Night Service and Balance/Loss information was entered in the Name field as ‘‘NT#...’’ and ‘‘TT#)...’’. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

- Night—Enter the extension of the night destination for the trunk. This individual night destination overrides the group night service destination on the first page of the trunk group form. Incoming calls are routed to this destination when the system is placed in night service mode. (If ‘‘attd’’ is entered, night service will be to the attendant.)
- Mode—Specifies the signaling mode used on Tie Trunks with TN722A, TN722B, TN760B, TN767, or TN464C circuit packs. Valid entries are ‘‘e&m’’ (interface), ‘‘simplex’’ (phantomed), or ‘‘protected’’. This entry must correspond to associated dip switch settings on the circuit pack.
- Type—Specifies the type of trunk used. Valid entries are ‘‘t1-stan’’ (Type 1 Standard), ‘‘t1-comp’’ (Type 1 Compatible), or ‘‘type-5’’.
- Ans Delay—Specifies the length of the wait for answer supervision delay in ms for DS1 or Tie Trunks using the TN722A, TN722B, TN760 (B, C, or D), TN767, or TN464C circuit packs. Valid entries are 20–5100 in increments of 20; default is no entry (blank) and internally treated as a zero. This delay serves two purposes:

  1. Used to assure that the answer supervision signal is valid and not a secondary delay-dial or wink-start signal.

2. Used to bridge over momentary off-hook signals resulting from connections made off-network through certain No. 5 Crossbar CCSA switches as the connection is being established.

```
                                TRUNK GROUP              Page 1 of X

Group Number: xxx            Group Type: fx          CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                 TAC: ____
   Direction: two-way_ Outgoing Display? n
 Dial Access? y          Busy Threshold: 255        Night Service: _____
Queue Length: 0__           Trunk Flash? n   Incoming Destination: _____
   Comm Type: voice           Auth Code? n Digit Absorption List: _
    Prefix-1? y Administrable Timer Page? n      Toll Restricted? y

TRUNK PARAMETERS
        Trunk Type: _____________
Outgoing Dial Type: tone____
 Trunk Termination: rc____               Disconnect Timing(msec): 500_

Disconnect Supervision-Out? n
Answer Supervision Timeout: _10       Receive Answer Supervision? n
```

Foreign Exchange Trunk Group Form (Page 1 of X)

Implementation Notes:

BCC is displayed when ISDN-PRI is optioned on the System-Parameters Customer-Options form and Comm Type is ‘‘avd’’ or ‘‘data’’.

Connected to Toll and DTT to DCO Loss are displayed when Trunk Type is ‘‘auto/...’’.

STT Loss is displayed when Connected to Toll is ‘‘n’’.

Terminal Balanced is displayed when Trunk Type is ‘‘ground-start’’ or ‘‘loop-start’’.

RA Trunk Loss is displayed when Terminal Balanced is ‘‘n’’.

Bit Rate, Synchronization, and Duplex are displayed when Comm Type is ‘‘avd’’.

Trunk Flash is displayed when Group Type is ‘‘co’’, ‘‘fx’’, or ‘‘wats’’.

```
                          TRUNK GROUP                  Page 2 of X
TRUNK FEATURES
         ACA Assignment? n                      Measured: none
                                             Data Restriction? n
  Suppress # Outpulsing? n                Maintenance Tests? y
```

Foreign Exchange Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when ACA Assignment is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold.

```
                                TRUNK GROUP              Page 3 of X
                                  TIMERS
                                                Outgoing Dial Guard (msec): ____
 Outgoing Glare Guard (msec): ___             Outgoing Glare Guard (msec): _____
                                 Outgoing Rotary Dial Interdigit (sec): ___
         Ring Monitor (msec): ____                Incoming Seizure (msec): ____
  Outgoing End of Dial (sec): __          Outgoing Seizure Response (sec): ___
Programmed Dial Pause (msec): ____

END TO END SIGNALING
   Tone (msec):____     Pause: (msec):____

OUTPULSING TIMING
     PPS: __       Make (msec): __     Break (msec): __
```

Foreign Exchange Trunk Group Administrable Timers Form (Page 3 of X)

Implementation Note:

This page is displayed when Administrable Timers Page on page 1 is ‘‘y’’.

```
                                   TRUNK GROUP                Page 4 of X

                                                 Administered Members(min/max): xxx/yyy
                                                    Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name         Night    Mode     Type     Ans Delay
    1: _______  _____    _   ___________  _____  ________  _______    ____
    2: _______  _____    _   ___________  _____  ________  _______    ____
    3: _______  _____    _   ___________  _____  ________  _______    ____
    4: _______  _____    _   ___________  _____  ________  _______    ____
    5: _______  _____    _   ___________  _____  ________  _______    ____
    6: _______  _____    _   ___________  _____  ________  _______    ____
    7: _______  _____    _   ___________  _____  ________  _______    ____
    8: _______  _____    _   ___________  _____  ________  _______    ____
    9: 01a0304  TN767    _   denver       81324  ________  _______    ____
   10: _______  _____    _   ___________  _____  ________  _______    ____
   11: 02b0102  TN767    _   middletown   81345  ________  _______    ____
   12: _______  _____    _   ___________  _____  ________  _______    ____
   13: _______  _____    _   ___________  _____  ________  _______    ____
   14: _______  _____    _   ___________  _____  ________  _______    ____
   15: _______  _____    _   ___________  _____  ________  _______    ____
```

Foreign Exchange Trunk Group Form (Pages 4–X)
(To reduce repetition, pages 5–X are not shown.)

Integrated Services Digital Network—Primary Rate Interface Trunk Group

This form is used to assign an ISDN-PRI Trunk group which supports the ISDN-PRI and Call by Call Service Selection features. The trunk group provides end-to-end digital connectivity and supports a wide range of services including voice and non-voice services to which users have access by a limited set of CCITT defined, standard multipurpose user-network interfaces. Calls to a variety of switched nodal services such as MEGACOM telecommunications service, WATS, and ACCUNET digital service and calls destined for different inter-exchange carriers can be processed.

Administration Commands

The following administration commands can be used to access the ISDN-PRI Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.

  NOTE:
  When supporting DCS, it is suggested that the far-end node trunk group be assigned the same ''Group Number''.

- Group Type—Enter ''isdn'' to identify the type of trunk group. This type can only be entered if the ISDN-PRI field on the System-Parameters Customer-Options form has been enabled.
- CDR Reports—Enter ''y'' (default) to provide a detailed record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''OUTSIDE CALL''.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. A different TAC must be assigned to each trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Direction—Identifies whether the trunk group is ''incoming'', ''outgoing'', or ''two-way'' (default).
- Outgoing Display—Specifies whether or not the trunk group name is displayed on outgoing calls. Valid entries are ''y'' or ''n'' (default).
- Dial Access—Enter ''y'' (default) to allow the trunk group to be accessed via a trunk access code. Access via the Automatic Route Selection

feature is allowed regardless of this entry. A ‘‘y’’ may be entered if Service Type is ‘‘access’’, ‘‘tie’’, ‘‘tandem’’, or dmi-mos.

- Busy Threshold—Enter the number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.
- Night Service—Enter the extension number assigned to Night Service. The extension number entered will receive all incoming calls when Night Service is activated. Valid entries are an extension number, the attendant group access code (usually ‘‘0’’), **or** leave blank. Leave blank for a Service Type field entry of ‘‘sddn’’. This entry can be overridden by the Night Service entry on page 2 or 5–11 of the form.
- Queue Length—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ‘‘0’’ (default) indicates no calls will be held in queue. Enter ‘‘0’’ for DCS trunks or a Service Type field entry of ‘‘sddn’’.
- Service Type—Indicates the service for which this trunk group will be dedicated. Table 4-6 provides a listing of predefined entries. In addition to the Services/Features, listed on this table, ‘‘access’’, ‘‘dmi-mos’’, ‘‘sddn’’, ‘‘tie’’, ‘‘tandem’’, ‘‘wats’’, and any user-defined services as administered on the Network Facilities form is allowed. An entry of ‘‘cbc’’ is also allowed which indicates that this trunk group is used by the Call by Call Service Selection feature.

  Up to ten ISDN-PRI trunk groups can have the Service Type field administered as ‘‘cbc’’.
- Auth Code—Enter ‘‘y’’ if an Authorization Code must be dialed to complete incoming calls on the trunk group; otherwise, enter ‘‘n’’ (default). This field can only be ‘‘y’’ if the Authorization Codes feature on the System-Parameters Customer-Options form has been enabled.
- Usage Alloc—Displayed when Service Type is ‘‘cbc’’. Specifies whether or not the user wishes to allocate the usage of the services provided by the trunk group. Valid entries are ‘‘y’’ and ‘‘n’’ (default). If ‘‘y’’ is entered, two additional CBC related forms are displayed.
- Far End Test No.—Specifies the number that will be sent to the far-end’s ISDN test line extension. When the *test trunk* long command is issued, this exact number is sent to the far-end to establish a call that tests the integrity of the trunk member under test. The number does not pass through routing or undergo digit manipulation. The digits entered here must be what the far-end expects. For example, for an ISDN tandem trunk, the far-end test number should be a 7-digit ETN (Electronic Tandem Network) number. Up to 15 digits may be entered in this field.
- Testcall ITC—Displayed when ISDN-PRI is optioned on the System-Parameters Customer-Options form. Controls the encoding of the ITC codepoint of the Bearer Capabiity IE in the SETUP message. Allowed values are ‘‘rest’’(ricted) and ‘‘unre’’(stricted); default is ‘‘rest’’.

NOTE:
ISDN Testcall feature does not go through routing, so a testcall will never be blocked due to an incompatible ITC.

Table 4-6. Predefined Services/Features—ISDN-PRI

Administration Mnemonic	Description
accunet	ACCUNET Switched Digital Service—part of ACI (AT&T Communications ISDN) phase 2.
i800	International 800 Service—allows a subscriber to receive international calls without a charge to the call originating party.
inwats	INWATS—provides OUTWATS-like pricing and service for incoming calls.
lds	Long-Distance Service—part of ACI (AT&T Communications ISDN) phase 2.
megacom	MEGACOM Service—an AT&T communications service that provides unbanded long-distance services using special access (PBX to 4 ESS switch) from an AT&T communications node.
megacom-800	MEGACOM 800 Service—an AT&T communications service that provides unbanded 800 service using special access (4 ESS switch to PBX) from an AT&T communications node.
multiquest	AT&T MULTIQUEST® Telecommunications Service—dial 700 service. A terminating users service supporting interactive voice service between callers at switched access locations and service provides directly connected to the AT&T Switched Network (ASN).
operator	Network Operator—provides access to the network operator.
outwats-bnd	OUTWATS Band—WATS is a voice-grade service providing both voice and low speed data transmission capabilities from the user's location to defined service areas commonly referred to as bands. Currently, the widest band is 5.
sdn	Software Defined Network (SDN)—an AT&T communications offering that provides a virtual private network using the public switched network. SDN can carry voice and data between customer locations as well as off-net locations.
sddn	Software Defined Data Network—provides a virtual private line connectivity via the AT&T switched network (4 ESS switch). Services include voice, data, and video applications. These services complement the SDN service.
sub-operator	Presubscribed Common Carrier Operator—provides access to the presubscribed common carrier operator.
wats-max-bnd	Maximum Banded Wats—a WATS-like offering for which a user's calls are billed at the highest WATS band subscribed to by the user.

- Send Display/TCM in Codeset 6/7—Defines the codeset for sending ISDN-PRI Information Elements (IEs) for Display, Traveling Class Mark, and Lookahead Interflow. Enter ''7'' when the distant end of the ISDN-PRI trunk group is a System 85 R2V4 or 4 ESS Generic 11; otherwise, enter ''6'' (default).

NOTE:
A Traveling Class Mark (user's FRL or the FRL of a user's trunk group) is passed between tandem nodes in an ETN in the setup message. It is then used by the distant tandem switch to permit access to facilities consistent with the originating user's privileges.

- Max Message Size to Send—Defines the maximum size of ISDN-PRI messages sent by the switch. Currently, System 85 R2V4 and No. 4 ESS version 4E11 switches can only receive messages of 128 bytes. The System can receive 260 byte messages. Valid entries are ''128'', ''244'', ''256'', and ''260''; default is ''260''.
- Toll—Enter ''y'' if connected to a CO toll office; otherwise, enter ''n'' (default).
- STT Loss (Satellite PBX Tie Trunk Loss)—Displayed when Toll is ''n''. Specifies the loss plan to be used. Valid entries are ''normal'' (default) or ''low''. This option affects the transmission performance of a private PBX network.

  Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ''low'' option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should be used when:

  1. Stations on the satellite PBX complain of too much loss on calls to the public network.
  2. The PBX network consists of **no more** than three PBXs; one main and one or two satellite PBXs.
  3. All PBXs have the ''low'' option available.
  4. The total DS1 trunk connection length is less than 100 miles.

  If the above conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

  — normal—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

  — low—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.

- DTT to DCO Loss (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan used for the trunk group that connects a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). Displayed when the Trunk Type field is auto/..., delay/..., wink/..., or immed/... Valid entries are ''normal'' (default) or ''low''.

  This option affects the transmission performance of public network access via a private PBX network. Choose the ''low'' option if private network users complain about too much loss on calls to the public network; otherwise, the ''normal'' option should be used. Valid entries are ''normal'' (default) and ''low''. The entry is based on the following:

  — normal—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

  — low—Corresponds to (+3, -3) dB gain pair. Low is used for internetwork applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- Bit Rate—Specifies the baud rate used for pooled modems. Valid entries are 300, 1200 (default), 2400, 4800, 9600, and 19200.
- Synchronization—Specifies if the trunk group will use synchronous or asynchronous communications. Valid entries are ''async'' (default) and ''sync''.
- Duplex—Specifies if the trunk will operate full or half duplex. Valid entries are ''full'' (default) and ''half''.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ''y'' or ''n'' (default). If ''y'' is entered, complete the next three fields.
- Long Holding Time (hours)—Is the length in hours that the System will consider as being a long holding time. If ''0'' is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. Field must be ''0'' for a Service Type field entry of ''sddn''.

- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ‘‘internal’’, ‘‘external’’, ‘‘both’’, ‘‘none’’. Enter ‘‘internal’’ if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ‘‘external’’ to send the data to the Call Management System Adjunct. Enter ‘‘both’’ to send the data to both systems for measurement reports. Enter ‘‘none’’ if trunk group measurements are not required. System default is ‘‘none’’.
- Default NCA TSC Routing—-Enter ‘‘y’’ if the Sig Grp fields on the Group Member Assignments forms (Pages 5–11) will be used as signaling groups for sending out the Non-Call Associated Temporary Signaling Connection (NCA TSC). Entering ‘‘n’’ causes the Sig Grp field to be displayed on this page of the form.

  NOTE:
  TSC is a virtual connection established within a D-channel in a ISDN-PRI facility so that users can transport non-call control user to user information. With NCA TSC, there is no B-channel associated with the connection.

- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Sig Grp—Displayed when Default NCA TSC Routing is ‘‘n’’. It is used to identify which signaling group an NCA TSC will be routed out on. Enter the appropriate signaling group numbers (1–166). The signaling groups entered are chosen by ‘‘round-robin’’ method. To balance the load of sending TSCs on every signaling group, a signaling group number can be entered twice to increase its probability of being used as an outgoing route for NCS TSCs.

  A signaling group is a group of B-channels for which a given D-channel (or D-channel pair) will carry the signaling information.
- Send CPN—Specifies if the calling party’s number is sent to the network on incoming and/or outgoing ISDN calls. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, the CPN Prefix Table is accessed to construct the actual number to be sent over the network.

NOTE:
The CPN Prefix Table can override the Send CPN field entry for any administrable block of extensions.

- Send Name—Specifies if the calling/connected party's administered name is sent to the network on incoming and/or outgoing calls. Valid entries are ''y'' or ''n'' (default).
- Used for DCS—Specifies whether the trunk group will send and receive messages on a DCS signaling link. Valid entries are ''y'' or ''n'' (default).
- PBX ID—Displayed when the Used for DCS field is ''y''. Enter the ID of the PBX at the other end of this trunk.

  NOTE:
  This field cannot be activated if the tie trunk group number is greater than 255, if there are more than 255 members in the trunk group, or if the Trunk Access code is more than 3 digits long.

- DCS Signaling—Displayed when the Used for DCS field is ''y''. Enter ''bx.25'' for the standard DCS feature or ''d-chan'' for the DCS over ISDN-PRI D-channel feature.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ''y'' (default) or ''n''.

The following fields on page 2 of the form provide an incoming call handling table. The table can (optionally) be used to provide unique call treatment for different incoming calls on any ISDN-PRI trunk group. Twelve unique treatment specifications are possible, corresponding to the 12 rows (lines) on the table. Unique digit manipulation capabilities, CPN/BN requests, and night service destinations are possible for different types of incoming calls. The unique digit manipulation capabilities can be particularly useful to accommodate different dial plans for different services on a ISDN-PRI trunk type with a Service Type (field entry) of ''cbc'' (Call-by-Call). The table can also be used for ISDN-PRI trunk groups that are not Call-by-Call. For example, an ISDN-PRI group with service type ''megacom-800'' could use the Incoming Call Handling Table to distinguish treatment of calls to different 800 numbers based on the Dialed Number Identification Service (DNIS) number that is incoming to the PBX.

Each row in the table consists of seven columns. The first three columns (Service/Feature, Called Len, and Called Number) constitute a key that together select which row or unique treatment should apply for an incoming call on the group. The remaining four columns (Del, Insert...) specify the treatment to be provided for a call that matches the key.

If an incoming call is for a service listed in a row on the table, then that row may specify the treatment for the call, depending on the other two columns of the key. The Called Len field is used to continue the row determination. If the number of digits received with the incoming call matches the number of digits in the Called Len field for calls to the matched service, then this row may apply. If no other

row also contains a matching service and called length, then this row does apply. If another row does exist with the same service and number length, then the Called Number field will be used to continue the row determination. If the leading digits received with the incoming call match the digits specified in the Called Number field, then this row applies to the call. Therefore, with this table, a unique treatment can be given to any incoming call, even if these calls are to the same service or have the same length of digits. The remaining four fields specify the unique treatment for the call once the row has been determined. Together, the Del and Insert fields can be used to manipulate the incoming number that will be used to route the call. The Per Call CPN/BN field can be used to request CPN/BN for specific calls incoming on the group. The Night Serv field is used to have calls of different types routed to different night destinations when night service is in effect.

NOTE:
DCS features that use the remote-tgs buttone (on the remote switch) will not work when the local trunk group inserts an ARS FAC on an incoming call. These buttons try to directly dial a local TAC. Inserting the ARS FAC defeats this operation and renders the remote feature inoperable. If an ARS FAC is needed, use it on the outgoing side based on the routing pattern.

The following provides information for each field that can be administered:

- Service/Feature—Specifies the ISDN-PRI Services/Features for an incoming call type. See the Service Type field description for a list of predefined Services/Features that can be received. The identifier ‘‘other’’ can be used for any Services/Features not explicitly specified.
- Called Len—Specifies the number of digits received for an incoming call. A blank entry is used as a ‘‘wild card’’ entry and, when used, means that any length of digits associated with the specified Service/Feature can match in this field. Valid entries are 0–16, or leave blank.
- Called Number—Specifies the leading digits received for an incoming call. A blank entry is used as a ‘‘wild card’’ entry and, when used, means that any number associated with the specified Service/Feature can match in this field. Valid entries are 1–16 digits, or leave blank.
- Del—Specifies the number of leading digits to be deleted from the incoming Called Party Number. Calls of a particular type may be administered to be routed to a single destination by deleting all incoming digits and then administering the Insert field with the desired extension. Valid entries are 1–16, ‘‘all’’, or leave blank.
- Insert—Specifies the digits to be prepended to the front of the remaining digits after any (optional) digit deletion has been performed. The resultant number formed from digit deletion/insertion is used to route the call, provided night service is not in effect. Valid entries are up to 16 digits, or leave blank.
- Per Call CPN/BN—Specifies if and how to request Calling Party Number (CPN) or Billing Number (BN) for calls of this type. An entry of ‘‘none’’

indicates that the switch will not request either CPN or BN for any incoming calls of this type. Valid entries are ''cpn-only'', ''bn-only'', ''bn-pref'' (prefer BN, but will accept CPN, ''cpn-pref'' (prefer CPN, but will accept BN), ''none'', or leave blank; default is blank. Leave blank when connected to another PBX switch.

NOTE:
A 4 s delay will occur in terminating the call to the far-end station if the connecting switch does not respond to the request.

- Night Serv—Specifies a night service extension (can be a VDN extension) per Service/Feature. An entry other than blank overrides the Night Service field entry on page 1 of the form. This entry can be overridden by the Trunk/Member Night Service entry when provided. Valid entries are an assigned extension, the attendant group access code (usually ''0''), or leave blank.

Page 3 of the Form

Page 3 is displayed when Service Type on page 1 is ''cbc'' and Usage Alloc is ''y''. Page 3 is used to set a minimum and maximum number of members for up to ten different Services/Features for up to three different Usage Allocation Plans (1–3).

NOTE:
Refer to ''Call By Call Service Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Usage Allocation Plans.

- Service/Feature—Specifies the ISDN-PRI Services/Features that can be requested at call setup time when using this trunk group. See the Service Type field description for a list of predefined Services/Features that can be received on a call by call basis. The identifier ''other'' is used for all Services/Features not explicitly specified.
- Min# Chan—Indicates the minimum number of members of an ISDN-PRI trunk group with a Service Type of cbc that are reserved for a particular Service/Feature can use at any given time. The sum of the minimum number of members for all Service/Features must not exceed the total number of members of the trunk group. Valid entries are 0–99, or leave blank.
- Max# Chan—Indicates the maximum number of members of a ISDN-PRI trunk group with a Service Type of cbc that a particular Service/Feature can use at any given time. This field must be completed if a Service/Feature has been entered on Page 2 of the form. Valid entries are 1–99, or leave blank.

Page 4 of the Form

Page 4 is displayed when Service Type on page 1 is ‘‘cbc’’ and Usage Alloc is ‘‘y’’. Page 4 provides for administering a fixed schedule or administering a schedule that can change up to six times a day for each day of the week.

- Fixed—Indicates whether the allocation plan will be fixed. If ‘‘y’’ is entered in this field, the plan number entered in the Allocation Plan Number field will be enabled. This field must be completed if a Service/Feature has been entered on Page 2 of the form. Valid entries are ‘‘y’’ (default) and ‘‘n’’.
- Allocation Plan Number—Specifies the CBC Trunk Allocation Plan (1–3) that is in effect if a fixed usage method has been selected. This field must be assigned if the Fixed field is ‘‘y’’. Valid entries are 1–3 or blank; default is blank.
- Scheduled—Indicates whether the allocation plans will be in effect according to the schedule found on this page. If ‘‘y’’ is entered in this field then there must be at least one entry in the schedule. Valid entries are ‘‘y’’ or ‘‘n’’; default is ‘‘n’’.
- Act Time—Indicates the time that the usage allocation plan administered in the next field (Plan #) will become effective. The time is entered in military time. There must be at least one entry per day. Valid entries are 00:00 through 23:59.
- Plan #—Specifies the number of the usage allocation plan which will be in effect from the activation time until the activation time of the next scheduled plan change. Valid entries are 1–3.

Pages 5–11 of the Form (Group Member Assignments)

NOTE:
When supporting DCS, Member Number Assignments must be the same between nodes (Member #1 must be Member #1 at the far-end trunk group).

For BX.25 signaling, Trunk Group numbers must be the same between nodes (trunk group 1 must be trunk group 1 at the far-end).

The Trunk Access Code (TAC) must be less than 4 digits.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.

- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is ‘‘1’’ if no entry); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24) (24 is normally assigned to a D-channel span). Refer to the ‘‘Port Assignment’’ record.

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member’s location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).
- Night—Specifies a night destination for an individual trunk. This entry overrides the group Night Service entry on page 1 of the form. Valid entries are an extension (can be a VDN extension), the attendant group access code (usually ‘‘0’’), or leave blank.
- Sig Grp—Enter the appropriate signaling group number (1–166). See Signaling Group Form for more information. If a DS1 interface appears in one signaling group, then the number of that signaling group will appear as a default in the Sig Grp column for any trunk on that interface. This value cannot be altered without adding a circuit pack TN code for DS1 interface to another signaling group. If a DS1 circuit pack appears in more than one signaling group, then no default will appear in the Sig Grp column.

```
                                TRUNK GROUP           Page 1 of X

Group Number: xxx            Group Type: isdn-pri    CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                  TAC: ____
   Direction: two-way_ Outgoing Display? n
 Dial Access? y          Busy Threshold: 255        Night Service: _____
Queue Length: 0__
Service Type: _______________ Auth Code? n
 Usage Alloc? n         Far End Test No: _______________
   Test Call: BCC_4       Test Call AVC: ____       Test Call ITC: rest

TRUNK PARAMETERS
 Send Display/TCM in codeset 6/7: 6_
        Max message size to send: 260_

Disconnect Supervision-Out? n  Connected To: main
                     Toll? n      STT Loss: normal      DTT to DCO Loss: normal
                  Bit Rate: 1200_   Synchronization: async        Duplex: full
```

ISDN-PRI Trunk Group Form (Page 1 of X)

Implementation Notes:

Queue Length is displayed when Direction is ‘‘outgoing’’ or ‘‘two-way’’.

Usage Alloc is displayed when Service Type is ‘‘cbc’’.

```
                          TRUNK GROUP                    Page 2 of X
TRUNK FEATURES
         ACA Assignment? n            Measured: none
                            Data Restriction? n  Default NCA TSC Routing? y
                                   Send CPN? n                Send Name? n
           Used for DCS? n
                                                          Maintenance Tests? y
Service/       Called    Called       Del  Insert           Per Call  Night
Feature         Len      Number                            CPN/BN    Serv.

_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
_______________  __  ________________  ___  ________________  ________  _____
```

ISDN-PRI Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when ACA Assignment is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold

Internal Alert field is not displayed if Service Type on page 1 is ‘‘cbc’’.

Sig Grp field is displayed when Default NCA TSC Routing is ‘‘n’’.

DCS Signaling is displayed when Used for DCS is ‘‘y’’.

The PBX-ID field is not displayed if the Used For DCS field is ‘‘n’’.

```
                    CBC SERVICE TYPE USAGE ALLOCATION         Page 3 of X

Usage Allocation Plan 1    Usage Allocation Plan 2    Usage Allocation Plan 3
                 Min# Max#                  Min# Max#                  Min# Max#
Service/Feature Chan Chan  Service/Feature Chan Chan  Service/Feature Chan Chan
_______________  __   __   _______________  __   __   _______________  __   __
_______________  __   __   _______________  __   __   _______________  __   __
_______________  __   __   _______________  __   __   _______________  __   __
_______________  __   __   _______________  __   __   _______________  __   __
_______________  __   __   _______________  __   __   _______________  __   __
_______________  __   __   _______________  __   __   _______________  __   __
_______________  __   __   _______________  __   __   _______________  __   __
_______________  __   __   _______________  __   __   _______________  __   __
_______________  __   __   _______________  __   __   _______________  __   __
_______________  __   __   _______________  __   __   _______________  __   __
```

ISDN-PRI Trunk Group Form (Page 3 of X)

Implementation Note:

This page is displayed when Service Type on page 1 is ‘‘cbc’’.

```
                                                                Page 4 of X

           CBC SERVICE TYPE USAGE ALLOCATION PLAN ASSIGNMENT SCHEDULE
  Usage Method:
         Fixed? y      Allocation Plan Number: 1
     Scheduled? n

Usage Allocation Plan Activation Schedule:
          Act  Pln    Act  Pln    Act  Pln    Act  Pln    Act  Pln    Act  Pln
          Time  #     Time  #     Time  #     Time  #     Time  #     Time  #
Sun       __:__ __    __:__ __    __:__ __    __:__ __    __:__ __    __:__ __
Mon       __:__ __    __:__ __    __:__ __    __:__ __    __:__ __    __:__ __
Tue       __:__ __    __:__ __    __:__ __    __:__ __    __:__ __    __:__ __
Wed       __:__ __    __:__ __    __:__ __    __:__ __    __:__ __    __:__ __
Thu       __:__ __    __:__ __    __:__ __    __:__ __    __:__ __    __:__ __
Fri       __:__ __    __:__ __    __:__ __    __:__ __    __:__ __    __:__ __
Sat       __:__ __    __:__ __    __:__ __    __:__ __    __:__ __    __:__ __
```

ISDN-PRI Trunk Group Form (Page 4 of X)

Implementation Note:

This page is displayed when Service Type on page 1 is ‘‘cbc’’.

```
                                TRUNK GROUP          Page 5 of X

                                        Administered Members(min/max): xxx/yyy
                                           Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name        Night   Sig Grp
    1: _______  ______    _   __________  ______    ___
    2: _______  ______    _   __________  ______    ___
    3: _______  ______    _   __________  ______    ___
    4: _______  ______    _   __________  ______    ___
    5: _______  ______    _   __________  ______    ___
    6: 01a1002  TN767     _   boston      23246       1
    7: _______  ______    _   __________  ______    ___
    8: 01b1103  TN767     _   washington  43523       1
    9: _______  ______    _   __________  ______    ___
   10: _______  ______    _   __________  ______    ___
   11: _______  ______    _   __________  ______    ___
   12: _______  ______    _   __________  ______    ___
   13: _______  ______    _   __________  ______    ___
   14: _______  ______    _   __________  ______    ___
   15: _______  ______    _   __________  ______    ___
```

ISDN-PRI Trunk Group Form (Page 5–X)
(To reduce repetition, pages 6–X are not shown.)

Implementation Note:

Above Group Member Assignments pages are for an ISDN-PRI Trunk Group type ‘‘cbc’’; otherwise, page numbers will be 3–X.

Personal Central Office Line (PCOL) Group

This form is used to provide a dedicated trunk circuit between multi-appearance voice terminals and a central office (CO) or other switch via the PBX network. Up to 100 PCOL Groups can be implemented.

Administration Commands

The following administration commands can be used to access the PCOL Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	personal-co-line	1–100 (or 'next')
change	personal-co-line	1–100
display	personal-co-line	1–100 ['print' or 'schedule']
list	personal-co-line	['print' or 'schedule']
remove	personal-co-line	1–100

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–100 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ''co'' (Central Office), ''fx'' (Foreign Exchange), or ''wats'' (Wide Area Telecommunications Service) to identify the type of PCOL Group.
- CDR Reports—Enter ''y'' (default) to provide a detailed CDR record of incoming and outgoing calls made on the PCOL.
- Group Name—Enter a unique name that identifies the PCOL Group. Up to 15 characters can be used (all forms); default is ''OUTSIDE CALL''.
- Coverage Path—Enter the number of the Call Coverage Path (1–5625 or blank) used to redirect the incoming calls on this PCOL Group.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the PCOL Group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Security Code—Enter a 4-digit code (or leave blank) users must dial to retrieve voice messages and the Demand Print Message feature.
- Outgoing Display—Allows the display of the PCOL Group name on outgoing calls made by voice terminals that have a display. Valid entries are ''y'' or ''n'' (default).

- Data Restriction—Is used to restrict System features from causing overriding tones on a PCOL. This provides permanent protection. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- AUDIX Name—Name of AUDIX machine as it appears in the User-Defined Adjunct Names form.
- Message Server Name—Name of the server as it appears in the User-Defined Adjunct Names form.
- LWC Reception—Enter ‘‘msa-spe’’ (default) if LWC messages are stored in the system or on the Messaging Server Adjunct—Switch Processor or enter ‘‘audix’’ if the messages are stored on the Audio Information Exchange System; otherwise, enter ‘‘none’’.
- AUDIX Name—Name of AUDIX machine as it appears in the User-Defined Adjunct Names form.
- Trunk Type—Identifies the type of PCOL as ‘‘ground-start’’ or ‘‘loop-start’’.
- Trunk Direction—Identifies the direction of the trunks in the PCOL Group. Valid entries are ‘‘incoming’’, ‘‘outgoing’’, or ‘‘two-way’’ (default) for Group Types of co and fx, or ‘‘incoming’’ or ‘‘outgoing’’ for Group Types of wats.
- Trunk Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Disconnect Timing (msec)—Represents the time in ms that is required for recognition of the disconnect signal from the serving CO. The time interval must be in increments of 10 (from 140–2550 ms); default is 500.
- Trunk Name—A 7-character name that identifies the PCOL Group.
- Trunk Termination—Defines how the PCOL is terminated. The PCOL can terminate in a resistance of 600 ohms, or a resistor capacitor (rc) network. The rc network is used to match long loops; 600 ohm is used to match short loops. Valid entries are ‘‘600ohms’’ or ‘‘rc’’; 600ohms is used when the PBX trunk port is connected to terminal equipment.
- Outgoing Dial Type—Identifies the type of pulsing required on an outgoing call. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.
- Terminal Balanced—Displayed when the Trunk Type field is ‘‘ground-start’’ or ‘‘loop-start’’. Enter ‘‘y’’ for terminally balanced trunks or ‘‘n’’ (default) for unbalanced trunks. Typically, a Trunk Termination field of ‘‘600ohms’’ signifies a balanced trunk group and a field of ‘‘rc’’ signifies a non-balanced trunk group. If the trunks in this group pass the Low Frequency Return Loss test requirements, then they are terminally balanced,

and this field should be ‘‘y’’.

- RA Trunk Loss—(Remote Access Trunk Loss)—Displayed when the Terminal Balanced entry is ‘‘n’’. Specifies the type of dB loss to be applied to non-terminally balanced trunks (Terminal Balanced field = ‘‘n’’). If unsatisfactory echo performance (hollowness) is experienced, the field should be changed to 2dB. Valid entries are ‘‘0db’’ (default) and ‘‘2db’’.
- Prefix-1—Specifies if the prefix 1 is required for N(0/1)X calls. Valid entries are ‘‘y’’ and ‘‘n’’ (default).
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250; default is 10.
- Receive Answer Supervision—Specifies whether or not the trunks provide answer supervision from the network, and is used by the CDR feature. Answer supervision refers to notification from the far-end that the called party has gone off-hook to answer the call. When answer supervision is not provided, the originating PBX can classify a call as answered using the Answer Supervision Timeout field entry. For trunks over which answer supervision is provided by the network (for example, certain ground-start CO trunks), this field should be ‘‘y’’ and the Answer Supervision Timeout field ‘‘0’’ to disable the firmware time-out. Receive Answer Supervision must be ‘‘n’’ (default) if the Direction field is ‘‘incoming’’.

Page 2 of the Form

- Ext—Extension number of a voice terminal with a button for access to this PCOL.
- Name—Name of employee assigned to extension.

```
                          PERSONAL CO LINE GROUP

 Group Number: ____                Group Type: _____________  CDR Reports? _
   Group Name: _______________   Coverage Path: ____                   TAC: ___
Security Code: ____           Outgoing Display? _         Data Restriction? _
                         Message Server Name: _______
LWC Reception: ____               AUDIX Name: _______

TRUNK PARAMETERS
             Trunk Type: _____________             Trunk Direction: ________
             Trunk Port: _______            Disconnect Timing(msec): ____
             Trunk Name: __________              Trunk Termination: ______
     Outgoing Dial Type: _________               Terminal Balanced? _
               Prefix-1? y                          RA Trunk Loss: 0dB

 Answer Supervision Timeout: ___         Receive Answer Supervision? _
```

Personal Central Office Line Group Form (Page 1 of 2)

```
                          PERSONAL CO LINE GROUP

ASSIGNED MEMBERS (Stations with a button for this PCOL Group)
        Ext    Name                            Ext    Name
    1: _____  _______________             9: _____  _______________
    2: _____  _______________            10: _____  _______________
    3: _____  _______________            11: _____  _______________
    4: _____  _______________            12: _____  _______________
    5: _____  _______________            13: _____  _______________
    6: _____  _______________            14: _____  _______________
    7: _____  _______________            15: _____  _______________
    8: _____  _______________            16: _____  _______________
```

Personal Central Office Line Group Form (Page 2 of 2)

Release Link Trunk (RLT) Group

This form is used to to implement the Centralized Attendant Service (CAS) feature and is used to connect attendant-seeking calls from a branch location to a main location.

Administration Commands

The following administration commands can be used to access the Release Link Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

- Brackets [ ] indicate the qualifier is optional.
  Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ''rlt'' to identify the trunk group type.
- CDR Reports—Enter ''y'' (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''OUTSIDE CALL''.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Direction—Enter whether the trunk group is ''incoming'', ''outgoing'', or ''two-way'' (default).

- Outgoing Display—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Busy Threshold—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.
- Queue Length—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ‘‘0’’ (default) indicates no calls will be held in queue. Enter ‘‘0’’ for DCS trunks. This field is turned off if the Direction field is ‘‘incoming’’.
- Auth Code—Enter ‘‘y’’ if an authorization code must be dialed to complete incoming calls on the trunk group; otherwise, enter ‘‘n’’ (default). This field can only be ‘‘y’’ if the Authorization Codes feature is enabled on the System-Parameters Customer-Options form.
- Administrable Timers Page—Entering ‘‘y’’ causes an Administrable Timers page to be added to the trunk group form; default is ‘‘n’’. The Administrable Timers page then becomes Page 3 of X.
- Trunk Type (in/out)—Identifies the physical type of incoming and outgoing trunks. Valid entries are listed below.

auto/auto	auto/delay	auto/immed	auto/wink
delay/auto	delay/delay	delay/immed	delay/wink
immed/auto	immed/delay	immed/immed	immed/wink
wink/auto	wink/delay	wink/immed	wink/wink

NOTE:
For immed/immed trunks (on incoming trunks), the far-end PBX seizes the trunk and then sends digits without waiting for acknowledgement from the receiving PBX. When heavily loaded, the receiving PBX may incur a short delay in attaching a Touch Tone Receiver to this call and, therefore, cause it to lose digits. Using wink-start trunks or increasing the dial-guard timer value on the far-end PBX avoids this problem.

- Incoming Rotary Timeout (sec)—Is the timing interval required by the central office that the System is connected to. If the System is connected to a step-by-step office, 18 s or more must be used; if the System is not connected to a step-by-step office, 5 s or more may be used. Valid entries are 5–99, or leave blank; default is 5.
- Outgoing Dial Type—Identifies the type of pulsing required on an outgoing call. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.
- Incoming Dial Type—Indicates the type of pulses required on an incoming trunk group. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.

- Incoming Dial Tone—Indicates whether or not the trunk group will pass on incoming dial tone to the calling party. Valid entries are ‘‘y’’ or ‘‘n’’.
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250. The default is 10.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, complete the next three fields.
- Long Holding Time (hours)—Is the length in hours that the System will consider as being a long holding time. If ‘‘0’’ is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. Field must be ‘‘0’’ for a Service Type field entry of ‘‘sddn’’.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ‘‘internal’’, ‘‘external’’, ‘‘both’’, ‘‘none’’. Enter ‘‘internal’’ if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ‘‘external’’ to send the data to the Call Management System Adjunct. Enter ‘‘both’’ to send the data to both systems for measurement reports. Enter ‘‘none’’ if trunk group measurements are not required. System default is ‘‘none’’.
- Used for DCS—Appears for ‘‘access’’, ‘‘rlt’’, ‘‘tandem’’, ‘‘tie’’, and ‘‘isdn-pri’’ trunk group types. This field determines if a trunk will send and receive messages via a DCS signaling link. (NOTE: This field does not appear for an ‘‘isdn-pri’’ trunk group with a service type of ‘‘dmi-bos’’.) For all other ‘‘isdn-pri’’ trunk group types, if ‘‘y’’ is entered in this field, then the dependent fields ‘‘PBX ID’’ and DCS Signaling’’ appear.
- PBX ID—Displayed when the Used for DCS field entry on the ISDN PRI trunk group form is ‘‘y’’. Identifies the remote PBX within the network with which the trunk will communicate on a DCS signaling link. Valid entries are 1–63; default is 1.

- DCS Signaling—Displayed when the Used For DCS field entry on the ISDN PRI trunk group form is ‘‘y’’. The option ‘‘bx.25’’ is used to support the traditional DCS feature. The option ‘‘d-chan’’ is used to support the DCS Over ISDN-PRI D-channel feature. Enter ‘‘d-chan’’.
- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ‘‘#’’ when ‘‘y’’ is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ‘‘y’’ when the Central Office (for example, rotary) or any other facility treats # as an error; default is ‘‘n’’.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ‘‘y’’ (default) or ‘‘n’’.

Page 3 of the Form (If administrable timers used)

NOTE:
This page is only displayed if ‘‘y’’ is entered in the Administrable Timers Page field on page 1 of the form. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Incoming Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an incoming call from the serving CO. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an outgoing call. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing Dial Guard (msec)—Enter the minimum time (in msec) between seizure of the trunk and outpulsing of digits. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1600.
- Incoming Glare Guard (msec)—Enter the incoming guard time (in msec) between the time the incoming trunk is released and the same trunk can be seized again. This guard time will ensure the far-end has released all equipment after the incoming trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.

- Outgoing Glare Guard (msec)—Enter the outgoing guard time (in msec) between the time the outgoing trunk is released and the same trunk can be seized again. This guard time will ensure that the far-end has released all equipment after the outgoing trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.
- Outgoing Rotary Dial Interdigit (msec)—Enter the interval (in msec) between rotary dial digits being outpulsed by the system (that is, PBX). Valid entries are 150–2550 in increments of 10. The field cannot be blank; default is 800.
- Ring Monitor (msec)—Enter the minimum time (in msec) required to determine if the trunk is disconnected. If the ringing signal disappears for a duration longer than the time specified in this field, the call will be assumed to be disconnected. Valid entries are 200–51000 in increments of 200. The field cannot be blank; default is 5200.
- Incoming Seizure (msec)—Enter the minimum time (in msec) required for recognition of incoming ringing signal from the serving CO. Valid entries are 20–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing End of Dial (sec)—Enter the time (in sec) a trunk may wait for answer supervision after dialing an outgoing call. During cut through operation, timing begins after each outgoing digit is sent by the PBX and timing ceases after the far end sends answer supervision. If the timer expires, the PBX acts as if it had received answer supervision when the timer expires. On senderized operation, the timer begins after the last digit collected is sent by the PBX. The timer ceases when the far end sends answer supervision. If the timer expires, the PBX acts as if it has received answer supervision. This field will not appear if the Receive Answer Supervision field is y(es) but a zero (0) value will be sent down to the firmware to disable the timer. This timer applies to the outgoing and two-way CO trunk groups. Valid entries are 1–254 in increments of 1; default is 10.
- Outgoing Seizure Response (sec)—Enter the time (in sec) by which the PBX should receive the proceed-to-dial indication from the far end after sending the seize signal. If the indication is not received in this time, a seizure failure response is uplinked. This timer is administrable per CO or TIE trunk group. Valid entries are 1–255 in increments of 1; default is 5.
- Programmed Dial Pause (msec)—Enter the length (in msec) of a pause during abbreviated dialing, ARS outpulsing, and terminal dialing operations. This timer is administrable for all outgoing and two-way trunk groups. Valid entries are 100–25500 in increments of 100; default is 1500.

- Disconnect Signal Error (sec)—Enter the time (in sec) within which a disconnect signal from the far end is expected after the internal party (a station or a tie trunk) goes on-hook. If the timer expires, the system can assume a disconnect failure and take an appropriate action (such as, error message). This timer is administrable on TIE or GS CO trunk groups. Valid entries are 1–255 in increments of 1; default is 240.
- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.
- PPS—Enter either ‘‘10’’ or ‘‘20’’ to specify the PPS (pulses per second) assigned to rotary dial pulse trunk groups. Valid entries are ‘‘10’’ (default) or ‘‘20’’.
- Make (msec)—Enter the duration of the make interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ‘‘10’’, the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 40.

  If the PPS field is ‘‘20’’, the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 20.
- Break (msec)—Enter the duration of the break interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ‘‘10’’, the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 60.

  If the PPS field is ‘‘20’’, the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 30.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ‘‘y’’ has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.
- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is ''1''); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member's location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

  NOTE:
  Previously, Generic 1 Night Service and Balance/Loss information was entered in the Name field as ''NT#...'' and ''TT#)...''. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

- Night—Enter the extension of the night destination for the trunk. This individual night destination overrides the group night service destination on the first page of the trunk group form. Incoming calls are routed to this destination when the system is placed in night service mode. (If ''attd'' is entered, night service will be to the attendant.)
- Mode—Specifies the signaling mode used on Tie Trunks with TN722A, TN722B, TN760B, TN767, or TN464C circuit packs. Valid entries are ''e&m'' (interface), ''simplex'' (phantomed), or ''protected''. This entry must correspond to associated dip switch settings on the circuit pack.

- Type—Specifies the type of trunk used. Valid entries are ‘‘t1-stan’’ (Type 1 Standard), ‘‘t1-comp’’ (Type 1 Compatible), or ‘‘type-5’’.
- Ans Delay—Specifies the length of the wait for answer supervision delay in ms for DS1 or Tie Trunks using the TN722A, TN722B, TN760 (B, C, or D), TN767, or TN464C circuit packs. Valid entries are 20–5100 in increments of 20; default is no entry (blank) and internally treated as a zero. This delay serves two purposes:
  1. Used to assure that the answer supervision signal is valid and not a secondary delay-dial or wink-start signal.
  2. Used to bridge over momentary off-hook signals resulting from connections made off-network through certain No. 5 Crossbar CCSA switches as the connection is being established.

```
                                TRUNK GROUP              Page 1 of X

Group Number: xxx             Group Type: rlt         CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                  TAC: ____
   Direction: two-way  Outgoing Display? n
                       Busy Threshold: 255
Queue Length: 0__
                             Auth Code? n
                Administrable Timer Page? n

TRUNK PARAMETERS
   Trunk Type(in/out): _____________       Incoming Rotary Timeout: 5_
    Outgoing Dial Type: tone____                Incoming Dial Type: tone__
    Incoming Dial Tone? y

Answer Supervision Timeout: 10_
```

Release Link Trunk Group Form (Page 1 of X)

Implementation Note:

Night Service and Incoming Destination are displayed when Direction is ‘‘incoming’’.

Queue Length is not displayed if Direction is ‘‘incoming’’.

Connected to Toll and DTT to DCO Loss are displayed when Trunk Type is ‘‘auto/...’’, ‘‘delay/...’’, ‘‘immed/...’’, ‘‘wink/...’’.

STT Loss is displayed when Connected to Toll is ‘‘n’’.

```
                                                    Page 2 of X
TRUNK FEATURES
         ACA Assignment? n                    Measured: none
           Used for DCS? n               Data Restriction? n
  Suppress # Outpulsing? n              Maintenance Tests? y
```

Release Link Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when ACA Assignment is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold.

The PBX ID field is not displayed if the Used for DCS field is ‘‘n’’.

```
                                TRUNK GROUP              Page 3 of X
                                  TIMERS
                                            Outgoing Dial Guard (msec): ____
 Outgoing Glare Guard (msec): ___           Outgoing Glare Guard (msec): _____
                               Outgoing Rotary Dial Interdigit (sec): ___
         Ring Monitor (msec): ____              Incoming Seizure (msec): ____
  Outgoing End of Dial (sec): __        Outgoing Seizure Response (sec): ___
Programmed Dial Pause (msec): ____

END TO END SIGNALING
   Tone (msec):____     Pause: (msec):____

OUTPULSING TIMING
     PPS: __       Make (msec): __     Break (msec): __
```

Release Link Trunk Group Administrable Timers Form (Page 3 of X)

Implementation Note:

This page is displayed when Administrable Timers Page on page 1 is ‘‘y’’.

```
                                TRUNK GROUP                      Page 4 of X

                                          Administered Members(min/max): xxx/yyy
                                             Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name         Night    Mode     Type     Ans Delay
    1: _______  _____     _   ___________  _____  ________ _______    ____
    2: _______  _____     _   ___________  _____  ________ _______    ____
    3: _______  _____     _   ___________  _____  ________ _______    ____
    4: _______  _____     _   ___________  _____  ________ _______    ____
    5: _______  _____     _   ___________  _____  ________ _______    ____
    6: _______  _____     _   ___________  _____  ________ _______    ____
    7: _______  _____     _   ___________  _____  ________ _______    ____
    8: _______  _____     _   ___________  _____  ________ _______    ____
    9: 01a0304  TN767     _   denver       81324  ________ _______    ____
   10: _______  _____     _   ___________  _____  ________ _______    ____
   11: 02b0102  TN767     _   middletown   81345  ________ _______    ____
   12: _______  _____     _   ___________  _____  ________ _______    ____
   13: _______  _____     _   ___________  _____  ________ _______    ____
   14: _______  _____     _   ___________  _____  ________ _______    ____
   15: _______  _____     _   ___________  _____  ________ _______    ____
```

Release Link Trunk Group Form (Pages 4–X)
(To reduce repetition, pages 5–X are not shown.)

Tandem Trunk Group

This form is used to interconnect tandem nodes in an ETN network. The trunk group provides the System with the ability to act as an intermediate switch (through switch) in a private network and is capable of transmitting and receiving Traveling Class Marks as well as outpulsing 7-digit RNX-XXXX dialed numbers. A Traveling Class Mark represents a user's Facility Restriction Level (FRL), or the FRL of the user's trunk group.

Administration Commands

The following administration commands can be used to access the Tandem Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ''tandem'' to identify the trunk group type.
- CDR Reports—Enter ''y'' (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''OUTSIDE CALL''.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Direction—Enter whether the trunk group is ''incoming'', ''outgoing'', or ''two-way'' (default).
- Outgoing Display—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ''y'' or ''n'' (default).
- Dial Access—Enter ''y'' (default) to allow the trunk group to be accessed via a TAC. Access via the ARS feature is allowed regardless of this entry.
- Busy Threshold—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.

- Night Service—Enter the extension number assigned to Night Service. The extension number entered will receive all incoming calls when Night Service is activated and the individual trunk member Night field is not administered to override this group extension. Valid entries are an extension number (can be a VDN extension), the attendant group access code (usually ''0''), **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''.
- Queue Length—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ''0'' (default) indicates no calls will be held in queue. Enter ''0'' for DCS trunks. This field is turned off if the Direction field is ''incoming''.
- Incoming Destination—Indicates where incoming calls will terminate. Valid entries are an extension number, the attendant group access code (usually ''0''), VDN, **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''. If ''0'' is entered, a call is treated as an LDN call.
- Comm Type—Indicates if the trunk is to be used for voice, data, alternate voice-data (avd), or alternate voice/voice grade data and 56-kbps digital data (rbavd) calls. Valid entries are ''avd'', ''rbavd'', ''voice'' (default), or ''data''. Type ''rbavd'' supports access to voice/data SDN service on robbed-bit T1 transmission facilities.

  NOTE:
  ''avd'' and ''rbavd'' types require trunk member ports on a DS1 circuit pack. An ''rbavd'' type requires that the DS1 circuit pack be administered for robbed-bit, ISDN-EXT, or ISDN-PRI signaling.

- Administrable Timers Page—Entering ''y'' causes an Administrable Timers page to be added to the trunk group form. The Administrable Timers page then becomes Page 3 of X. Valid entries are ''y'' or ''n'' (default).
- ITC (Information Transfer Capability)—Displayed for non-ISDN trunk groups when the Comm Type field is ''data'', ''avd'', or ''rbavd'' and the BCC field is not ''0''. Used by the GRS feature and enables the system to route calls to restricted or unrestricted facilities according to the endpoint's information transfer capability. Default is ''restricted''.
- BCC (Bearer Capability Class)—Displayed when ISDN—PRI is enabled for on the System-Parameters Customer-Options form and the Comm Type field is ''avd'' or ''data''. Used by the Generalized Route Selection feature and identifies the type of traffic on trunks in the group. The BCC entry is used by far-end tandem switches to select outgoing routing facilities with equivalent BCC classes. Valid entries are 0, 1, 2, 3, and 4; default is 0 for ''avd'' and 2 for ''data''.

  NOTE:
  Refer to ''Generalized Route Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls.

- Trunk Type (in/out)—Identifies the physical type of incoming and outgoing trunks. Valid entries are listed below.

auto/auto	auto/delay	auto/immed	auto/wink
delay/auto	delay/delay	delay/immed	delay/wink
immed/auto	immed/delay	immed/immed	immed/wink
wink/auto	wink/delay	wink/immed	wink/wink

NOTE:
For immed/immed trunks (on incoming trunks), the far-end PBX seizes the trunk and then sends digits without waiting for acknowledgement from the receiving PBX. When heavily loaded, the receiving PBX may incur a short delay in attaching a Touch Tone Receiver to this call and, therefore, cause it to lose digits. Using wink-start trunks or increasing the dial-guard timer value on the far-end PBX avoids this problem.

- Incoming Rotary Timeout (sec)—The timing interval required by the central office that the System is connected to. If the System is connected to a step-by-step office, 18 or more seconds must be used; if the System is not connected to a step-by-step office, 5 or more seconds may be used. Valid entries are 5–99, or leave blank; default is 5.
- Outgoing Dial Type—Identifies the type of pulsing required on an outgoing call. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.
- Incoming Dial Type—Indicates the type of pulses required on an incoming trunk group. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.
- Disconnect Timing (msec)—Specifies the minimum time period in ms that is required for recognition of disconnect by the serving central office or far-end PBX. The time interval must be in increments of 10 (from 140–2550 ms); default is 500.
- Digit Treatment—Indicates if digits are to be absorbed or inserted. A blank indicates no digit absorption or insertion. Valid entries are ‘‘absorption’’ or ‘‘insertion’’, or leave blank.
- Digits—Indicates the digits to be inserted or number of digits to be absorbed. This field is used with the Digit Treatment field. No entry indicates no digit absorption or insertion is done. Valid entries are the number of digits to be absorbed (1–5) or the actual digits to be inserted (up to 5 digits).
- Connected to Toll—Enter ‘‘y’’ if connected to a CO toll office; otherwise, enter ‘‘n’’ (default). This field is displayed when the Trunk Type field contains an entry of ‘‘auto/...’’, ‘‘delay/...’’, ‘‘wink/...’’, or ‘‘immed/...’’.
- STT Loss (Satellite PBX Tie Trunk Loss)—Displayed when Connected to Toll is ‘‘n’’. Specifies the loss plan to be used for the trunk group. Valid entries are ‘‘normal’’ (default) or ‘‘low’’. This option affects the transmission performance of a private PBX network.

Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ''low'' option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should be used when:

1. Stations on the satellite PBX complain of too much loss on calls to the public network.
2. The PBX network consists of **no more** than three PBXs: one main and one or two satellite PBXs.
3. All PBXs have the ''low'' option available.
4. The total DS1 trunk connection length is less than 100 miles.

If the preceding conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

— normal—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

— low—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.

- DTT to DCO Loss (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan to be used for the trunk group for interconnections from a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). This field is displayed when the Trunk Type field contains an entry of auto/..., delay/..., wink/..., or immed/....

  This option affects the transmission performance of public network access via a private PBX network. Choose the ''low'' option if private network users complain about too much loss on calls to the public network, otherwise, the ''normal'' option should be used. Valid entries are ''normal'' (default) and ''low''. The entry is based on the following:

  — normal—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

  — low—Corresponds to (+3, -3) dB gain pair. Low is used for internetwork applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals

transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- Incoming Dial Tone—Indicates whether or not the trunk group will pass on incoming dial tone to the calling party. Valid entries are ‘‘y’’ or ‘‘n’’.
- Bit Rate—Displayed when the Comm Type field is ‘‘avd’’. Specifies the baud rate to be used by pooled modems. Valid entries are 300, 1200 (default), 2400, 4800, 9600, and 19200.
- Synchronization—Displayed when the Comm Type field is ‘‘avd’’. Enter whether the trunk group will use synchronous or asynchronous communications. Valid entries are ‘‘async’’ (default) and ‘‘sync’’.
- Duplex—Displayed when the Comm Type field is ‘‘avd’’. Specifies either full or half duplex for the trunk group. Valid entries are ‘‘full’’ (default) or ‘‘half’’.
- Disconnect Supervision-Out—To Be Provided.
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250. The default is ‘‘10’’.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, complete the next three fields.
- Long Holding Time (hours)—The length in hours that the System will consider as being a long holding time. If ‘‘0’’ is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. Field must be ‘‘0’’ for a Service Type field entry of ‘‘sddn’’.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—The number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ‘‘internal’’, ‘‘external’’, ‘‘both’’, ‘‘none’’. Enter ‘‘internal’’ if the data is to be sent to the Basic Call

Management System (internal to the switch) for subsequent measurement reports and ''external'' to send the data to the Call Management System Adjunct. Enter ''both'' to send the data to both systems for measurement reports. Enter ''none'' if trunk group measurements are not required. System default is ''none''.

- Data Restriction—Used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ''y'' or ''n'' (default).
- Used for DCS—Specifies whether the trunk group will send and receive messages on a DCS signaling link. Valid entries are ''y'' or ''n'' (default).
- PBX ID—Displayed when the Used for DCS field is ''y''. Enter the ID of the PBX at the other end of this trunk.

  NOTE:
  This field cannot be activated if the tie trunk group number is greater than 255, if there are more than 255 members in the trunk group, or if the Trunk Access code is more than 3 digits long.

- DCS Signaling—Displayed when the Used for DCS field is ''y''. Enter ''bx.25'' for the standard DCS feature or ''d-chan'' for the DCS over ISDN-PRI D-channel feature.
- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ''#'' when ''y'' is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ''y'' when the Central Office (for example, rotary) or any other facility treats # as an error; default is ''n''.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ''y'' (default) or ''n''.

Page 3 of the Form (If administrable timers used)

NOTE:
This page is displayed when ''y'' is entered in the Administrable Timers Page field on page 1 of the form. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Incoming Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an incoming call from the serving CO. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an outgoing call. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.

- Outgoing Dial Guard (msec)—Enter the minimum time (in msec) between seizure of the trunk and outpulsing of digits. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1600.
- Incoming Glare Guard (msec)—Enter the incoming guard time (in msec) between the time the incoming trunk is released and reseized. This time ensures that the far-end has released all equipment after the incoming trunk is released. Valid entries are 100–25500 in increments of 100. This field cannot be blank; default is 1500.
- Outgoing Glare Guard (msec)—Enter the outgoing guard time (in msec) between the time the outgoing trunk is released and reseized. This time ensures that the far-end has released all equipment after the outgoing trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.
- Outgoing Rotary Dial Interdigit (msec)—Enter the interval (in msec) between rotary dial digits being outpulsed by the system (that is, PBX). Valid entries are 150–2550 in increments of 10. The field cannot be blank; default is 800.
- Ring Monitor (msec)—Enter the minimum time (in msec) required to determine if the trunk is disconnected. If the ringing signal disappears for a duration longer than the time specified in this field, the call will be assumed to be disconnected. Valid entries are 200–51000 in increments of 200. This field cannot be blank; default is 5200.
- Incoming Seizure (msec)—Enter the minimum time (in msec) required for recognition of incoming ringing signal from the serving CO. Valid entries are 20–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing End of Dial (sec)—Enter the time (in sec) a trunk may wait for answer supervision after dialing an outgoing call. During cut through operation, timing begins after each outgoing digit is sent by the PBX and timing ceases after the far end sends answer supervision. If the timer expires, the PBX acts as if it had received answer supervision when the timer expires. On senderized operation, the timer begins after the last digit collected is sent by the PBX. The timer ceases when the far end sends answer supervision. If the timer expires, the PBX acts as if it has received answer supervision. This field will not appear if the Receive Answer Supervision field is y(es) but a zero (0) value will be sent down to the firmware to disable the timer. This timer applies to the outgoing and two-way CO trunk groups. Valid entries are 1–254 in increments of 1; default is 10.
- Outgoing Seizure Response (sec)—Enter the time (in sec) by which the PBX should receive the proceed-to-dial indication from the far end after sending the seize signal. If the indication is not received in this time, a seizure failure response is uplinked. This timer is administrable per CO or TIE trunk group. Valid entries are 1–255 in increments of 1; default is 5.

- Programmed Dial Pause (msec)—Enter the length (in msec) of a pause during abbreviated dialing, ARS outpulsing, and terminal dialing operations. This timer is administrable for all outgoing and two-way trunk groups. Valid entries are 100–25500 in increments of 100; default is 1500.
- Disconnect Signal Error (sec)—Enter the time (in sec) within which a disconnect signal from the far end is expected after the internal party (a station or a tie trunk) goes on-hook. If the timer expires, the system can assume a disconnect failure and take an appropriate action (e.g. error message). This timer is administrable on TIE or GS CO trunk groups. Valid entries are 1–255 in increments of 1; default is 240.
- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.
- PPS—Enter either ‘‘10’’ or ‘‘20’’ to specify the PPS (pulses per second) assigned to rotary dial pulse trunk groups. Valid entries are ‘‘10’’ or ‘‘20’’; default is 10.
- Make (msec)—Enter the duration of the make interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ‘‘10’’, the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 40.

  If the PPS field is ‘‘20’’, the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 20.
- Break (msec)—Enter the duration of the break interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ‘‘10’’, the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 60.

  If the PPS field is ‘‘20’’, the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 30.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ‘‘y’’ has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.
- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is ‘‘1’’ if no entry); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member’s location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

  NOTE:
  Previously, Generic 1 Night Service and Balance/Loss information was entered in the Name field as ‘‘NT#...’’ and ‘‘TT#)...’’. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

- Night—Enter the extension of the night destination for the trunk. This individual night destination overrides the group night service destination on the first page of the trunk group form. Incoming calls are routed to this destination when the system is placed in night service mode. (If ‘‘attd’’ is entered, night service will be to the attendant.)

- Mode—Specifies the signaling mode used on Tie Trunks with TN722A, TN722B, TN760B, TN767, or TN464C circuit packs. Valid entries are ‘‘e&m’’ (interface), ‘‘simplex’’ (phantomed), or ‘‘protected’’. This entry must correspond to associated dip switch settings on the circuit pack.
- Type—Specifies the type of trunk used. Valid entries are ‘‘t1-stan’’ (Type 1 Standard), ‘‘t1-comp’’ (Type 1 Compatible), or ‘‘type-5’’.
- Ans Delay—Specifies the length of the wait for answer supervision delay in milliseconds for DS1 or Tie Trunks using the TN722A, TN722B, TN760 (B, C, or D), TN767, or TN464C circuit packs. Valid entries are 20–5100 in increments of 20. The default is no entry (blank) and internally treated as a zero. This delay serves two purposes:
  1. Used to assure that the answer supervision signal is valid and not a secondary delay-dial or wink-start signal.
  2. Used to bridge over momentary off-hook signals resulting from connections made off-network through certain No. 5 Crossbar CCSA switches as the connection is being established.

```
                              TRUNK GROUP              Page 1 of X

Group Number: xxx            Group Type: tandem      CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                  TAC: ____
   Direction: two-way_ Outgoing Display? n
 Dial Access? y          Busy Threshold: 255       Night Service: _____
Queue Length: 0__                          Incoming Destination: _____
   Comm Type: voice
             Administrable Timer Page? n

TRUNK PARAMETERS
    Trunk Type(in/out): _____________ Incoming Rotary Timeout(sec): 5_
    Outgoing Dial Type: tone____               Incoming Dial Type: tone__
                                        Disconnect Timing(msec): 500_
       Digit Treatment: __________                        Digits: _____
    Incoming Dial Tone? y

Disconnect Supervision-Out? n
Answer Supervision Timeout: _10
```

Tandem Trunk Group Form (Page 1 of X)

Implementation Notes:

The BCC field is displayed when ISDN-PRI is optioned for on the System-Parameters Customer-Options form and the Comm Type field is ‘‘avd’’ or ‘‘data’’.

The Connected to Toll and DTT to DCO Loss fields are displayed when the Trunk Type field is ‘‘auto/...’’, ‘‘delay/...’’, ‘‘wink/...’’, or ‘‘immed/...’’.

The STT Loss field is displayed when the Connected to Toll field is ‘‘n’’.

The Bit Rate, Synchronization, and Duplex fields are displayed when the Comm Type field is ‘‘avd’’.

The ITC (Information Transfer Capability) field displayed for non-ISDN trunk groups when the Comm Type field is ‘‘data’’, ‘‘avd’’, or ‘‘rbavd’’ and the BCC field is ‘‘0’’.

```
                                                    Page 2 of X
TRUNK FEATURES
         ACA Assignment? n                      Measured: none
           Used for DCS? n                Data Restriction? n
  Suppress # Outpulsing? n              Maintenance Tests? y
```

Tandem Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when the ACA Assignment field is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold

The PBX ID field is not displayed if the Used for DCS field is ‘‘n’’.

```
                                TRUNK GROUP                Page 3 of X
                                  TIMERS
                                                  Outgoing Dial Guard (msec): ____
 Outgoing Glare Guard (msec): ___                Outgoing Glare Guard (msec): _____
                                     Outgoing Rotary Dial Interdigit (sec): ___
        Ring Monitor (msec): ____                   Incoming Seizure (msec): ____
  Outgoing End of Dial (sec): __          Outgoing Seizure Response (sec): ___
Programmed Dial Pause (msec): ____

END TO END SIGNALING
   Tone (msec):____     Pause: (msec):____

OUTPULSING TIMING
     PPS: __       Make (msec): __     Break (msec): __
```

Tandem Trunk Group Form (Page 3 of X)

```
                                                                Page 4 of X
                                TRUNK GROUP
                                       Administered Members(min/max): xxx/yyy
                                          Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name         Night    Mode     Type     Ans Delay
    1: _______  _____     _   ___________  _____  ________ _______    ____
    2: _______  _____     _   ___________  _____  ________ _______    ____
    3: _______  _____     _   ___________  _____  ________ _______    ____
    4: _______  _____     _   ___________  _____  ________ _______    ____
    5: _______  _____     _   ___________  _____  ________ _______    ____
    6: _______  _____     _   ___________  _____  ________ _______    ____
    7: _______  _____     _   ___________  _____  ________ _______    ____
    8: _______  _____     _   ___________  _____  ________ _______    ____
    9: 01a0304  TN767     _   denver       81324  ________ _______    ____
   10: _______  _____     _   ___________  _____  ________ _______    ____
   11: 02b0102  TN767     _   middletown   81345  ________ _______    ____
   12: _______  _____     _   ___________  _____  ________ _______    ____
   13: _______  _____     _   ___________  _____  ________ _______    ____
   14: _______  _____     _   ___________  _____  ________ _______    ____
   15: _______  _____     _   ___________  _____  ________ _______    ____
```

Tandem Trunk Group Form (Pages 4–X)
(To reduce repetition, pages 5–X are not shown.)

Tie Trunk Group

This form is used to provide private access between the System and another PBX or CENTREX. The trunks are used to interconnect a satellite, tributary, and a main PBX in an Electronic Tandem Network. The trunk group can also be used to interface a 4 ESS switch in support of MEGACOM service, MEGACOM 800 service, and MEGACOM 800 DNIS service.

Administration Commands

The following administration commands can be used to access the Tie Trunk Group form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	trunk-group	1–666 (or 'next')
change	trunk-group	1–666 or TAC X...
display	trunk-group	1–666 or TAC X...['print' or 'schedule']
list	trunk-group	['print' or 'schedule']
remove	trunk-group	1–666 or TAC X...

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ''tie'' to identify the trunk group type.
- CDR Reports—Enter ''y'' (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ''OUTSIDE CALL''.
- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.

- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Direction—Enter whether the trunk group is ''incoming'', ''outgoing'', or ''two-way'' (default).
- Outgoing Display—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ''y'' or ''n'' (default).
- Dial Access—Enter ''y'' (default) to allow the trunk group to be accessed via a TAC. Access via the ARS feature is allowed regardless of this entry.
- Busy Threshold—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.
- Night Service—Enter the extension number assigned to Night Service. The extension number entered will receive all incoming calls when Night Service is activated and the individual trunk member Night field is not administered to override this group extension. Valid entries are an extension number (can be a VDN extension), the attendant group access code (usually ''0''), **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''.
- Queue Length—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ''0'' (default) indicates no calls will be held in queue. Enter ''0'' for DCS trunks. This field is turned off if the Direction field is ''incoming''.
- Incoming Destination—Indicates where incoming calls will terminate. Valid entries are an extension number, the attendant group access code (usually ''0''), VDN, **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''. If ''0'' is entered, a call is treated as an LDN call.
- Comm Type—Indicates if the trunk is to be used for voice, data, alternate voice-data (avd), or alternate voice/voice grade data and 56-kbps digital data (rbavd) calls. Valid entries are ''avd'', ''rbavd'', ''voice'' (default), or ''data''. Type ''rbavd'' supports access to voice/data SDN service on robbed-bit T1 transmission facilities.

  NOTE:
  ''avd'' and ''rbavd'' types require trunk member ports on a DS1 circuit pack. An ''rbavd'' type requires that the DS1 circuit pack be administered for robbed-bit, ISDN-EXT, or ISDN-PRI signaling.

- Auth Code—Enter ''y'' if an authorization code must be dialed to complete incoming calls on the trunk group; otherwise, enter ''n'' (default). This field can only be ''y'' if the Authorization Codes feature is enabled on the System-Parameters Customer-Options form.

- Administrable Timers Page—Entering ‘‘y’’ causes an Administrable Timers page to be added to the trunk group form. The Administrable Timers page then becomes Page 3 of X. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- ITC (Information Transfer Capability)—Displayed for non-ISDN trunk groups when the Comm Type field is ‘‘data’’, ‘‘avd’’, or ‘‘rbavd’’ and the BCC field is not ‘‘0’’. Used by the GRS feature and enables the system to route calls to restricted or unrestricted facilities according to the endpoint’s information transfer capability. Default is ‘‘restricted’’.
- BCC (Bearer Capability Class)—Displayed when the ISDN—PRI is optioned for on the System-Parameters Customer-Options form and the Comm Type field is ‘‘avd’’ or ‘‘data’’. Used by the Generalized Route Selection feature and identifies the type of traffic on trunks in the group. The BCC entry is used by far-end tandem switches to select outgoing routing facilities with equivalent BCC classes. Valid entries are 0, 1, 2, 3, and 4; default is 0 for ‘‘avd’’ and 2 for ‘‘data’’.

  NOTE:
  Refer to ‘‘Generalized Route Selection’’ in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls.

- Trunk Type (in/out)—Identifies the physical type of incoming and outgoing trunks. Valid entries are listed below.

auto/auto	auto/delay	auto/immed	auto/wink
delay/auto	delay/delay	delay/immed	delay/wink
immed/auto	immed/delay	immed/immed	immed/wink
wink/auto	wink/delay	wink/immed	wink/wink

  NOTE:
  For immed/immed trunks (on incoming trunks), the far-end PBX seizes the trunk and then sends digits without waiting for acknowledgement from the receiving PBX. When heavily loaded, the receiving PBX may incur a short delay in attaching a Touch Tone Receiver to this call and, therefore, cause it to lose digits. Using wink-start trunks or increasing the dial-guard timer value on the far-end PBX avoids this problem.

- Incoming Rotary Timeout (sec)—The timing interval required by the central office that the System is connected to. If the System is connected to a step-by-step office, 18 or more seconds must be used; if the System is not connected to a step-by-step office, 5 or more seconds may be used. Valid entries are 5–99, or leave blank; default is 5.
- Outgoing Dial Type—Identifies the type of pulsing required on an outgoing call. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.

- Incoming Dial Type—Indicates the type of pulses required on an incoming trunk group. Valid entries are ''tone'' (default) or ''rotary''.
- Disconnect Timing (msec)—Specifies the minimum time period in ms that is required for recognition of disconnect by the serving central office or far-end PBX. The time interval must be in increments of 10 (from 140–2550 ms). default is 500.
- Digit Treatment—Indicates if digits are to be absorbed or inserted. A blank indicates no digit absorption or insertion. Valid entries are ''absorption'' or ''insertion'', or leave blank.
- Digits—Indicates the digits to be inserted or number of digits to be absorbed. This field is used with the Digit Treatment field. No entry indicates no digit absorption or insertion is done. Valid entries are the number of digits to be absorbed (1–5) or the actual digits to be inserted (up to 5 digits).
- Connected to Toll—Enter ''y'' if connected to a CO toll office; otherwise, enter ''n'' (default). This field is displayed when the Trunk Type field contains an entry of ''auto/...'', ''delay/...'', ''wink/...'', or ''immed/...''.
- STT Loss (Satellite PBX Tie Trunk Loss)—Displayed when Connected to Toll is ''n''. Specifies the loss plan to be used for the trunk group. Valid entries are ''normal'' (default) or ''low''. This option affects the transmission performance of a private PBX network.

  Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ''low'' option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should be used when:

  1. Stations on the satellite PBX complain of too much loss on calls to the public network.
  2. The PBX network consists of **no more** than three PBXs: one main and one or two satellite PBXs.
  3. All PBXs have the ''low'' option available.
  4. The total DS1 trunk connection length is less than 100 miles.

  If the preceding conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

  — normal—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

— low—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.

- DTT to DCO Loss (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan to be used for the trunk group for interconnections from a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). This field is displayed when the Trunk Type field contains an entry of auto/..., delay/..., wink/..., or immed/....

  This option affects the transmission performance of public network access via a private PBX network. Choose the ''low'' option if private network users complain about too much loss on calls to the public network, otherwise, the ''normal'' option should be used. Valid entries are ''normal'' (default) and ''low''. The entry is based on the following:

  — normal—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

  — low—Corresponds to (+3, -3) dB gain pair. Low is used for internetwork applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- Incoming Dial Tone—Indicates whether or not the trunk group will pass on incoming dial tone to the calling party. Valid entries are ''y'' or ''n''.
- Bit Rate—Displayed when the Comm Type field is ''avd''. Specifies the baud rate to be used by pooled modems. Valid entries are 300, 1200 (default), 2400, 4800, 9600, and 19200.
- Synchronization—Displayed when the Comm Type field is ''avd''. Enter whether the trunk group will use synchronous or asynchronous communications. Valid entries are ''async'' (default) and ''sync''.

- Duplex—Displayed when the Comm Type field is ‘‘avd’’. Specifies either full or half duplex for the trunk group. Valid entries are ‘‘full’’ (default) or ‘‘half’’.
- Disconnect Supervision-Out—To Be Provided.
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250. The default is ‘‘10’’.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, complete the next three fields.
- Long Holding Time (hours)—The length in hours that the System will consider as being a long holding time. If ‘‘0’’ is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. Field must be ‘‘0’’ for a Service Type field entry of ‘‘sddn’’.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—The number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Enter ‘‘internal’’ if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ‘‘external’’ to send the data to the Call Management System Adjunct. Enter ‘‘both’’ to send the data to both systems for measurement reports. Enter ‘‘none’’ (default) if trunk group measurements are not required.
- Internal Alert—Specifies if internal ringing and coverage will be used for incoming calls. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Data Restriction—Used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Used for DCS—Specifies whether the trunk group will send and receive messages on a DCS signaling link. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- PBX ID—Displayed when the Used for DCS field is ‘‘y’’. Enter the ID of the PBX at the other end of this trunk.

NOTE:
This field cannot be activated if the tie trunk group number is greater than 255, if there are more than 255 members in the trunk group, or if the Trunk Access code is more than 3 digits long.

- DCS Signaling—Displayed when the Used for DCS field is ''y''. Enter ''bx.25'' for the standard DCS feature or ''d-chan'' for the DCS over ISDN-PRI D-channel feature.
- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ''#'' when ''y'' is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ''y'' when the Central Office (for example, rotary) or any other facility treats # as an error; default is ''n''.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ''y'' or ''n'' (default).

Page 3 of the Form (If administrable timers used)

NOTE:
This page is displayed if ''y'' is entered in the Administrable Timers Page field on page 1 of the form. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Incoming Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an incoming call from the serving CO. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing Disconnect (msec)—Enter the minimum time (in msec) required for recognition of disconnect for an outgoing call. Valid entries are 50–2550 in increments of 10. The field cannot be blank; default is 500.
- Incoming Dial Guard (msec)—Enter the interval (in msec) between the detection of an incoming seizure and the acceptance of the first digit. The PBX will not accept digits before this timer expires. This timer is administrable on DID and TIE trunk groups. Valid entries are 10–2550 in increments of 10; default is 70.
- Outgoing Dial Guard (msec)—Enter the minimum time (in msec) between seizure of the trunk and outpulsing of digits. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1600.

- Incoming Glare Guard (msec)—Enter the incoming guard time (in msec) between the time the incoming trunk is released and the same trunk can be seized again. This guard time will ensure the far-end has released all equipment after the incoming trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.
- Outgoing Glare Guard (msec)—Enter the outgoing guard time (in msec) between the time the outgoing trunk is released and the same trunk can be seized again. This guard time will ensure that the far-end has released all equipment after the outgoing trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.
- Incoming Partial Dial (sec)—Enter the time (in sec) allowed between digits on rotary DID and TIE trunks. Valid entries are 5–255 in increments of 1; default is 18.
- Incoming First Digit (msec)—Enter the length of time (in msec) for the switch to wait for a first digit. This timer limits the interval after incoming seizure but before the first digit is received on incoming DID or TIE calls over trunks using rotary signaling. Valid entries are 100–25500 in increments of 100; default is 1800.
- Outgoing Rotary Dial Interdigit (msec)—Enter the interval (in msec) between rotary dial digits being outpulsed by the system (that is, PBX). Valid entries are 150–2550 in increments of 10. The field cannot be blank; default is 800.
- Outgoing End of Dial (sec)—Enter the time (in sec) a trunk may wait for answer supervision after dialing an outgoing call. During cut through operation, timing begins after each outgoing digit is sent by the PBX and timing ceases after the far end sends answer supervision. If the timer expires, the PBX acts as if it had received answer supervision when the timer expires. On senderized operation, the timer begins after the last digit collected is sent by the PBX. The timer ceases when the far end sends answer supervision. If the timer expires, the PBX acts as if it has received answer supervision. This field will not appear if the Receive Answer Supervision field is y(es) but a zero (0) value will be sent down to the firmware to disable the timer. This timer applies to the outgoing and two-way CO trunk groups. Valid entries are 1–254 in increments of 1; default is 10.
- Outgoing Seizure Response (sec)—Enter the time (in sec) by which the PBX should receive the proceed-to-dial indication from the far end after sending the seize signal. If the indication is not received in this time, a seizure failure response is uplinked. This timer is administrable per CO or TIE trunk group. Valid entries are 1–255 in increments of 1; default is 5.

- Programmed Dial Pause (msec)—Enter the length (in msec) of a pause during abbreviated dialing, ARS outpulsing, and terminal dialing operations. This timer is administrable for all outgoing and two-way trunk groups. Valid entries are 100–25500 in increments of 100; default is 1500.
- Disconnect Signal Error (sec)—Enter the time (in sec) within which a disconnect signal from the far end is expected after the internal party (a station or a tie trunk) goes on-hook. If the timer expires, the system can assume a disconnect failure and take an appropriate action (e.g. error message). This timer is administrable on TIE or GS CO trunk groups. Valid entries are 1–255 in increments of 1; default is 240.
- Incoming Incomplete Dial Alarm (sec)—Enter the time (in sec) between incoming seizure of a DID or TIE trunk and receipt of all digits. Intervals greater than this generate an inline error. Valid entries are 1–255 in increments of 1; default is 255.
- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.
- PPS—Enter either ‘‘10’’ or ‘‘20’’ to specify the PPS (pulses per second) assigned to rotary dial pulse trunk groups. Valid entries are ‘‘10’’ or ‘‘20’’; default is 10.
- Make (msec)—Enter the duration of the make interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ‘‘10’’, the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 40.

  If the PPS field is ‘‘20’’, the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 20.
- Break (msec)—Enter the duration of the break interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ‘‘10’’, the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 60.

If the PPS field is ‘‘20’’, the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 30.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ‘‘y’’ has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.
- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is ‘‘1’’ if no entry); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member’s location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.
- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

  NOTE:
  Previously, Generic 1 Night Service and Balance/Loss information was entered in the Name field as ‘‘NT#...’’ and ‘‘TT#)...’’. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

- Night—Enter the extension of the night destination for the trunk. This individual night destination overrides the group night service destination on the first page of the trunk group form. Incoming calls are routed to this destination when the system is placed in night service mode. (If ''attd'' is entered, night service will be to the attendant.)
- Mode—Specifies the signaling mode used on Tie Trunks with TN722A, TN722B, TN760B, TN767, or TN464C circuit packs. Valid entries are ''e&m'' (interface), ''simplex'' (phantomed), or ''protected''. This entry must correspond to associated dip switch settings on the circuit pack.
- Type—Specifies the type of trunk used. Valid entries are ''t1-stan'' (Type 1 Standard), ''t1-comp'' (Type 1 Compatible), or ''type-5''.
- Ans Delay—Specifies the length of the wait for answer supervision delay in ms for DS1 or Tie Trunks using the TN722A, TN722B, TN760 (B, C, or D), TN767, or TN464C circuit packs. Valid entries are 20–5100 in increments of 20; default is no entry (blank) and internally treated as a zero. This delay serves two purposes:

    1. Used to assure that the answer supervision signal is valid and not a secondary delay-dial or wink-start signal.
    2. Used to bridge over momentary off-hook signals resulting from connections made off-network through certain No. 5 Crossbar CCSA switches as the connection is being established.

```
                                TRUNK GROUP            Page 1 of X

Group Number: xxx            Group Type: tie         CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                  TAC: ____
   Direction: two-way_ Outgoing Display? n
 Dial Access? y          Busy Threshold: 255        Night Service: _____
Queue Length: 0__                            Incoming Destination: _____
   Comm Type: voice           Auth Code? n
              Administrable Timer Page? n

TRUNK PARAMETERS
   Trunk Type(in/out): _____________       Incoming Rotary Timeout: 5_
    Outgoing Dial Type: tone____                Incoming Dial Type: tone__
                                          Disconnect Timing(msec): 500_
       Digit Treatment: __________                        Digits: _____
     Connected to Toll? n     STT Loss: normal    DTT to DCO Loss: normal
    Incoming Dial Tone? y

Disconnect Supervision-Out? n
Answer Supervision Timeout: 10_
```

Tie Trunk Group Form (Page 1 of X)

Implementation Notes:

The BCC field is displayed when ISDN-PRI is optioned for on the System-Parameters Customer-Options form and the Comm Type field is ‘‘avd’’ or ‘‘data’’.

The Connected to Toll and DTT to DCO Loss fields are displayed when the Trunk Type field is ‘‘auto/...’’, ‘‘delay/...’’, ‘‘wink/...’’, or ‘‘immed/...’’.

The STT Loss field is displayed when the Connected to Toll field is ‘‘n’’.

The Bit Rate, Synchronization, and Duplex fields are displayed when the Conn Type field is ‘‘avd’’.

The ITC (Information Transfer Capability) field is displayed for non-ISDN trunk groups when the Comm Type field is ‘‘data’’, ‘‘avd’’, or ‘‘rbavd’’ and the BCC field is ‘‘0’’.

```
                                                          Page 2 of X
TRUNK FEATURES
         ACA Assignment? n            Measured: none
           Used for DCS? n      Internal Alert? n
                              Data Restriction? n Maintenance Tests? y
  Suppress # Outpulsing? n             Seized When Maintenance Busy: neither-end
```

Tie Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when the ACA Assignment field is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold

The PBX ID field is not displayed if the Used for DCS field is ‘‘n’’.

```
                                TRUNK GROUP              Page 3 of X
                                  TIMERS
                                                Outgoing Dial Guard (msec): ____
 Outgoing Glare Guard (msec): ___            Outgoing Glare Guard (msec): _____
                                Outgoing Rotary Dial Interdigit (sec): ___
        Ring Monitor (msec): ____               Incoming Seizure (msec): ____
  Outgoing End of Dial (sec): __         Outgoing Seizure Response (sec): ___
Programmed Dial Pause (msec): ____

END TO END SIGNALING
   Tone (msec):____     Pause: (msec):____

OUTPULSING TIMING
     PPS: __       Make (msec): __     Break (msec): __
```

Tie Trunk Group Form Administrable Timers Form (Page 3 of X)

Implementation Note:

This page is displayed when a ‘‘y’’ is entered in the Administrable Timers Page field on Page 1.

```
                                TRUNK GROUP              Page 4 of X

                                                Administered Members(min/max): xxx/yyy
                                                   Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name          Night    Mode     Type     Ans Delay
    1: ________ ______    _   ____________ _____ _________ ________  ____
    2: ________ ______    _   ____________ _____ _________ ________  ____
    3: ________ ______    _   ____________ _____ _________ ________  ____
    4: ________ ______    _   ____________ _____ _________ ________  ____
    5: ________ ______    _   ____________ _____ _________ ________  ____
    6: ________ ______    _   ____________ _____ _________ ________  ____
    7: ________ ______    _   ____________ _____ _________ ________  ____
    8: ________ ______    _   ____________ _____ _________ ________  ____
    9: 01a0304  TN767     _   denver       81324 _________ ________  ____
   10: ________ ______    _   ____________ _____ _________ ________  ____
   11: 02b0102  TN767     _   middletown    81345 _________ ________  ____
   12: ________ ______    _   ____________ _____ _________ ________  ____
   13: ________ ______    _   ____________ _____ _________ ________  ____
   14: ________ ______    _   ____________ _____ _________ ________  ____
   15: ________ ______    _   ____________ _____ _________ ________  ____
```

Tie Trunk Group Form (Pages 4–X)
(To reduce repetition, pages 5–X are not shown.)

Wide Area Telecommunications Service Trunk Group

This form is used to provide access to/from a portion of the DDD network via dedicated trunks to/from a WATS serving office.

Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Group Number—Enter a number from 1–666 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Type—Enter ‘‘wats’’ to identify the trunk group type.
- CDR Reports—Enter ‘‘y’’ (default) to provide a detailed Call Detail Recording (CDR) record of both incoming and outgoing calls made on all trunks in the trunk group.
- Group Name—Enter a unique name that identifies the trunk group. Up to 15 characters can be used; default is ‘‘OUTSIDE CALL’’.

- COR—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- TAC—Enter the trunk access code (TAC) that must be dialed to access the trunk group. CDR also uses the TAC to identify the trunk group on associated CDR reports. A different TAC must be assigned to each trunk group. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
- Direction—Enter whether the trunk group is ''incoming'', ''outgoing'', or ''two-way'' (default).
- Outgoing Display—Specifies whether or not the trunk group name is displayed on a terminal placing an outgoing call. Valid entries are ''y'' or ''n'' (default).
- Dial Access—Enter ''y'' (default) to allow the trunk group to be accessed via a TAC. Access via the ARS feature is allowed regardless of this entry.
- Busy Threshold—Enter a number (0–255) of trunk group members that must be busy before the attendant is alerted by the Warning lamp on the Attendant Console; default is 255.
- Night Service—Enter the extension number assigned to Night Service. The extension number entered will receive all incoming calls when Night Service is activated and the individual trunk member Night field is not administered to override this group extension. Valid entries are an extension number (can be a VDN extension), the attendant group access code (usually ''0''), **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''.
- Queue Length—Enter a number from 0–255 that indicates the number of outgoing calls that can be held waiting. A ''0'' (default) indicates no calls will be held in queue. Enter ''0'' for DCS trunks. This field is turned off if the Direction field is ''incoming''.
- Trunk Flash—To Be Provided.
- Incoming Destination—Indicates where incoming calls will terminate. Valid entries are an extension number, the attendant group access code (usually ''0''), VDN, **or** leave blank if the Trunk Type (in/out) field is not ''auto/...''. If ''0'' is entered, a call is treated as an LDN call.
- Comm Type—Indicates if the trunk is to be used for voice, data, alternate voice-data (avd), or alternate voice/voice grade data and 56-kbps digital data (rbavd) calls. Valid entries are ''avd'', ''rbavd'', ''voice'' (default), or ''data''. Type ''rbavd'' supports access to voice/data SDN service on robbed-bit T1 transmission facilities.

  NOTE:
  ''avd'' and ''rbavd'' types require trunk member ports on a DS1 circuit pack. An ''rbavd'' type requires that the DS1 circuit pack be administered for robbed-bit, ISDN-EXT, or ISDN-PRI signaling.

- Auth Code—Enter ''y'' if an authorization code must be dialed to complete incoming calls on the trunk group; otherwise, enter ''n'' (default). This field

can only be ‘‘y’’ if the Authorization Codes feature is enabled on the System-Parameters Customer-Options form.

- Administrable Timers Page— Entering a "y" causes an Administrable Timers page to be added to the trunk group form. The Administrable Timers page then becomes Page 3 of X. Valid entries are ‘‘y’’ or ‘‘n’’; default is ‘‘n’’.
- ITC (Information Transfer Capability)—Displayed when the Comm Type field is ‘‘data’’, ‘‘avd’’, or ‘‘rbavd’’ and the BCC field is not ‘‘0’’. Used by the GRS feature and enables the system to route calls to restricted or unrestricted facilities according to the endpoint’s information transfer capability. This field is displayed for non-ISDN trunk groups. Default is ‘‘restricted’’.
- BCC (Bearer Capability Class)—Displayed when ISDN—PRI is optioned for on the System-Parameters Customer-Options form and the Comm Type field is ‘‘avd’’ or ‘‘data’’. Used by the Generalized Route Selection feature and identifies the type of traffic on trunks in the group. The BCC entry is used by far-end tandem switches to select outgoing routing facilities with equivalent BCC classes. Valid entries are 0, 1, 2, 3, and 4; default is 0 for ‘‘avd’’ and 2 for ‘‘data’’.

  NOTE:
  Refer to ‘‘Generalized Route Selection’’ in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls.

- Trunk Type—Identifies the physical type of CO trunk. It may differ for incoming and outgoing types. Valid entries are ‘‘ground-start’’, ‘‘loop-start’’, ‘‘auto/auto’’, ‘‘auto/delay’’, ‘‘auto/immed’’, and ‘‘auto/wink’’.
- Outgoing Dial Type—Identifies the type of pulsing required on an outgoing call. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.
- Incoming Dial Type—Indicates the type of pulses required on an incoming trunk group. Valid entries are ‘‘tone’’ (default) or ‘‘rotary’’.
- Trunk Termination—Specifies how the trunk group is terminated. Valid entries are ‘‘600ohms’’ or ‘‘rc’’; 600ohms is used when the PBX trunk port is connected to terminal equipment (for example, SLC® carrier or compensators optioned for 600 ohms input impedance) and the distance to the terminal equipment from the System is less than 3000 feet. Enter ‘‘rc’’ (default) in all other cases.
- Disconnect Timing (msec)—Specifies the minimum time period in ms that is required for recognition of disconnect by the serving central office or far-end PBX. The time interval must be in increments of 10 (from 140–2550 ms); default is 500.
- Cyclical Hunt—Enter ‘‘y’’ (default) if a preferential hunting algorithm is to be used. Otherwise, a linear hunting algorithm will be used.

- Connected to Toll—Displayed when Trunk Type is ''auto/...'', ''delay/...'', ''wink/...'', or ''immed/...''. Enter ''y'' if connected to a CO toll office; otherwise, enter ''n'' (default).
- STT Loss (Satellite PBX Tie Trunk Loss)—Displayed when Connected to Toll is ''n''. Specifies the loss plan to be used for the trunk group. Valid entries are ''normal'' (default) or ''low''. This option affects the transmission performance of a private PBX network.

  Although the use of this option has wider applications, only for the simplest network arrangements should this field be administered without Network Engineering advise. The ''low'' option (described as the ISL digital low loss plan in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101) should be used when:

  1. Stations on the satellite PBX complain of too much loss on calls to the public network.
  2. The PBX network consists of **no more** than three PBXs: one main and one or two satellite PBXs.
  3. All PBXs have the ''low'' option available.
  4. The total DS1 trunk connection length is less than 100 miles.

  If the preceding conditions are not met, obtain Network Engineering assistance. The field entry is based on the following:

  — normal—Applies to AIU-TT (Analog Interface Unit at Customer Switching System for Tie Trunk—4-wire E&M interface), and DIU-TT (Digital Interface Unit at Customer Switching System for Tie Trunk—voice or AVD DS1 interface) loss plans.

  — low—Applies to AIU-TTS (same as AIU-TT, but suitable for private network connections that can be connected in tandem with public network connections) and DIU-TTS (same as DIU-TT, but suitable for private network connections that can be connected in tandem with public network connections). These interfaces were formerly referred to as DIU DTT ISL.
- DTT to DCO Loss (Digital Tie to Digital CO Trunk Loss)—Specifies the loss plan to be used for the trunk group for interconnections from a DIU-CO (Digital Interface Unit at a Central Office) to a DIU-DTT (Digital Interface Unit for a Digital Tie Trunk Interface). This field is displayed when the Trunk Type field contains an entry of auto/..., delay/..., wink/..., or immed/....

  This option affects the transmission performance of public network access via a private PBX network. Choose the ''low'' option if private network users complain about too much loss on calls to the public network, otherwise, the ''normal'' option should be used. Valid entries are ''normal'' (default) and ''low''. The entry is based on the following:

  - normal—Corresponds to a (0, -6) dB gain pair and is used as the default option. (This corresponds to the DTT/EIA DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)
  - low—Corresponds to (+3, -3) dB gain pair. Low is used for internetwork applications in which no significant configuration will encounter echo, stability, or overload problems because of reduced loss. With the low gain pair, subscriber station DTMF signals transmitted through the digital class 5 office into the customer network may experience non-recoverable digit mutilation in secondary signaling applications (that is, DTMF signaling after the connection has been established). (This corresponds to the DTT/ISL DCO port to port configuration as described in *DEFINITY® Communications System Generic 1 and System 75 and System 85 DS1/DMI/ISDN-PRI Reference*, 555-025-101.)

- Terminal Balanced—Displayed when the Trunk Type field is ''ground-start'' or ''loop-start''. Enter ''y'' for terminally balanced trunks or ''n'' (default) for unbalanced trunks. Typically, a Trunk Termination field of ''600ohms'' signifies a balanced trunk group and a field of ''rc'' signifies a non-balanced trunk group. If the trunks in this group pass the Low Frequency Return Loss test requirements, then they are terminally balanced, and this field should be ''y''.
- RA Trunk Loss—(Remote Access Trunk Loss) Displayed when the Terminal Balanced field entry is ''n''. Specifies the type of dB loss to be applied to non-terminally balanced trunks. If unsatisfactory echo performance (hollowness) is experienced, the field should be changed to 2dB. Valid entries are ''0db'' (default) and ''2db''.
- Bit Rate—Displayed when the Comm Type field is ''avd''. Specifies the baud rate to be used by pooled modems. Valid entries are 300, 1200 (default), 2400, 4800, 9600, and 19200.
- Synchronization—Displayed when the Comm Type field is ''avd''. Enter whether the trunk group will use synchronous or asynchronous communications. Valid entries are ''async'' (default) and ''sync''.
- Duplex—Displayed when the Comm Type field is ''avd''. Specifies either full or half duplex for the trunk group. Valid entries are ''full'' (default) or ''half''.
- Disconnect Supervision-Out—To Be Provided.
- Answer Supervision Timeout—Indicates the amount of time in seconds the System allows for the call to be answered before beginning an CDR record of a call. This interval begins as soon as the outgoing trunk is seized. This time-out does not override network or firmware sent answer supervision. Valid entries are 0–250. The default is ''10''.

- Receive Answer Supervision—Specifies whether or not the trunks provide answer supervision from the network, and is used by the CDR feature. Answer supervision refers to notification from the far-end that the called party has gone off-hook to answer the call. When answer supervision is not provided, the originating PBX can classify a call as answered using the Answer Supervision Timeout field entry. For trunks over which answer supervision is provided by the network (for example, certain ground-start CO trunks), this field should be ‘‘y’’ and the Answer Supervision Timeout field ‘‘0’’ to disable the firmware time-out. Receive Answer Supervision must be ‘‘n’’ (default) if the Direction field is ‘‘incoming’’.

Page 2 of the Form

- ACA Assignment—Specifies whether or not Automatic Circuit Assurance (ACA) measurements will be taken for this trunk group. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, complete the next three fields.
- Long Holding Time (hours)—Is the length in hours that the System will consider as being a long holding time. If ‘‘0’’ is entered, the System will not consider long holding calls. Valid entries are 0–10; default is 1. Field must be ‘‘0’’ for a Service Type of ‘‘sddn’’.
- Short Holding Time (secs.)—Specifies the length in seconds that the System will consider as being a short holding time. If ‘‘0’’ is entered, the System will not consider short holding calls. Valid entries are 0–160; default is 10.
- Short Holding Threshold—Is the number of times that the System will record a short holding call before an attendant or display-equipped voice terminal user is alerted to the possibility of a faulty trunk. Valid entries are 0–30; default is 15.
- Measured—Indicates if the System will transmit data for this trunk group to the Call Management System. Valid entries are ‘‘internal’’, ‘‘external’’, ‘‘both’’, ‘‘none’’. Enter ‘‘internal’’ if the data is to be sent to the Basic Call Management System (internal to the switch) for subsequent measurement reports and ‘‘external’’ to send the data to the Call Management System Adjunct. Enter ‘‘both’’ to send the data to both systems for measurement reports. Enter ‘‘none’’ if trunk group measurements are not required. System default is ‘‘none’’.
- Data Restriction—Is used to prevent System features from generating tones on a data call that would cause erroneous data transmission. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- Abandoned Call Search—Applicable when Trunk Type is ‘‘ground-start’’. Enter a ‘‘y’’ if this trunk group will conduct an Abandoned Call Search to identify a ghost call; otherwise, enter ‘‘n’’ (default).

NOTE:
Abandoned Call Search is designed to work with CO trunks (ground start - analog) that *do not* provide disconnect supervision. Central offices that provide disconnect supervision do not require use of the Abandoned Call Search feature. The CO must support Abandoned Call Search for the feature to work properly.

- Suppress # Outpulsing—Indicates end-to-end signaling begins with (and includes) the ''#'' when ''y'' is entered in this field. The final # is suppressed in cases where System would normally outpulse it. This field should be ''y'' when the Central Office (for example, rotary) or any other facility treats # as an error; default is ''n''.
- Maintenance Tests—Indicates whether or not hourly maintenance tests will be made on this trunk group. Valid entries are ''y'' (default) or ''n''.

Page 3 of the Form (If administrable timers used)

NOTE:
This page is displayed when a ''y'' is entered in the Administrable Timers Page field on page 1 of the form. Different fields appear on the form depending on whether the trunk is a 1-way outgoing or 2-way.

- Outgoing Dial Guard (msec)—Enter the minimum time (in msec) between seizure of the trunk and outpulsing of digits. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1600.
- Incoming Glare Guard (msec)—Enter the incoming guard time (in msec) between the time the incoming trunk is released and reseized. This time ensures that the far-end has released all equipment after the incoming trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.
- Outgoing Glare Guard (msec)—Enter the outgoing guard time (in msec) between the time the outgoing trunk is released and reseized. This time ensures that the far-end has released all equipment after the outgoing trunk is released. Valid entries are 100–25500 in increments of 100. The field cannot be blank; default is 1500.
- Outgoing Rotary Dial Interdigit (msec)—Enter the interval (in msec) between rotary dial digits being outpulsed by the system (that is, PBX). Valid entries are 150–2550 in increments of 10. The field cannot be blank; default is 800.
- Ring Monitor (msec)—Enter the minimum time (in msec) required to determine if the trunk is disconnected. If the ringing signal disappears for a duration longer than the time specified in this field, the call will be assumed to be disconnected. Valid entries are 200–51000 in increments of 200. The field cannot be blank; default is 5200.

- Incoming Seizure (msec)—Enter the minimum time (in msec) required for recognition of incoming ringing signal from the serving CO. Valid entries are 20–2550 in increments of 10. The field cannot be blank; default is 500.
- Outgoing End of Dial (sec)—Enter the time (in sec) a trunk may wait for answer supervision after dialing an outgoing call. During cut through operation, timing begins after each outgoing digit is sent by the PBX and timing ceases after the far end sends answer supervision. If the timer expires, the PBX acts as if it had received answer supervision when the timer expires. On senderized operation, the timer begins after the last digit collected is sent by the PBX. The timer ceases when the far end sends answer supervision. If the timer expires, the PBX acts as if it has received answer supervision. This field will not appear if the Receive Answer Supervision field is y(es) but a zero (0) value will be sent down to the firmware to disable the timer. This timer applies to the outgoing and two-way CO trunk groups. Valid entries are 1–254 in increments of 1; default is 10.
- Outgoing Seizure Response (sec)—Enter the time (in sec) by which the PBX should receive the proceed-to-dial indication from the far end after sending the seize signal. If the indication is not received in this time, a seizure failure response is uplinked. This timer is administrable per CO or TIE trunk group. Valid entries are 1–255 in increments of 1; default is 5.
- Programmed Dial Pause (msec)—Enter the length (in msec) of a pause during abbreviated dialing, ARS outpulsing, and terminal dialing operations. This timer is administrable for all outgoing and two-way trunk groups. Valid entries are 100–25500 in increments of 100; default is 1500.
- Tone (msec)—Enter the length (in msec) of a DTMF tone sent to the public network in response to a button depression at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 350.
- Pause (msec)—Enter the minimum length (in msec) of a pause between tones being sent in response to button depressions at a hybrid station set. This timer is administered per non-CPE trunk group. Valid entries are 20–2550 in increments of 10; default is 150.
- PPS—Enter either ‘‘10’’ or ‘‘20’’ to specify the PPS (pulses per second) assigned to rotary dial pulse trunk groups. Valid entries are ‘‘10’’ (default) or ‘‘20’’.
- Make (msec)—Enter the duration of the make interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ‘‘10’’, the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 40.

If the PPS field is ‘‘20’’, the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 20.

- Break (msec)—Enter the duration of the break interval while the system is outpulsing digits using dial pulse signaling.

  If the PPS field is ‘‘10’’, the sum of the Make and Break fields must equal 100. Valid entries are 20–80 in increments of 5. The field cannot be blank; default is 60.

  If the PPS field is ‘‘20’’, the sum of the Make and Break fields must equal 50. Valid entries are 10–40 in increments of 5. The field cannot be blank; default is 30.

Pages 4–X of the Form (Group Member Assignments)

NOTE:
For International Systems, if ‘‘y’’ has been entered in the Administrable Times Page field on Page 1 of the form, the Group Member Assignments will appear on pages 4–X of the form.

- Administered Members (min/max)—Indicates the minimum and maximum member number that has been administered for the particular trunk group. This field is displayed on all member pages.
- Total Administered Members—Indicates the total number of members administered in the trunk group. This field will appear on all trunk group member pages.
- Port—Enter seven characters. The first two characters identify the cabinet (01–32, default is ‘‘1’’ if no entry); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Code—Display-only field. Displays the type of circuit pack physically installed or logically administered at the location to which this member has been assigned. If a circuit pack is neither installed nor administered at the member’s location, the field is blank.
- Sfx—Displays the type of circuit pack (suffix only) physically installed at the location to which this member has been assigned. Field is blank if a circuit pack has not been physically installed.

- Name—Enter up to ten characters to identify the member of the trunk group. The name can be a 7-digit telephone number or a 10-digit Trunk Circuit Identification number (provided by trunk supplier).

  NOTE:
  Previously, Generic 1 Night Service and Balance/Loss information was entered in the Name field as ''NT#...'' and ''TT#)...''. This information must now be entered in the Night field (below) or the STT Loss field on Page 1 of the form, as applicable.

- Night—Enter the extension of the night destination for the trunk. This individual night destination overrides the group night service destination on the first page of the trunk group form. Incoming calls are routed to this destination when the system is placed in night service mode. (If ''attd'' is entered, night service will be to the attendant.)
- Mode—Specifies the signaling mode used on Tie Trunks with TN722A, TN722B, TN760B, TN767, or TN464C circuit packs. Valid entries are ''e&m'' (interface), ''simplex'' (phantomed), or ''protected''. This entry must correspond to associated dip switch settings on the circuit pack.
- Type—Specifies the type of trunk used. Valid entries are ''t1-stan'' (Type 1 Standard), ''t1-comp'' (Type 1 Compatible), or ''type-5''.
- Ans Delay—Specifies the length of the wait for answer supervision delay in ms for DS1 or Tie Trunks using the TN722A, TN722B, TN760 (B, C, or D), TN767, or TN464C circuit packs. Valid entries are 20–5100 in increments of 20; default is no entry (blank) and internally treated as a zero. This delay serves two purposes:

  1. Used to assure that the answer supervision signal is valid and not a secondary delay-dial or wink-start signal.
  2. Used to bridge over momentary off-hook signals resulting from connections made off-network through certain No. 5 Crossbar CCSA switches as the connection is being established.

```
                                TRUNK GROUP           Page 1 of X

Group Number: xxx            Group Type: wats        CDR Reports? y
  Group Name: OUTSIDE_CALL____      COR: 1_                 TAC: ____
   Direction: _________ Outgoing Display? n
 Dial Access? y          Busy Threshold: 255        Night Service: _____
Queue Length: 0__           Trunk Flash? n   Incoming Destination: _____
   Comm Type: voice           Auth Code? n
              Administrable Timer Page? n

TRUNK PARAMETERS
        Trunk Type: _____________
Outgoing Dial Type: tone____                 Incoming Dial Type: tone__
 Trunk Termination: rc____               Disconnect Timing(msec): 500_

Disconnect Supervision-Out? n
Answer Supervision Timeout: 10_       Receive Answer Supervision? n
```

WATS Trunk Group Form (Page 1 of X)

Implementation Notes:

The BCC field is displayed when ISDN-PRI is optioned for on the System-Parameters Customer-Options form and the Comm Type field is ‘‘avd’’ or ‘‘data’’.

The Connected to Toll and DTT to DCO Loss fields are displayed when the Trunk Type field is ‘‘auto/...’’.

The STT Loss field is displayed when the Connected to Toll field is ‘‘n’’.

The Terminal Balanced field is displayed when the Trunk Type is ‘‘ground-start’’ or ‘‘loop-start’’. The RA Trunk Loss is displayed when the Terminal Balanced field is ‘‘n’’.

The Bit Rate, Synchronization, and Duplex fields are displayed when the Conn Type field is ‘‘avd’’.

The Trunk Flash field is displayed when the Group Type field is ‘‘co’’, ‘‘fx’’, or ‘‘wats’’.

The ITC (Information Transfer Capability) field appears for non-ISDN trunk groups and is displayed when the Comm Type field is ‘‘data’’, ‘‘avd’’, or ‘‘rbavd’’ and the BCC field is ‘‘0’’.

```
                          TRUNK GROUP              Page 2 of X
TRUNK FEATURES
         ACA Assignment? n                    Measured: none
                                          Data Restriction? n
  Abandoned Call Search? n              Maintenance Tests? y
  Suppress # Outpulsing? n
```

WATS Trunk Group Form (Page 2 of X)

Implementation Note:

The following fields are displayed when the ACA Assignment field is ‘‘y’’:

- Long Holding Time (hours)
- Short Holding Time (secs.)
- Short Holding Threshold

```
                                TRUNK GROUP              Page 3 of X
                                  TIMERS
                                              Outgoing Dial Guard (msec): ____
 Outgoing Glare Guard (msec): ___           Outgoing Glare Guard (msec): _____
                                 Outgoing Rotary Dial Interdigit (sec): ___
         Ring Monitor (msec): ____              Incoming Seizure (msec): ____
  Outgoing End of Dial (sec): __        Outgoing Seizure Response (sec): ___
Programmed Dial Pause (msec): ____

END TO END SIGNALING
   Tone (msec):____     Pause: (msec):____

OUTPULSING TIMING
     PPS: __       Make (msec): __     Break (msec): __
```

WATS Trunk Group Administrable Timers Form (Page 3 of X)

Implementation Note:

This page is displayed when a ‘‘y’’ is entered in the Administrable Timers Page field on Page 1.

```
                                  TRUNK GROUP                Page 4 of X

                                                 Administered Members(min/max): xxx/yyy
                                                    Total Administered Members: xxx
GROUP MEMBER ASSIGNMENTS
       Port     Code     Sfx  Name          Night    Mode     Type     Ans Delay
    1: ________ ______    _   ____________  _____  ________ ________   ____
    2: ________ ______    _   ____________  _____  ________ ________   ____
    3: ________ ______    _   ____________  _____  ________ ________   ____
    4: ________ ______    _   ____________  _____  ________ ________   ____
    5: ________ ______    _   ____________  _____  ________ ________   ____
    6: ________ ______    _   ____________  _____  ________ ________   ____
    7: ________ ______    _   ____________  _____  ________ ________   ____
    8: ________ ______    _   ____________  _____  ________ ________   ____
    9: 01a0304  TN767     _   denver        81324  ________ ________   ____
   10: ________ ______    _   ____________  _____  ________ ________   ____
   11: 02b0102  TN767     _   middletown    81345  ________ ________   ____
   12: ________ ______    _   ____________  _____  ________ ________   ____
   13: ________ ______    _   ____________  _____  ________ ________   ____
   14: ________ ______    _   ____________  _____  ________ ________   ____
   15: ________ ______    _   ____________  _____  ________ ________   ____
```

WATS Trunk Group Form (Pages 4–X)
(To reduce repetition, Pages 5–X are not shown.)

Forms for System Features and Services

5

This chapter contains the forms and associated instructions required to implement the System's voice management, data management, call management, and hospitality features, functions, and services.

The forms included in this chapter are those forms dedicated primarily for non-network type features such as voice management and data management. Chapter 4 contains the forms dedicated to networking such as Automatic Alternate Routing, Automatic Route Selection, Centralized Attendant Service, Distributed Communications Service, DS1 Tie Trunk Service, Integrated Services Digital Network, and trunk groups. Multi-use forms such as the Dial Plan and Feature Access Codes that support both network, voice management, data management, etc., are covered in this chapter.

The forms are accurate representations of the screens that will be displayed on the System's administration terminal. Default data that is shown when the form is displayed is provided on the forms.

In addition, administration commands required to access the forms is provided along with each form's coverage. In some cases, just the most commonly used commands are given. Chapter 2 provides a complete listing of the System's administration commands and describes the ''make-up'' of the command line. Specifically, the ''action'', ''object'', and ''qualifier'' command words are described in detail.

Blank forms (without default data) are provided in the Blank Forms Package and may be reproduced as required. The copies are to be used as worksheets when using this manual to assign features and services. The completed forms are later used with administration commands contained in Chapter 2 and system management information contained in *Generic 1 and Generic 3—System Management*, 555-230-500, to implement the System. The hard copy forms should then be retained as part of the System's hard copy records.

Abbreviated Dialing—Enhanced List

The following forms are used to implement an Enhanced Abbreviated Dialing List. The Enhanced List consists of ten separate forms numbered from 0–9, which allows up to 1000 numbers to be assigned that can be accessed by users to place local, long-distance, and international calls; to activate/deactivate features; or to access remote computer equipment.

NOTE:
The Abbreviated Dialing Enhanced List option must be enabled on the System-Parameters Customer-Options form before an Enhanced List can be administered.

Form 0 is used to assign dial code list entries 000–099, Form 1 100–199, Form 2 200–299, Form 3 300–399, Form 4 400–499, Form 5 500–599, Form 6 600–699, Form 7 700–799, Form 8 800–899, and Form 9 900–999. Only one Enhanced Abbreviated Dialing List can be assigned in the System. The list is controlled by the System Manager. Up to 25,000 abbreviated dialing list entries (includes enhanced, system, group, and personal lists) may be administered.

Administration Commands

The following administration commands can be used to access the Abbreviated Dialing Enhanced List form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

For attendants with abbreviated dialing, the Console Parameters form must also be administered.

Action	Object	Qualifier
add	abbreviated-dialing enhanced	Enter form number between 0 and 9
change	abbreviated-dialing enhanced	Enter form number between 0 and 9
display	abbreviated-dialing enhanced	Enter form number between 0 and 9
remove	abbreviated-dialing enhanced	Enter form number between 0 and 9

Form Instructions

Make assignments as required for the following fields on each page of the form. The screen form example is for Form 0.

Page 1 of the Form

- Size (multiple of 5)—Enter the number of dial code list entries that will be entered on the form. The size must be entered in multiples of 5 from 5–100; default is 5.

- Privileged—Enter ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, the originating party’s class of restriction (COR) is never checked and any number in the list will be dialed. If ‘‘n’’ is entered, the COR is checked to determine if the number can be dialed.

Pages 1–4 of the Form

- DIAL CODE—Enter the numbers you want to assign to each dial code.

  NOTE:
  A Vector Directory Number extension may also be assigned.

  Up to 24 characters can be used for each entry. Valid entries are digits 0–9, * (star) used for a feature activation code, # (pound) used for a feature deactivation code, and the following special characters (each counts as two characters): ˜p (pause), ˜w (wait), ˜m (mark), ˜s (suppress).

See Abbreviated Dialing in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of the special characters.

```
                        ABBREVIATED DIALING LIST              Page 1 of 4

                                  Enhanced List
                        Size (multiple of 5): 5         Privileged? n
DIAL CODE
  000: _____________________________
  001: _____________________________
  002: _____________________________
  003: _____________________________
  004: _____________________________
```

Abbreviated Dialing Enhanced List—Form 0 (Page 1 of 4)

Implementation Note

To reduce repetition, pages 2-4 of Form 0, and all pages of Forms 1-9 are not shown. For a complete set of blank forms, refer to the Blank Forms Package.

Abbreviated Dialing—Group List

This form is used to implement the Abbreviated Dialing Group List. Up to 1000 lists can be assigned. The Group Lists are controlled by the System Manager. Up to 25,000 Abbreviated Dialing list entries (includes enhanced, group, system, and personal lists) may be administered in the System. Up to 90 numbers can be entered per group list which can be accessed by users to place local, long-distance, and international calls; to activate/deactivate features; or to access remote computer equipment.

Administration Commands

The following administration commands can be used to access the Abbreviated Dialing Group List form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	abbreviated-dialing group	1-1000 (or 'next')
change	abbreviated-dialing group	1-1000
display	abbreviated-dialing group	1-1000 ['print' or 'schedule']
list	abbreviated-dialing group	[xx] ('count' 1-1000) ['print' or 'schedule']
remove	abbreviated-dialing group	1-1000

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments, as required, for the following fields on each page of the form:

Page 1 of the Form

- Group List—Enter a group number from 1-1000 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as ''add'' or ''change''.

- Size (multiple of 5)—Enter the number of abbreviated dialing codes you want to assign. The number must be entered in multiples of 5 from 5–90; default is 5.
- Privileged—Enter ‘‘y’’ or ‘‘n’’ (default). If ‘‘y’’ is entered, the calling voice terminal’s class of restriction (COR) is never checked and any number in the group list will be dialed. If ‘‘n’’ is entered, the calling voice terminal’s COR is checked to determine if the number can be dialed.

Pages 1–3 of the Form

- DIAL CODE—Enter the numbers you want to assign to each dial code.

  NOTE:
  A Vector Directory Number extension may also be assigned.

  Up to 24 characters can be used for each entry. Valid entries are digits 0–9, * (star) used for a feature activation code, # (pound) used for a feature deactivation code, and the following special characters (each counts as two characters): ˜p (pause), ˜w (wait), ˜m (mark), ˜s (suppress).

See Abbreviated Dialing in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of special characters.

```
                        ABBREVIATED DIALING LIST                Page 1 of 1

                              Group List: ____
                    Size (multiple of 5): 5_                 Privileged? n
DIAL CODE
     11: _________________
     12: _________________
     13: _________________
     14: _________________
     15: _________________
```

Abbreviated Dialing Group List Form (Page 1 of 1)

Implementation Notes:

The default value for the Size field is 5. Therefore, DIAL CODEs 11-15 are displayed initially. This form becomes two pages for Size field entries of 35-60 and three pages for entries of 65-90.

To reduce repetition, Page 2 and Page 3 are not shown.

Abbreviated Dialing—Personal List

This form is used to establish a personal dialing list for voice terminal/data module users. The personal list must first be assigned to the voice terminal by the System Manager before the voice terminal user can add entries to the list. Up to 5000 personal lists can be assigned in the System. The lists can be accessed by users to place local, long-distance, and international calls; to activate/deactivate features; or to access remote computer equipment. Up to 25,000 list entries (includes enhanced, group, system, and personal lists) can be administered in the System.

Administration Commands

The following administration commands can be used to access the Abbreviated Dialing Personal List form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	abbreviated-dialing personal	xxxx (extension number of assigned personal list) and List 1-3
display	abbreviated-dialing personal	xxxx (extension number of assigned personal list) and List 1-3 ['print' or 'schedule']
list	abbreviated-dialing personal	xxxx (extension and 'count' 1-5,000 ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional. Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form:

- Personal List—Enter the extension number of the voice terminal that will use this list.
- List Number—Enter a number from 1-3. This number identifies each of the three personal lists that can be assigned to the voice terminal.
- Size (5 or 10)—Enter the number of personal abbreviated dialing numbers you want to assign; default is 5.

- DIAL CODE—Enter the numbers you want to assign to each dial code.

  NOTE:
  A Vector Directory Number extension may also be assigned.

  Up to 24 characters can be used for each entry. Valid entries are digits 0–9, * (star) used for a feature activation code, # (pound) used for a feature deactivation code, and the following special characters (each counts as two characters): ˜p (pause), ˜w (wait), ˜m (mark), ˜s (suppress).

See Abbreviated Dialing in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of special characters.

```
                        ABBREVIATED DIALING LIST              Page 1 of 1

                        Personal List: ____    List Number: ___
                   Size (multiple of 5): 10
DIAL CODE
    1: _________________                  6: _________________
    2: _________________                  7: _________________
    3: _________________                  8: _________________
    4: _________________                  9: _________________
    5: _________________                  0: _________________
```

Abbreviated Dialing Personal List Form (Page 1 of 1)

Implementation Note:

The default value for Size is 5. Therefore, DIAL CODEs 11-15 are displayed initially. This form becomes two pages for Size field entries of 35-60 and three pages for entries of 65-90.

Abbreviated Dialing—System List

This form is used to implement a System abbreviated dialing list. Only one system list can be assigned and is administered by the System Manager. The list can be accessed by users to place local, long-distance, and international calls; to activate/deactivate features; or to access remote computer equipment. Up to 8000 list entries (includes enhanced, group, system, and personal lists) may be administered in the System.

Administration Commands

The following administration commands can be used to access the Abbreviated Dialing System List form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in

Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	abbreviated-dialing system	—
change	abbreviated-dialing system	—
display	abbreviated-dialing system	['print' or 'schedule']
remove	abbreviated-dialing system	—

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Size (multiple of 5)—Enter the number of abbreviated dialing numbers to be assigned. This number must be entered in multiples of 5 from 5–90; default is 5.
- Privileged—Enter ''y'' if the originating party's class of restriction (COR) is never checked and any number in the list can be dialed. Enter ''n'' (default) if the COR is to be checked to determine if the number can be dialed.

Pages 1–3 of the Form

- DIAL CODE—Enter the numbers you want to assign to each dial code.

  NOTE:
  A Vector Directory Number extension may also be assigned.

  Up to 24 characters can be used for each entry. Up to 90 entries can be assigned. Valid entries are digits 0–9, * (star) used for a feature activation code, # (pound) used for a feature deactivation code, and the following special characters (each counts as two characters): ˜p (pause), ˜w (wait), ˜m (mark), ˜s (suppress).

See Abbreviated Dialing in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a more detailed description of special characters.

```
                ABBREVIATED DIALING LIST          Page 1 of 1

                                System List
                Size (multiple of 5): 5       Privileged? n
DIAL CODE
   11: _________________
   12: _________________
   13: _________________
   14: _________________
   15: _________________
```

Abbreviated Dialing System List Form (Page 1 of 1)

Implementation Note:

The default value for the Size field is 5. Therefore, DIAL CODEs 11-15 are displayed initially. This form becomes two pages for Size field entries of 41-70 and three pages for entries of 71-00.

To reduce repetition, Page 2 and Page 3 are not shown. For a complete set of blank forms, refer to the Blank Forms Package.

Abbreviated Dialing—7103A List

This form is used to assign abbreviated dialing numbers to the 7103A voice terminal buttons. The entries can then be accessed by 7103A voice terminal users to place local, long-distance, and international calls; activate/deactivate features; or to access remote computer equipment. This form applies to 7103A fixed feature voice terminals. Only one 7103A abbreviated dialing list can be implemented in the System and it applies to all 7103A fixed feature voice terminals in the System. This list is controlled by the System Manager.

Administration Commands

The following administration commands can be used to access the Abbreviated Dialing 7103A List form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	abbreviated-dialing 7103A-buttons	—
change	abbreviated-dialing 7103A-buttons	—
display	abbreviated-dialing 7103A-buttons	['print' or 'schedule']
remove	abbreviated-dialing 7103A-buttons	—

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for each field on the form:

(In the following, the dial code numbers 1-8 as shown on the form relate to the buttons on the 7103A voice terminal.)

- DIAL CODE (FOR THE 7103A STATION BUTTONS)—Enter the desired number you want to assign to each dial code (button). Any additions or changes apply to all 7103A fixed feature voice terminals.

  Valid entries are digits 0–9, * (star) used for a feature activation code, # (pound) used for a feature deactivation code, and the following special characters (each counts as two characters): ˜p (pause), ˜w (wait), ˜m (mark), ˜s (suppress).

See Abbreviated Dialing in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a more detailed description of special characters.

```
                        ABBREVIATED DIALING LIST            Page 1 of 1

                        7103A Button Assignment
DIAL CODE (FOR THE 7103A STATION BUTTONS)
      1: _________________                    5: _________________
      2: _________________                    6: _________________
      3: _________________                    7: _________________
      4: _________________                    8: _________________
```

Abbreviated Dialing 7103A List Form (Page 1 of 1)

Access Endpoint

An Access Endpoint is a non-signaling trunk that neither responds to signaling nor generates signaling. Access Endpoints eliminate the need to dedicate an entire trunk group for the access of a single trunk by providing the capability to assign an extension number to a single trunk. An Access Endpoint can be specified as the Originator or Destination endpoint of an administered connection.

NOTE:
Access Endpoints consume the same resource that trunks use. Thus, the sum of Access Endpoints and trunks cannot exceed 4000.

Refer to ''Administered Connection/Access Endpoint'' in Chapter 3 for additional information.

Administration Commands

The following administration commands can be used to access the Access Endpoint form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	access-endpoint	xxxx (ext. or 'next')
change	access-endpoint	xxxx (ext. or 'next')
display	access-endpoint	xxxx (ext. or 'next') ['print' or 'schedule']
duplicate	access-endpoint	xxxx (ext. or 'next')
remove	access-endpoint	xxxx (ext. or 'next')
list	access-endpoint	xxxx ['count' 1-400] ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form:

- Extension—Display-only field when the form is accessed using an administration command such as *change* or *display*. This is the extension number assigned to the non-signaling trunk and used to access the trunk. Enter a valid unassigned extension number when completing a paper form; default is blank.
- Port—Enter seven characters. The first two characters identify the cabinet (01-32, default is 1); the third is the carrier (A–E); the fourth and fifth are the slot number in the carrier (01-20 for multi-carrier cabinets or 01-18 for single-carrier cabinets); the last two characters are the circuit number (01-04 for analog tie trunks or 01-24 for DS1 Interface ports).

  The DS1 circuit number corresponds to the channel that will carry the data traffic. Channels 1-24 may be used when the DS1 signaling type is ''robbed-bit''. In the case of Common Channel Signaling or ISDN-PRI, use of the channels is limited to channel 1-23. A channel can be administered as an access endpoint regardless of the DS1 signaling type.
- Communication Type—For an analog tie trunk access endpoint, enter ''voice-grade-data''. For a DS1 access endpoint, enter either ''56k-data'', ''64k-data'', or ''voice-grade-data'' (default) as appropriate (64k-data is not allowed for robbed-bit trunks).
- Name—Enter up to 10 alphanumeric characters to identify the endpoint; default is blank.
- COR—Enter the appropriate class of restriction (COR) number from 0–95; default is 1. The COR is administered (see COR form instructions) so that only an administered connection (AC) endpoint can be connected to another AC endpoint.
- ITC (Information Transfer Capability)—Displayed when the Comm Type field is ''56k-data'' or ''64k-data''. Enter ''restricted'' or ''unrestricted''. The default value of this field is set to the value administered on the ITC field on the Feature-Related System Parameters form.
- COS—Enter the appropriate COS number from 0–15; default is 1. The COS is administered (see COS form instructions) so that the use of the Call Forwarding All Calls feature for access endpoints is prohibited.

```
                        ACCESS ENDPOINT

          Extension: _____              Port: _______
Communication Type: voice-grade-data   Name: _______________
                COR: 1_                 COS: __
                                           ITC: restricted
```

Access Endpoint Form

Adjunct-Switch Application Interface (ASAI) Link

This form is used to assign a port interface from the switch's TN556 Integrated Services Digital Network-Basic Rate Interface (ISDN-BRI) circuit pack (12 ports) to an adjunct such as an Inbound Call Management adjunct.

NOTE:
For more detailed information on ASAI, refer to *Generic 3 CallVisor™ ASAI Protocol Reference*, 555-230-221, and *Generic 3 CallVisor™ ASAI Technical Reference*, 555-230-220.

Administration Commands

The following administration commands can be used to access the Adjunct-Switch Application Interface Link form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
list	hunt-group	
list	monitored-station	[‘start’ extension] [count xxxxx] [print]
list	station	[xxxxx] (‘count’ 1-10000) type ASAI ['print' or 'schedule']
list	station	[xxxxx] (‘count’ 1-10000) port ['print' or 'schedule']
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Extension—This is a display-only field when accessing this form using an administration command such as *change* or *display*. When completing a blank paper form, enter a valid extension number (1-5 digits) that agrees with the dial plan.
- Type—Enter ‘‘asai’’.

  NOTE:
  The BCC field disappears when ‘‘asai’’ is entered as the station type.

- COR—Make no entry (default is 1). Not required for the ASAI Link.
- Port—Enter seven characters. The first two characters identify the cabinet (01-32, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01-20 for multi-carrier cabinets or 01-18 for single-carrier cabinets); the last two characters identify the circuit number (01-24).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- COS—Make no entry (default is 1). Not required for the ASAI Link.

- Name—Enter the name of the adjunct associated with this interface. Up to 15 characters can be used or the field may be left blank.
- XID—Enter ‘‘y’’ (default) to indicate layer 2 XID testing capability. When supporting the Conversant® Voice Information System, set XID to ‘‘y’’. Setting is dependent on specific vendor’s office and managing applications.
- Fixed TEI—Enter ‘‘y’’ or ‘‘n’’ (default) depending on the vendor of adjunct (see table below).
- TEI—Displayed when Fixed TEI is ‘‘y’’. This field identifies if the ASAI Link has a Fixed Terminal Identification (TEI) capability. TEI identifies a unique access point in the system. When Fixed TEI is ‘‘y’’, the TEI field must be administered. Enter a 1- or 2-digit number used to identify the unique access point within the service. Valid entries are 0–63. For example, if the Conversant® Voice Information System is supported, set the TEI to ‘‘3’’.
- MIM Support—(Management Information Message Support) Used to support two types of capabilities; MIM endpoint initialization capability (SPID support), other Maintenance/Management capability. Valid entries are ‘‘y’’ or ‘‘n’’ (default). Enter ‘‘n’’ for ASAI and for all other vendors. Form is adjusted accordingly.
- CRV Length—(Call Reference Value Length) Used to indicate the length of Call Reference Value (CRV) for each ASAI interface. Enter ‘‘1’’ (default) or ‘‘2’’.

```
                                STATION                    Page 1 of 1
Extension: ____
     Type: asai                                             COR: 1
     Port: _______________                                  COS: 1
     Name: _______________
FEATURE OPTIONS
                   XID? y            Fixed TEI? y          TEI: 3
            MIM Support? n           CRV Length: 1
```

ASAI Station Form (Page 1 of 1)

Implementation Note:

TEI field is displayed when the Fixed TEI field is ‘‘y’’.

Administered Connection

This form is used to assign an end-to-end Administered Connection (AC) between two access endpoints or data endpoints. The AC is automatically established by the System whenever the System is restarted or the AC is due to be active. Refer to ''Administered Connection/Access Endpoint'' in Chapter 3 for additional information.

Administration Commands

The following administration commands can be used to access the Administered Connection form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	administered-connection	1-128 (or 'next')
change	administered-connection	1-128 (or 'next')
display	administered-connection	1-128 (or 'next') ['print' or 'schedule']
duplicate	administered-connection	1-128 (or 'next')
remove	administered-connection	1-128 (or 'next')
list	administered-connection	1-128 ['count' 1-128] ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form:

- Connection Number—This is a display-only field when the form is accessed using an administration command such as *change* or *display*. Enter an unassigned AC number in the range from 1-128.
- Enable—Enter ''y'' (default) to indicate that an attempt will be made to establish the AC when the AC is due to be active.

- Originator—Enter the assigned extension of the originating access endpoint or data endpoint. The endpoint must be local to the switch on which the AC is administered. Endpoints may be:
  - — Non-signaling DS1 trunk or analog tie trunk
  - — TN726 Data Line Circuit Pack
    - Asynchronous EIA RS-232C compatible equipment
  - — TN754 Digital Line Circuit Pack connections, including:
    - MPDM (700A, 700D), MTDM (700B, 700C, 700E)
    - 7400A or 7400B Data Module
    - 7401D Voice Terminal with 7400B Data Module
    - 7403D/7405D/7407D/7410D/7434D Voice Terminal with DTDM or 7400B Data Module
    - 7404D or 7406D Voice Terminal
    - 510D Personal Terminal
    - 515 or 615 BCT or 715 BCS Terminal
    - PC/PBX Connection.
  - — TN556 ISDN-BRI Line Circuit Pack connections, including:
    - 7500B Data Module
    - 7505D/7506D/7507D Voice Terminal with ADM

    Default is blank.
  - — Destination—Used to route the AC to a desired endpoint. Enter the address of the destination access or data endpoint. This endpoint is the terminating party of the AC and need not be local to the switch on which the AC is assigned. Valid entries are the digits 0-9, *, #, and the three special characters ‘‘˜p’’ (pause), ‘‘˜w’’ (wait), and ‘‘˜m’’ (mark). The entry must be consistent with the local switch’s dial plan (the first digits are assigned as an extension, feature access code, or trunk access code, or DDD Number). If a local extension is entered, it must be assigned to either an access or data endpoint. Up to 36 characters may be entered; default is blank. Special characters ‘‘˜p’’, etc., count as two. Abbreviated Dialing entries may be used in this field.
  - — Name—Enter a short identification of the AC. This entry is optional. Up to 15 printable alphanumeric characters may be entered; default is blank.
  - — Continuous—Enter ‘‘y’’ (default) to indicate that the AC is continuous (not scheduled to be active at a certain time. If ‘‘y’’ is entered, the seven Start Days and associated Duration fields **are not** displayed.

— Start Days (Sun through Sat)—Displayed when Continuous is ‘‘n’’. Enter a ‘‘y’’ in each of the required days of the week fields to indicate that an attempt will be made to establish the AC; otherwise, enter ‘‘n’’ (default).

NOTE:
These fields indicate the days on which an attempt will be made to establish the AC and not necessarily the days on which the AC is active. A scheduled AC may be active over a number of days and, in this situation, these fields should be used to specify the days on which the AC starts and not other days on which the AC may be active.

— Start Time—Displayed when Continuous is ‘‘n’’. Enter the time of the day when an attempt should begin to establish a scheduled AC. The time is specified in two fields separated by a colon. Valid entries are 00:00–23:59; default is ‘‘00:00’’.

— Duration—Displayed when Continuous is ‘‘n’’. Enter the period of time that the scheduled AC should remain active. This period is specified in two fields separated by a colon. The maximum duration is 167 hours and 59 minutes (i.e, 1 minute less than 1 week). Valid entries are 000-167 for the hour field and 00-59 for the minute field; default is ‘‘000:00’’.

— Alarm Type—Enter the type of alarm to be generated if the AC cannot be initially established, or fails and cannot be reestablished, and the number of consecutive failures equals the alarm threshold. Valid entries are ‘‘major’’, ‘‘minor’’, ‘‘warning’’, or ‘‘none’’; default is ‘‘warning’’.

NOTE:
The alarm notification may be disabled for this AC by entering ‘‘none’’ in this field.

NOTE:
All AC alarms and the errors that caused the alarms are recorded in the System’s alarm and error log. In addition, a status lamp associated with an attendant console or voice terminal feature button (ac-alarm) may be used to indicate the AC alarm.

— Alarm Threshold—Displayed when Alarm Type is **not** ‘‘none’’. Enter the number of times an attempt to establish or reestablish an AC must fail consecutively before an AC alarm will be generated. An alarm will be generated on the first failure if a ‘‘1’’ is entered in this field. Valid entries are 1-10; default is 5 (an alarm will be generated after the fourth retry has failed, thus, with the default retry interval of 2 minutes, an alarm will be generated approximately 8 minutes after the first failure occurred).

— Retry Interval—Enter the number of minutes between attempts to establish or reestablish the AC. Valid entries are 1-60; default is 2.

— Auto Restoration—Enter ‘‘y’’ (default) to indicate that an attempt is to be made to reestablish an AC that has failed. Auto Restoration is only available for an AC that is established over an ISDN-PRI Software Defined Data Network (SDDN) trunk group. A ‘‘y’’ entered in this field is ignored in all other situations.

— Priority—Enter a number from 1–8 that is to be used to determine the order in which ACs are to be established (1 is the highest and 8 the lowest priority); default is 5.

```
                              ADMINISTERED CONNECTION           Page 1 of 1

        Connection Number:  1                                   Enable?  y
               Originator:  ______
              Destination:  ____________________________________________
                     Name:  ____________________
AUTHORIZED TIME OF DAY
                Continuous?  n
                       Sun?  n Mon? n  Tue? n  Wed? n  Thu? n  Fri? n  Sat? n
                Start Time:  00:00
                  Duration:  000:00
MISCELLANEOUS PARAMETERS
                Alarm Type:  warning                     Alarm Threshold:  5
            Retry Interval:  2                          Auto Restoration?  y
                  Priority:  5
```

Administered Connection Form (Page 1 of 1)

Implementation Note:

Sun-Sat, Start Time and Duration fields are displayed when the Continuous field entry is ‘‘n’’.

Alarm Threshold field is displayed when the Alarm Type field entry is other than ‘‘none’’.

Alias Station

This form allows (also known as enhanced terminal administration or ETA) the administration of new voice terminal types that are not supported by system software. The Alias Station form allows the mapping of new terminal types to the supported terminal types. This mapping does not guarantee compatibility, but allows non-supported terminals to be administered and tracked by their own names.

System Administration must refer to customer voice terminal documentation for supported types and associated manuals for non-supported types to avoid type mismatches between the new terminal and the supported terminal.

NOTE:
DCP terminal types must be mapped (aliased) to DCP terminal types, hybrid types to hybrid types, and analog to analog types. Refer to ''Enhanced Terminal Administration'' in Chapter 3 for additional information.

Administration Commands

The following administration commands can be used to access the Alias Station form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	alias station	—
display	alias station	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form.

- Alias Set Type—Enter a non-supported voice terminal type that is to be aliased to a similar supported voice terminal type. Up to five characters (all printable characters except blank characters) are allowed.

  NOTE:
  A duplicate non-supported type entry is not allowed on the form (SET20 and Set20 are considered as duplicates).

- Supported Set Type—Enter a supported voice terminal type that is to be mapped or aliased to the non-supported type entered immediately to the left in the ''Alias Set Type'' field. Up to five characters (all printable characters except blank characters) are allowed. Supported voice terminal types are summarized in the Voice Terminals—General information provided later in this chapter.

```
                              ALIAS STATION                    Page 1 of 1

                    Alias Set Type    Supported Set Type
                         _______           _______
                         _______           _______
                         _______           _______
                         _______           _______
                         _______           _______
                         _______           _______
                         _______           _______
                         _______           _______
                         _______           _______
                         _______           _______
```

Alias Station Form (Page 1 of 1)

Alphanumeric Dialing Table

Used to associate alpha-names to dialed digit strings. This then allows terminal users to place a *data call* by simply typing the alpha-name. Users need only remember far-end alpha-names instead of the actual digit strings.

The form consists of 250 paired Alpha-name/Mapped String fields, 34 entries per page on two consecutive pages (68 entries per command). However, before the form is displayed for changing or reviewing, the entries in the table are sorted alphanumerically by the alpha-name. All entries will be moved to the beginning of the table, leaving all blank entries at the end.

Administration Commands

The following administration commands can be used to access the Alphanumeric Dialing Table form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	alphanumeric-dial-table	—
display	alphanumeric-dial-table	[print]

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

- Alpha-name—Enter from one to eight alphanumeric characters; default is blank. The entry must start with an alphabetic character and may not have blank spaces between characters. All alpha-names in the table must be unique and cannot be referenced in their own ‘‘Mapped String’’. The alpha-names can be used in any other ‘‘Mapped String’’ and multiple times in a ‘‘Mapped String’’.
- Mapped String—Enter from 1 to 24 characters that may contain alphanumeric, readability, delimiters, and/or special characters. The entry is used to generate the final dialing string and can include Facility Access Codes. The following characters are allowed:

  Numeric—Digits 0-9.

  Alpha—A-Z, a-z (note upper-case entries are mapped to lower-case).

  Readability—Character delimiters used for easy reading of the dial string. The characters are ‘‘(’’, ‘‘)’’, ‘‘/’’, ‘‘-’’, and the space character.

  NOTE:
  A Mapped String may not contain an Alpha-Name whose Mapped String also contains a Alpha-Name.

  Special Characters—used to identify a special operation. The characters are:

  ‘‘#’’ and ‘‘*’’—Each treated as a numeric.

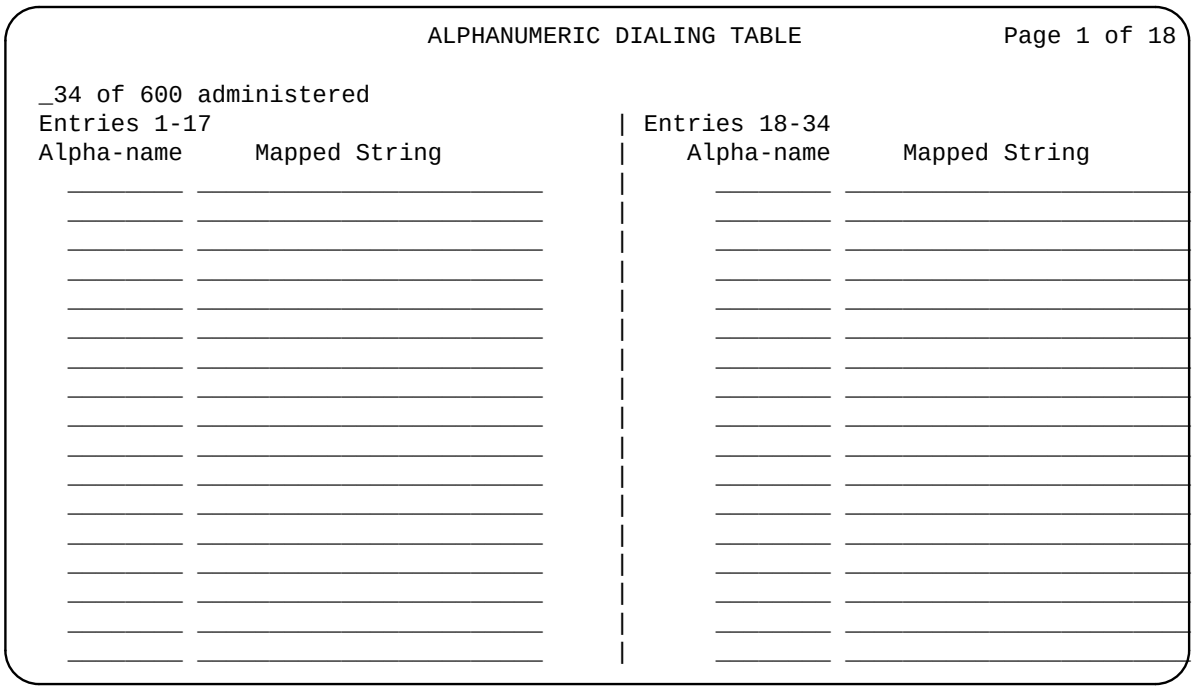
  ‘‘^’’—Treated as a readability character.

  ‘‘~w’’—Suspend digit outpulsing until a dial tone is detected.

  ‘‘~p’’—Pause 1.5 s. (Used for outgoing trunk calls. If used internally, the 1.5 s pause is ignored.)

  ‘‘~m’’—Digits following this character are for end-to-end signaling. Following digits to be outpulsed as tones regardless of type of trunk signaling, pulse, or tone.

Delimiters can consist of both readability and special characters and are used to separate tokens of ‘‘alpha-names’’ or numeric sub-strings. For example, ‘‘(205) mt-1234+0000’’.



```
                          ALPHANUMERIC DIALING TABLE              Page 1 of 18

_34 of 600 administered
Entries 1-17                                  | Entries 18-34
Alpha-name     Mapped String                  |    Alpha-name     Mapped String
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
  ________ ____________________________       |      ________ ____________________________
```

Alphanumeric Dialing Form

To reduce repetition, pages 2-18 are not shown.

Alternate Facility Restriction Level (AFRL)

This form is used to remap engineered FRLs for all originating devices and Authorization codes to a new value. For example, all FRLs less than 3 are assigned a value of 3 and FRLs greater than 3 are assigned a value of 7. The control of whether the original FRL value or the AFRL value is used is controlled through any attendant or station with console permissions which has an AFRL feature button. By depressing the button, the user can control whether calls in the switch which require FRLs for determining access will be using FRLs or AFRLs.

Administration Commands

The following administration commands can be used to access the Alternate Facility Restriction Level form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier
change	alternate-frl	
display	alternate-frl	

Form Instructions

Make assignments as required for the following fields on the form.

- Current Status—Enter ‘‘active’’ to enable or ‘‘inactive’’ to disable AFRLs.
- AFRL—Enter an alternate FRL for each of the eight original FRLs.

```
                ALTERNATE FACILITY RESTRICTION LEVEL        Page 1 of 1

                     Current Status: ________
                     Original        Alternate
                        FRL             FRL
                         0               _
                         1               _
                         2               _
                         3               _
                         4               _
                         5               _
                         6               _
                         7               _
```

Alternate Facility Restriction Level Form (Page 1 of 1)

Attendant Console

This form is used to assign one Attendant Console in the System. Up to seven consoles may be assigned. The form is used to administer either a Basic Attendant Console (Figure 5-1) or Enhanced Attendant Console (Figure 5-2). As far as administration is concerned, the basic console and enhanced console are treated as the same console.

Administration Commands

The following administration commands can be used to access the Attendant Console form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	attendant	1–28
change	attendant	1–28
display	attendant	1–28 ['print' or 'schedule']
remove	attendant	1–28

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments in the following fields on each page of the form:

Page 1 of the Form

- Attendant Console x—Enter the console number (1–28) when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Type—System default is ''console'' (this is the only choice).
- Extension—Enter the extension for the individual attendant console (optional). If an extension is not assigned, then the attendant can only be addressed as a member of the attendant group via the attendant console group access code (as administered on the Dial Plan form). Refer to ''Individual Attendant Access'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for additional information.

Once administered, the individual attendant extension may also be entered in any of the following:

- — Any coverage point in a call coverage path (Call Coverage Paths form)
- — CAS Backup Extension (Console Parameters form)
- — Hunt Group Supervisor Extension (Hunt Group form)
- — LDN Night Extension (Listed Directory Numbers form)
- — Stations with Systemwide Message Retrieval Permission (Feature-Related System Parameters form)
- — Member of a Hunt Group (Hunt Group form)
- — Night Service Destination for a Hunt Group (Hunt Group form) Night Service Destination for a Hunt Group (Trunk Group form)
- — Incoming Destination for a Trunk Group (Trunk Group forms)

- Name—Enter the name of this console (up to 15 alphanumeric characters). Any entry is accepted.
- Console Type—Enter the intended use for this console; valid entries are ''principal'', ''day-only'', ''night-only'', or ''day/night''. There can only be one night-only or one day/night console in the System. Night Service is activated from the principal console only.
- COS—Enter the class of service (COS) for this attendant console from 0–15; default is 1.
- Auto Answer—Enter ''y'' if the attendant console has auto answer; otherwise, enter ''n'' (default). Auto Answer indicates that an incoming call will be automatically answered without any action (no button presses required) by the attendant.
- Port—Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment. (Must have this extension assigned in the Extension field.)

Each attendant console requires a port on a TN754 Digital Line circuit pack. For reliability, the attendant consoles should not be assigned to the same circuit pack. For example, if three attendant consoles are implemented, assign each console to a port on three separate TN754 Digital Line circuit packs. However, if necessary, all attendant consoles can be connected to one Digital Line circuit pack.

- COR—Enter the class of restriction (0–95) that reflects the desired restriction; default is 1.
- Data Module—Enter ''y'' if the console is to be connected to a data terminal via 7400B Data Module; otherwise, enter ''n'' (default). If ''y'' is entered, the Data Module form (Page 4) must be completed.
- DIRECT TRUNK GROUP SELECT BUTTON ASSIGNMENTS (Trunk Access Codes)—Enter the trunk access codes (TACs) for local and remote PBXs. (There are fields for one local TAC and one remote TAC per button, labeled *Local* and *Remote*.) The local TAC refers to a trunk group or Loudspeaker Paging zone on this PBX. Remote TACs are useful in a Distributed Communications System (DCS) network. The remote TAC refers to a trunk group on the remote PBX. If a remote TAC is given, then the local TAC must refer to a trunk group that connects directly to the remote PBX.

  NOTE:
  The Local TAC must refer to a DCS trunk group that connects directly to the remote PBX.

- HUNDREDS SELECT BUTTON ASSIGNMENTS—Enter in the appropriate field (1–20), the hundreds group to be associated with a Hundreds Group Select button (also known as DXS buttons) located on an optional Selector Console. Fields 1–8 are used when the Selector Console is a 24A-type console and fields 1–20 are used when the console is a 26A-type console. The hundreds group number entered in the field represents all but the last two digits of an extension number (for example, the Hundreds Select Button—on the Selector Console—for extension 3822 would be ''38''; the Hundreds Select Button for extension 27105 would be ''271''). The last two digits of an extension number are obtained (after pressing a Hundreds Group Select button) by pressing the appropriate extension button (00–99) on the console.

Page 2 of the Form

- FEATURE BUTTON ASSIGNMENTS—Enter the desired feature buttons from Table 5-1 that you want to assign to the attendant console. The fixed buttons which cannot be changed (split and forced release) are shown on the form. The hold, night-serv, and pos-busy buttons are shown in the System default locations. These buttons may be administered elsewhere on the form. The following provides descriptions of feature buttons that are unique to the attendant console. Refer to the

''Voice Terminals—General'' elsewhere in this chapter for a description of feature buttons as shown on Table 5-1 that are not included in the following list.

- Audible Tones On/Off
  - — ''cw-ringoff''—Call waiting ringer off; turns on/off the audible tone for call waiting on attendant console (1 per console).
  - — ''in-ringoff''—Incoming call ringer off; turns on/off the audible tone for incoming call ringer (1 per console).
  - — ''re-ringoff''—Timed reminder ringer off; turns on/off the audible tone for timer reminder ringer (1 per console).
- Attendant Control of Trunk Group Access
  - — ''act-tr-grp''—Activate trunk group access; allows the attendant to control a trunk group. All calls going to the trunks will be routed to the attendant (1 per console).
  - — ''deact-tr-g''—Deactivate trunk group access; allows the attendant to release control of a trunk group (1 per console).
- Display Class of Restriction (''class-rstr'')—Display Class of Restriction; used to display the COR associated with a call (1 per console).
- Emergency Access to the Attendant (''em-acc-att'')—Emergency access to attendant; the associated status lamp is flashed when there is one or more calls on the emergency attendant queue (1 per console).
- Hold (''hold'')—When the hold button is pressed while the attendant is active on a loop, the party on the loop is put on hold and the ''Hold'' button associated with the loop is lit (1 per console).
- Position Busy (''pos-busy'')—When this button is pushed, the attendant is put into position busy mode, the ''Pos Avail'' light is turned off, and the light associated with the pos-busy button is lit. Pushing the pos-busy button a second time will take the console out of ''position busy'' mode, turn on the ''Pos Avail'' light and turn off the light associated with the pos-busy button.

  If the pos-busy button is administered on a 2-LED button, the top LED will flash when the last attendant goes into ''Position Busy'' mode. Otherwise, if the button has one LED, the single LED associated with the pos-busy button will flash (1 per console).
- Serial Call (''serial-cal'')—This button allows the attendant-extended calls to return to the same attendant if the trunk remains off-hook (1 per console).
- Attendant Override (''override'')—This button will enable the attendant to override diversion features (such as, Call Forwarding, Call Coverage, etc.) (1 per console).

- Call Offer (‘‘intrusion’’)—Depression of this button allows the attendant to extend a call when the called party is active on another call (1 per console).
- Don’t Split (‘‘dont-split’’)—This button allows the attendant to not split away a call when dialing (1 per console).
- Trunk Group Select

  In addition to the 12 Direct Trunk Group Selection (DTGS) Button Assignments on Page 1 of the form, up to 12 single lamp DTGS buttons may be administered on Page 2. The status lamp associated with the feature button is used to monitor the busy/idle status of the trunk. Trunk groups administered on these buttons cannot be controlled using Attendant Control of Trunk Group Select buttons. The single lamp DTGS buttons may be administered as follows:

  — ‘‘local-tgs’’—Local trunk group select; allows the attendant to access trunk groups on the local PBX (combination of 12 local-tgs/remote-tgs per console).

  — ‘‘remote-tgs’’—Remote trunk group select; allows the attendant to access trunk groups on a remote PBX (combination of 12 local-tgs/remote-tgs per console).

  — ‘‘hundrd-sel’’—Hundreds group select; In addition to the fixed HGS buttons on page 1 of the Console form, a user can administer hundreds group select (‘‘hundrd-sel’’) feature buttons on the second page of the Console form. When a feature button is administered as ‘‘hundrd-sel’’, a subfield appears which must then be administered in the same manner as the fixed HGS button fields (a 1–3 digit hundreds group plus prefix, if needed). Administered ‘‘hundrd-sel’’ feature buttons operate in the same manner as fixed HGS buttons.

  The total number of hundreds group select buttons (fixed and administered) allowed on a console is 20. Thus, if all 20 fixed HGS buttons have been administered, no hundrd-sel feature buttons may be administered. However, if eight of the fixed HGS buttons are administered (as would be the case if the console being used was the BASP), up to 12 hundrd-sel feature buttons may also be administered.

  NOTE:
  If no fixed HGS buttons are administered, 19 hundrd-sel feature buttons are available, since 5 of the 24 feature buttons must be used for required feature buttons (hold, pos-busy, night-serv, forced-rel, and split).

The capability to administer Hundred Group Select buttons on Page 2 was provided in a previous release of the System. It supported adding more Hundreds Group Select buttons (when using a 301A-type attendant console and a 24A-type Selector Console) for systems with more than 800 lines that require more than eight Hundreds Group Select buttons.

If 12 Hundreds Group Select buttons are administered on Page 2, reassign the night, pos busy, and hold buttons to button locations 20, 21, and 3, respectively, as shown on Figures 5-3 and 5-4. The Hundreds Group Select buttons should then be assigned in the rightmost three columns, as required.

Page 3 of the Form

- DISPLAY MODULE BUTTON ASSIGNMENTS—Enter the desired feature or functions from Table 5-1 or from the abbreviations listed on the previous pages (for example, ''serial-cal'', ''override'', ''intrusion'', ''dont-split''. Display-type buttons are used to obtain display functions on the associated alphanumeric display. These buttons are noted as ''[display button]'' in the Feature or Function column on this table. Also, several feature buttons can be administered so that their associated status lamps can be used to provide visual indications of the associated feature or function. In some cases, the button itself is not operational. These buttons are noted as ''[status lamp]''. If a Call Cover Msg Rt (cov-msg-rt) button is assigned, a Leave Word Calling Delete Msg (delete-msg) button and a Next (next) button must also be assigned.

Page 4 of the Form

- Displayed when Data Module on Page 1 is ''y''. Complete the Data Module form as follows:
  - — Data Extension—Enter the extension number assigned to the data module. A data extension can be a 1- to 5-digit number and must agree with the System's Dial Plan.
  - — BCC—Display-only field. Displayed when ISDN-PRI is enabled on the System-Parameters Customer-Options form.

    NOTE:
    Refer to ''Generalized Route Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls. The BCC value is used to determine compatibility when non-ISDN-PRI facilities are connected to ISDN facilities (ISDN-PRI Interworking feature).

— Name—Enter the name of the user associated with the data module. The name is optional, it can be left blank.

— COR—Enter the desired class of restriction (COR) number from 0–95; default is 1.

— COS—Enter the desired class of service (COS) number from 0–15 to designate allowed features. Refer to ''Class of Service'' form for additional information on the allowed features; default is 1.

— Abbreviated Dialing List1:—Enter ''p'' (personal), ''s'' (system), ''g'' (group), or ''e'' (enhanced). If ''g'' or ''p'' is entered, a group (1–1000) or personal list (1–3) number is also required.

— SPECIAL DIALING OPTION—Enter one of three dialing options that are available. This identifies the destination of all call when this data module originates calls. Valid entries are ''hot-line'', ''default'', or leave blank.

— HOT LINE DESTINATION—Abbreviated Dialing Dial Code—Displayed when SPECIAL DIALING OPTION is ''hot-line''. Enter a dial code within the range of the abbreviated dialing list type. The associated AD number will be dialed when the user goes off-hook on a Data Hot Line call.

— DEFAULT DIALING Abbreviated Dialing Dial Code (from above list)—Displayed when Special Dialing Option is ''default''. Enter a dial code within the range of the abbreviated dialing list type. The associated AD number will be dialed when the user goes off-hook and enters a return following the ''DIAL'' prompt. The data call originator can also perform data terminal dialing by specifying a dial string that may or may not contain alphanumeric names.

— Ext—Make no entry. This is the extension number of a previously administered user who has an associated Data Extension buttons and who will share the use of the module.

— Name—Display-only field. Contains the name assigned to the above extension number.

```
                              ATTENDANT CONSOLE  _            Page 1 of 4
        Type:  console
   Extension: _____          Name: _______________
Console Type: __________      COS: 1                 Auto Answer? n
        Port: _______         COR: 1                 Data Module? n
DIRECT TRUNK GROUP SELECT BUTTON ASSIGNMENTS (Trunk Access Codes)
    Local Remote                              Local Remote
  1: ___   ___                              7: ___   ___
  2: ___   ___                              8: ___   ___
  3: ___   ___                              9: ___   ___
  4: ___   ___                             10: ___   ___
  5: ___   ___                             11: ___   ___
  6: ___   ___                             12: ___   ___
HUNDREDS SELECT BUTTON ASSIGNMENTS
  1: ___            6: ___          11: ___            16: ___
  2: ___            7: ___          12: ___            17: ___
  3: ___            8: ___          13: ___            18: ___
  4: ___            9: ___          14: ___            19: ___
  5: ___           10: ___          15: ___            20: ___
```

Attendant Console Form (Page 1 of 4)

```
                                                          Page 2 of 4
                                  ATTENDANT CONSOLE
      FEATURE BUTTON ASSIGNMENTS
        1: split_____                          13: ___________
        2: ___________                         14: ___________
        3: ___________                         15: ___________
        4: ___________                         16: ___________
        5: ___________                         17: ___________
        6: hold *____                          18: ___________
        7: ___________                         19: forced-rel
        8: ___________                         20: ___________
        9: ___________                         21: ___________
       10: ___________                         22: ___________
       11: ___________                         23: night-serv *
       12: ___________                         24: pos-busy__ *
```

Attendant Console Form (Page 2 of 4)

Implementation Note:

Feature button administrable to other button locations (shown in system default location).

```
                                ATTENDANT CONSOLE                Page 3 of 4

      DISPLAY MODULE BUTTON ASSIGNMENTS
        1: normal____                          5: delete-msg
        2: inspect___                          6: call-disp_
        3: cov-msg-rt                          7: date-time_
        4: next______                          8: timer_____
```

Attendant Console Form (Page 3 of 4)

Implementation Note:

Defaulted feature buttons shown above. Other display feature buttons as noted on Table 5-1 may be administered here, as required.

```
                                    STATION                          Page 4 of 4
DATA MODULE
     Data Extension: ____                BCC: 2
               Name: _______________     COR: 1_        COS: 1_
ABBREVIATED DIALING
 List1: ________
SPECIAL DIALING OPTION: _____
   HOT LINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (From above list): _
ASSIGNED MEMBER ( Station with a data extension button for this data module )
        Ext      Name
     1:
```

Attendant Console Data Module Form (Page 4 of 4)

Implementation Notes:

This page is displayed when the Data Module field on Page 1 is ‘‘y’’.

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

HOT LINE DESTINATION is displayed when the SPECIAL DIALING OPTION field is ‘‘hot-line’’.

DEFAULT DIALING is displayed when the SPECIAL DIALING OPTION field is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is

''hot-line'' or ''default''.

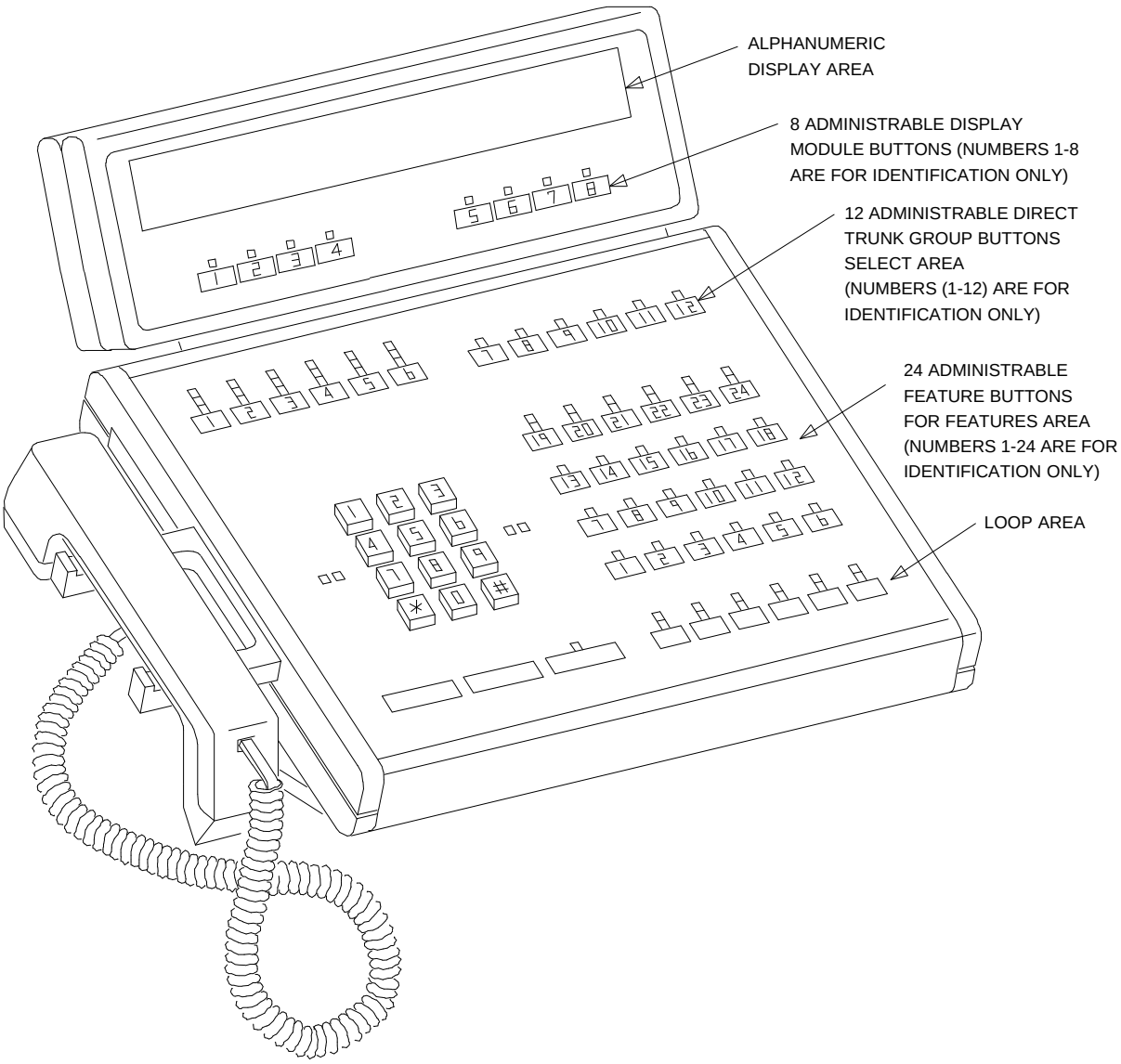


Figure 5-1. Basic Attendant Console (301A) Button Assignments

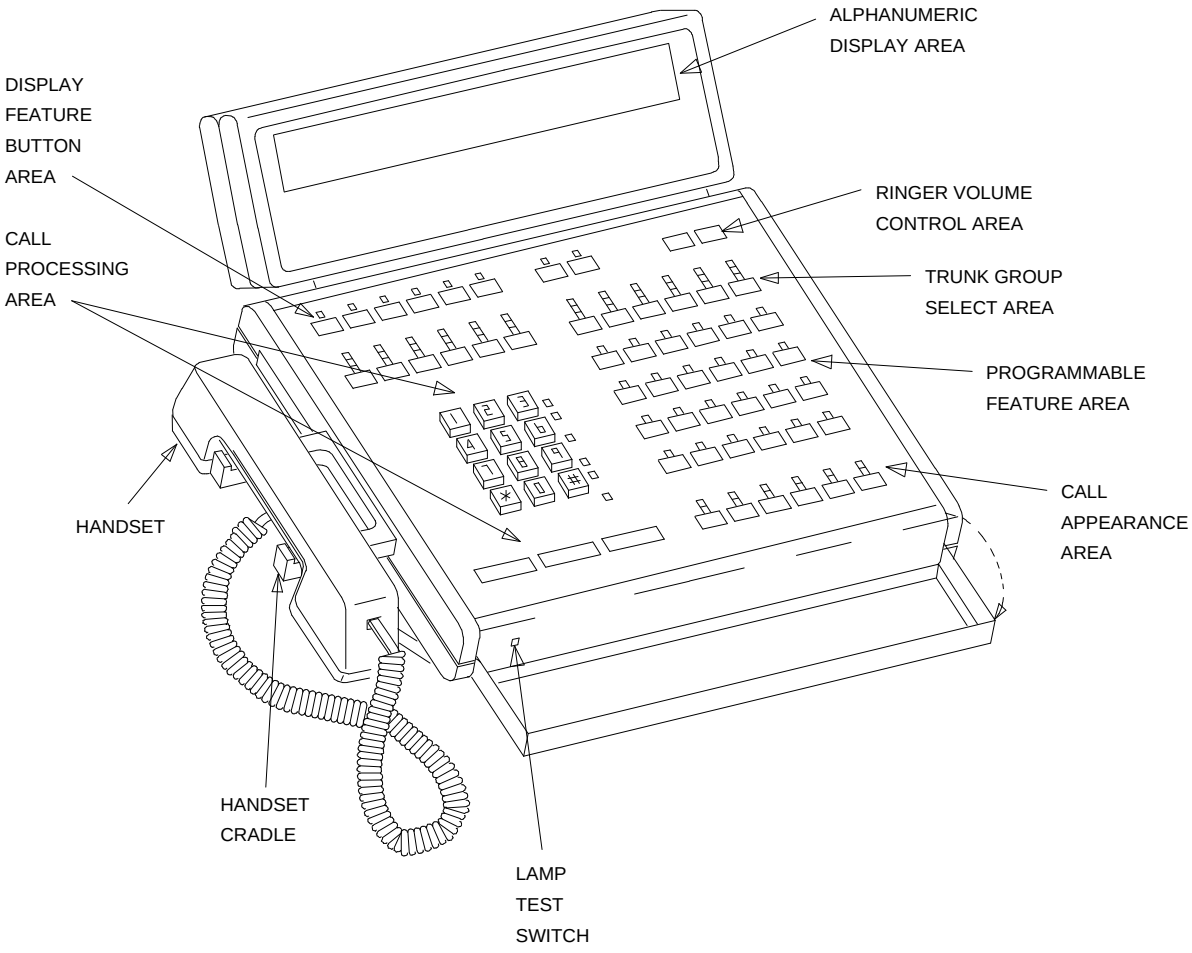


Figure 5-2. Enhanced Attendant Console (302A) Button Assignments

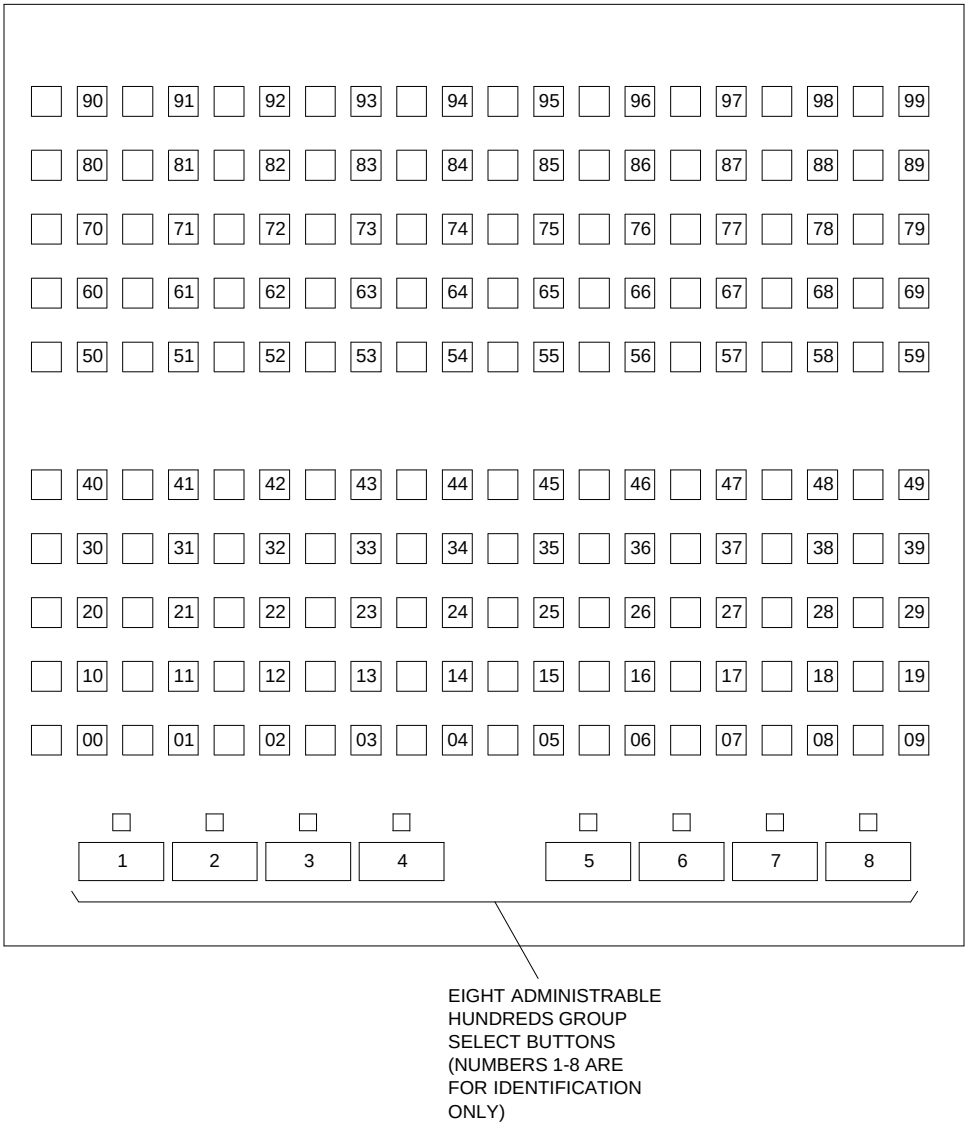


Figure 5-3. Selector Console (24A) Administrable Hundreds Group Select Buttons

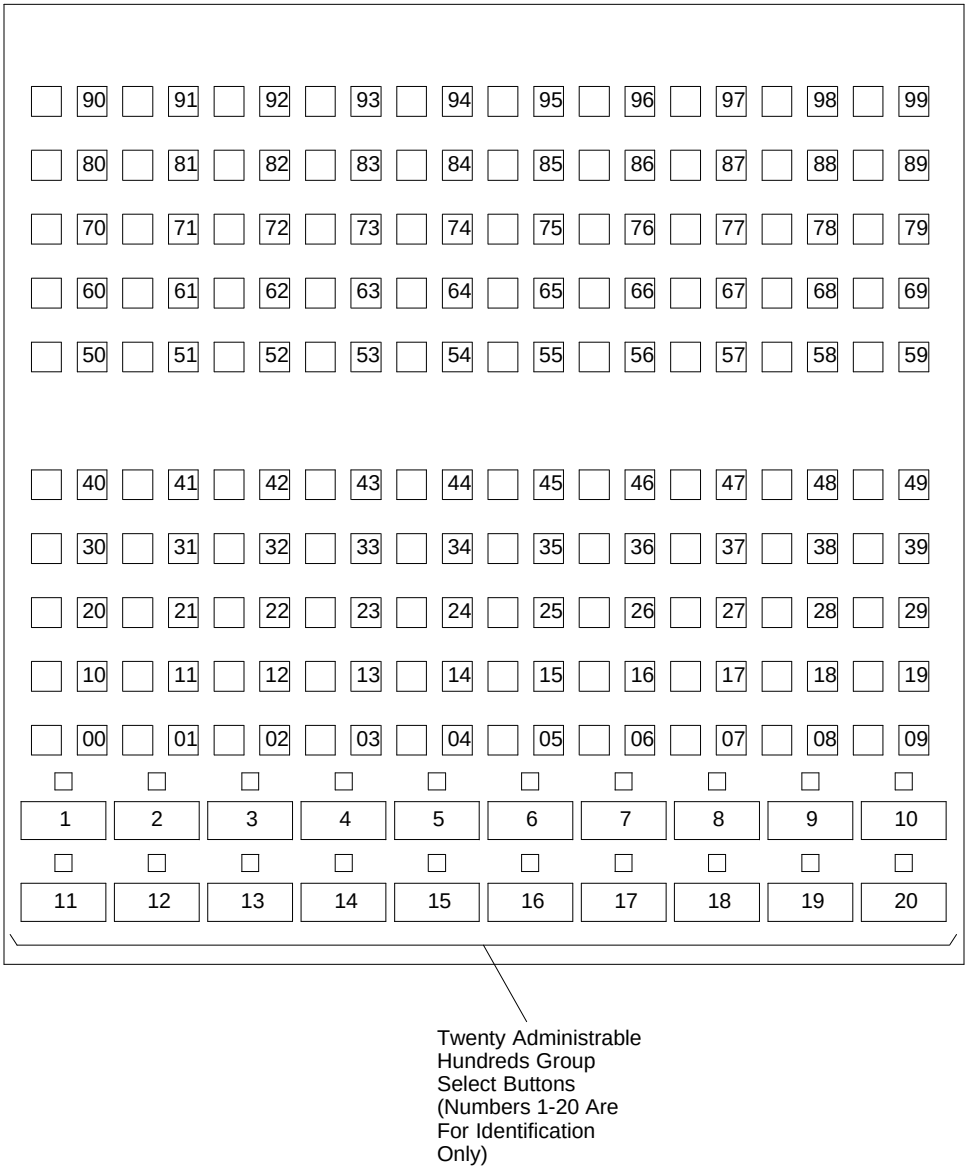


Figure 5-4. Enhanced Selector Console (26A) Administrable Hundreds Group Select Buttons

Table 5-1. Attendant Console Feature Button Characteristics

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Allowed*	Notes **
Abbreviated Dialing	AD	abrv-dial (List:___ DC:___)	1 per List/DC	1
Administered Connection [status lamp]	AC Alarm	ac-alarm	1	
Automatic Call Distribution (ACD)	After Call Work	after-call (Grp. No.__)	N	2
	Assist	assist (Grp. No:__)	1 per split group	2
	Auto In	auto-in (Grp. No.__)	1 per split group	2
	Auxiliary Work	aux-work (Grp. No.__)	1 per split group	2
	Manual-In	manual-in (Grp. No.__)	1 per split group	2
	Release	release	1	
	Work Code	work-code	1	
	Stroke (0–9)	stroke-cnt (Code:__)	1	10
Attendant Console (Calls Waiting)	CW Aud Off	cw-ringoff	1	
Attendant Control of Trunk Group Access (Activate)	Cont Act	act-tr-grp	1	

* N = any number of buttons on the voice terminal can be assigned to this feature. Feature button descriptions are provided in the ''Voice Terminals—General'' section of this chapter.

** See Notes at end of table.

Attendant Console Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Allowed*	Notes **
Attendant Control of Trunk Group Access (Deactivate)	Cont Deact	deact-tr-g	1	
Attendant Direct Trunk Group Select	Local TG Remote TG	local-tgs remote-tgs	12	9
Attendant Display [display buttons]	Date/Time	date-time	1	
	Inspect Mode	inspect	1	
	Normal Mode	normal	1	
	Stored Number	stored-num	1	
	Timer	timer	1	
Attendant Hundreds Group Select	Group Select _	hundrd-sel (Grp:__)	20 per console	11
Automatic Circuit Assurance	ACA	aca-call	1 per System	
Automatic Wakeup (Hospitality)	Auto Wakeup	auto-wkup	1	
Busy Verification	Busy Verify	verify	1	
Call Coverage	Cover Cback	cov-cback	1	
	Consult	consult	1	
	Go To Cover	goto-cover	1	
Call Coverage [display button]	Cover Msg Rt	cov-msg-rt	1	
Call Prompting [display button]	Caller Info	callr-info	1	
Centralized Attendant Service	CAS-Backup	cas-backup	1	

* Feature button descriptions are provided in the ''Voice Terminals—General'' section of this chapter.

** See Notes at end of table.

Attendant Console Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Allowed*	Notes **
Check In/Out (Hospitality) [display buttons]	Check In	check-in	1	
	Check Out	check-out	1	
Class of Restriction [display button]	COR	class-rstr	1	
Demand Print	Print Msgs	print-msgs	1	
Do Not Disturb (Hospitality)	Do Not Disturb	dn-dst	1	
Do Not Disturb (Hospitality) [display buttons]	Do Not Disturb Ext	ext-dn-dst	1	
	Do Not Disturb Grp	grp-dn-dst	1	
Emergency Access To the Attendant	Emerg. Access To Attndt	em-acc-att	1	
Facility Busy Indication [status lamp]	Busy (trunk or extension#)	busy-ind (TAC/Ext: _)	1 per TAC/Ext.	8
Facility Test Calls [status lamp]	FTC Alarm	trk-ac-alm	1	
Hardware Failure [status lamps]	Major Hdwe Failure	major-alrm	10 per System	
	Auto Wakeup	pr-awu-alm	1	
	DS1 (facility)	ds1-alarm	10 per system	
	PMS Failure	pms-alarm	1	
	PMS Ptr Alm	pr-pms-alm	1	
	CDR 1 Failure	cdr1-alrm	1	
	CDR 2 Failure	cdr2-alrm	1	
	Sys Ptr Alm	pr-sys-alm	1	

* Feature button descriptions are provided in the ''Voice Terminals—General'' section of this chapter.

** See Notes at end of table.

Attendant Console Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Allowed*	Notes **
Integrated Directory [display button]	Integrtd Directory	directory	1	
Incoming Call Identification	Coverage (Group number, type, name, or ext.#)	in-call-id	N	
Leave Word Calling	Cancel LWC	lwc-cancel	1	
	LWC	lwc-store	1	
Leave Word Calling [display buttons]	Delete Msg	delete-msg	1	
	Next	next	1	
	Call Display	call-disp	1	
Leave Word Calling (Remote Message Waiting) [status lamp]	Msg (name or extension #)	aut-msg-wt (Ext:___)	N	8
Link Failure	Link Failure (Link No.__)	link-alarm (Link No.__)	1 per Link #	3
Night Service (ACD)	Hunt Group	hunt-ns (Grp. No.__)	1 per hunt group	4
	Trunk Grp.	trunk-ns (Grp. No.__)	1 per trunk group	5
PMS Interface [display buttons]	Message Waiting Act.	mwn-act	1 per system	
	Message Waiting Deact.	mwn-deact	1 per System	
Priority Calling	Prior Call	priority	N	

* N = any number of buttons on the voice terminal can be assigned to this feature. Feature button descriptions are provided in the ''Voice Terminals—General'' section of this chapter.

** See Notes at end of table.

Attendant Console Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Allowed*	Notes **
Queue Status Indications (ACD) [display buttons]	AQC	atd-qcalls (Grp:__)	1	6
	AQT	atd-qtime (Grp:__)		6
Queue Status Indications (ACD) [status lamps]	NQC	q-calls (Ext:_)	1	7
	OQT	q-time (Ext:_)	1 per hunt group	7
Ringing	In Aud Off	in-ringoff	1	
System Reset Alert	System Reset Alert [status lamp]	rs-alert	1	
Time of Day Routing [display buttons]	Immediate Override	man-overid	1	
	Clocked Override	clk-overid	1	
Timed Reminder	RC Aud Off	re-ringoff	1	
Trunk Identification [display button]	Trunk-ID	trk-id	1	
Trunk Group Name [display button]	Trunk-Name	trunk-name	1	

* N = any number of buttons on the voice terminal can be assigned to this feature. Feature button descriptions are provided in the ''Voice Terminals—General'' section of this chapter.

** See Notes below.

Notes:

1. List: List number 1 to 3 where the destination number is stored.
   DC: Dial codes of destination number.
2. Grp: The split group number for ACD (1–255).
3. Link: A link number—1 to 8 for multi-carrier cabinets, 1 to 4 for single-carrier cabinets).
4. Grp: A hunt group number (1–255).
5. Grp: A trunk group number (1–666).
6. Grp: Group number of the hunt group.
7. Ext: Extension number of the hunt group (may not be a VDN extension).
8. Ext: May be a VDN extension.
9. TAC: local-tgs—TAC of local TG
   remote-tgs—(L-TAC) TAC of TG to remote PBX
   remote-tgs—(R-TAC) TAC of TG on remote PBX
   The combination of local-tgs/remote-tgs per console must not exceed 12. Label associated button appropriately so as to easly identify the trunk group.
10. Code: Enter a stroke code (0–9).
11. Grp: Enter a hundreds group number (1–20).

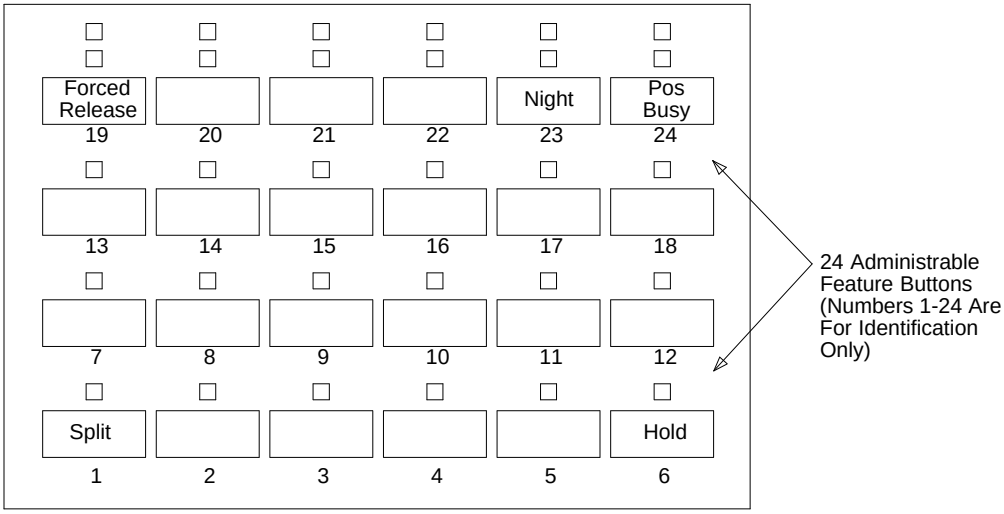


Figure 5-5. Attendant Console 24 Administrable Feature Button Number Assignments

Authorization Codes

This form is used to assign authorization codes and associate them with classes of restriction (CORs). On an internal originating call, the COR assigned the facility (such as, station) being used to originate the call and its PGN (when assigned) is used to select a routing pattern. With this, the calling party can dial a 4- to 7-digit authorization code to override the FRL assigned the COR (may be associated with voice/data terminals, incoming trunk groups, remote access trunk groups, or attendant consoles). This allows users within each PGN to have access to all seven FRLs (when assigned) and still remain partitioned. On an incoming remote access call, dialing an authorization code as part of the call dialing sequence selects the COR and the associated PGN to be used in processing the call. Up to 96 different authorization codes can be assigned on one form and 90,000 codes can be assigned in the the System.

NOTE:
The use of authorization codes when accessing a Vector Directory Number extension will be denied.

Administration Commands

The following administration commands can be used to access the Authorization Codes form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2

for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	authorization-code	auth (4–7 digit number)
display	authorization-code	auth (4–7 digit number)

Form Instructions

Make assignments as required for the following fields on each page of the form:

- Number of Codes Administered—This is a display-only field and contains the sum of the number of Authorization Codes that has been administered using the Authorization Codes form.
- AC—Enter the 4- to 7-digit authorization code the user must dial. The number of digits entered must agree with the number assigned to the Authorization Code Length field on the Feature-Related System Parameters form.
- COR—Enter the desired COR number from 0–95.

```
                    AUTHORIZATION CODE - COR MAPPING              Page 1 of 1

                    Number of Codes Administered: _______
  AC     COR    AC     COR    AC     COR    AC     COR    AC     COR    AC     COR
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
_______ __   _______ __   _______ __   _______ __   _______ __   _______ __
```

Authorization Code Form (Page 1 of 1)

Call Coverage Answer Group

This form is used to establish Call Coverage Answer Groups.

An answer group is a group of up to eight members who act as a coverage point for another user. For example, if several secretaries are responsible for answering a department's redirected calls, all the secretaries could be assigned to an answer group. The answer group is assigned a group number, and that group number appears in the department's coverage path. All terminals in an answer group ring (alert) simultaneously. Any member of the group can answer the call.

Each coverage answer group is identified by a number from 1–500. The members of the group are identified by their extension number. Any installed voice terminal (but not attendants) can be assigned to a coverage answer group.

Administration Commands

The following administration commands can be used to access the Coverage Answer Group form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	coverage answer-group	1–500 (or 'next')
change	coverage answer-group	1–500
display	coverage answer-group	1–500 ['print' or 'schedule']
list	coverage answer-group	['print' or 'schedule']
remove	coverage answer-group	1–500

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form:

- Group Number—Enter a number from 1–500 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- Group Name—Enter the group name you want to use to identify this group. Up to 15 characters can be used, for example, typing pool, room 12, secy, etc. Default is ''COVERAGE GROUP''.

  Performance Tip: Enter the extension numbers that are group members. This then allows a *list coverage answer group* command to be used to list

the voice terminals that will be alerted. The *list* command can be used in conjunction with the *list station*, *list coverage path*, and *list hunt group* commands to determine stations involved in call coverage. This makes it possible to follow call coverage for any extension, allowing the administrator to easily track call coverage paths.

- Ext—Enter the extension number (may not be a Vector Directory Number extension) for each member of this coverage answer group.
- Name—Display-only field. The name is assigned when the member's voice terminal is administered.

```
                         COVERAGE ANSWER GROUP            Page 1 of 1

                       Group Number: ____
                         Group Name: COVERAGE_GROUP_
GROUP MEMBER ASSIGNMENTS
        Ext    Name                                 Ext    Name
     1: ____                                    5: ____
     2: ____                                    6: ____
     3: ____                                    7: ____
     4: ____                                    8: ____
```

Coverage Answer Group Form

Call Coverage Paths

This form is used to implement Call Coverage Paths. The form includes the don't answer time interval (number of rings), the call coverage criteria, and the points in the coverage path used to redirect calls.

Call coverage provides internal System users with automatic redirection of calls to answering positions. Both internal and outside calls may be redirected to coverage. Up to 5,000 coverage paths can be implemented in the System.

Reproduce a blank form for each coverage path to be implemented.

Administration Commands

The following administration commands can be used to access the Call Coverage Paths form. In some cases, just the most commonly used commands are Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Action	Object	Qualifier*	
Without Hospitality	add	coverage path	1–5,000 (or 'next')
Parameter Reduction	change	coverage path	1–5,000
Feature	display	coverage path	1–5,000 ['print' or 'schedule']
	list	coverage path	['print' or 'schedule']
	remove	coverage path	1–5,000
With Hospitality	add	coverage path	1–5 (or 'next')
Parameter Reduction	change	coverage path	1–5
Feature	display	coverage path	1–5 ['print' or 'schedule']
	list	coverage path	['print' or 'schedule']
	remove	coverage path	1–5

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form:

- Coverage Path Number—Enter a number from 1–600 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.

  NOTE:
  If the Hospitality Parameters Reduction option is enabled on the System-Parameters Customer-Options form, up to five coverage paths can be assigned in the System.

- Next Path Number—Enter the number of the coverage path (1–600) to which a call will be redirected in case of coverage failure (the path's coverage criteria does not match the call status) at the current path. If the next path's coverage criteria matches the call status, that path is used to redirect the call and no other path is searched.
- Linkage—This is a display-only field that shows up to two additional coverage paths, when assigned, that the Next Path Number field entry is linked to. Figure 5-6 provides a typical linkage example. Three Coverage Paths (1, 2, 3) are shown. Calls not answered in path 1 are directed to path 2, and if not answered there are directed to path 3. Coverage Path screen forms are shown for each path. Each path is linked to the next path via the Next Path Number field entry on the associated screen forms as shown. For example, on the first screen, Coverage Path Number 1 is linked to Coverage Path 2 by the ''2'' entered in the Next Path Number field on the form. The *display coverage path 1* (screen four in the series) then shows (after all paths have been added) Coverage Path 1 with its ''Next Path Number'' (2) and Coverage Path 2 linkage to Coverage Path 3.

COVERAGE CRITERIA are the conditions that, when met, cause the call to redirect to coverage. The criteria that may be assigned are:

- — Active—means that at least one call appearance is busy.
- — Busy—means that only one call appearance is idle.
- — Don't Answer—means that the ringing has exceeded the preset number.
- — All—means users with this path assigned will never answer their own calls; instead, all calls go immediately to coverage.
- — SAC/Go to Cover—allows users to activate Send All Calls and to temporarily direct all incoming calls to coverage regardless of the assigned Call Coverage redirection criteria. This feature also allows covering users to temporarily remove their voice terminals from the coverage path.

- *Active, Busy, Don't Answer, All* and *SAC/Go to Cover*—Enter a ''y'' to activate this criteria; otherwise, enter ''n''. This specifies the condition that, when met, causes a call to redirect to coverage.
- Number of Rings—Enter the number of rings from 1–99. 3 rings (default) is the recommended timing. This is the number of rings a user's voice terminal will ring before the System sees a ''no answer'' condition and sends the call to the first coverage point.

COVERAGE POINTS: allows you to define the Call Coverage Paths. Coverage points must be assigned sequentially beginning with Point 1 (do not leave gaps). Note that a Call Vector or Vector Directory Number cannot be translated as a coverage point. Each coverage path can have up to three alternate answering points, any of which can be:

- — A Voice Terminal or Individual Attendant (an extension number of a user who will be responsible for answering another user's redirected calls)
- — Recorded Announcement
- — Audio Information Exchange (AUDIX™)
- — A Hunt Group Number (1–255)
- — A Coverage Answer Group Number (1–500)
- — The Attendant Group (0)

When entering data for the three coverage points, use the following notations:

- Use the letter ''h'' to indicate hunt, followed by a hunt group number (1–255). For example, you would enter ''h255'' if you want a coverage point to be routed to hunt group number 255.

- Use the letter ‘‘c’’ to indicate coverage answer group followed by the coverage group number (1–999). For example, you would enter ‘‘c100’’ if you wanted a coverage point to be routed to call coverage answer group 100.
- Use a 0 (zero) for a coverage point to be an attendant.
- Use the extension number assigned to a voice terminal, announcement, and AUDIX.

- Point1:, Point2:, Point3:—Enter one of the following: an extension number for the voice terminal, AUDIX, announcement, h1-h255 (hunt), c1-c999 (coverage), **or** zero (0) for attendant. If an AUDIX in a DCS is used and this is a remote switch served by the AUDIX on a host switch, enter an associated AUDIX hunt group number (h1-h255). A unique Hunt Group form must be administered with the AUDIX extension number in the Group Extension field. If 0 is entered and the System has Centralized Attendant Service (CAS), the call will go to the CAS attendant.

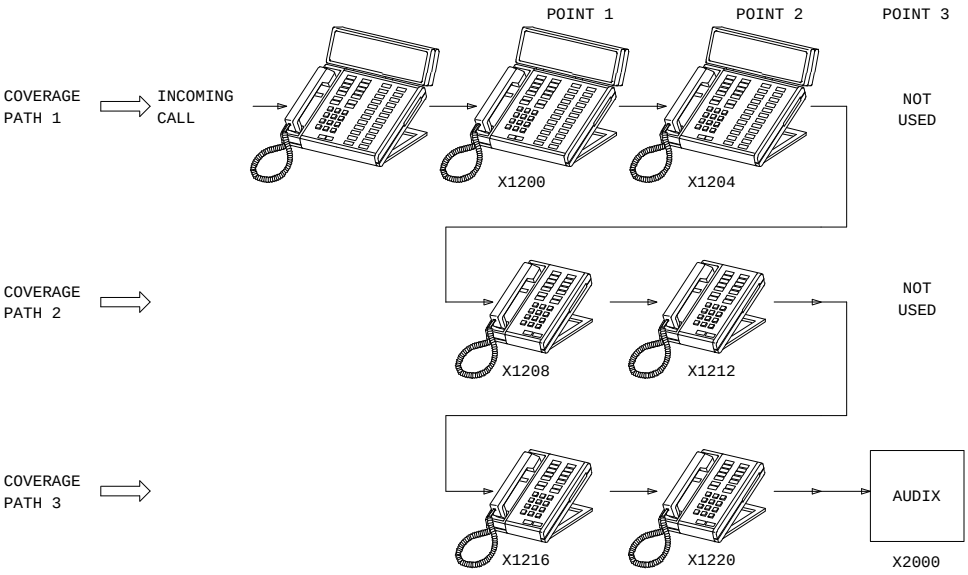
  If calls redirect to Message Center (a special Uniform Call Distribution hunt group), AUDIX, or to the attendant, do not list any additional coverage points. These calls will normally queue and never redirect to another coverage point.

  Calls to any hunt group will queue if possible. Calls redirect from a hunt group if all hunt group members are busy and either the queue is full or there is no queue.

```
                          COVERAGE PATH                          Page  1 of  1

                  Coverage Path Number: _
                      Next Path Number: ___    Linkage: ___  ___
COVERAGE CRITERIA
    Station/Group Status    Inside Call     Outside Call
             Active?             n               n
               Busy?             y               y
       Don't Answer?             y               y         Number of Rings: 3
                All?             n               n
    SAC/Go to Cover?             y               y
COVERAGE POINTS
                Point1: ____                     Point3: ____
                Point2: ____
```

Coverage Path Form



ADD COVERAGE PATH 1 FORM

```
                                    Page 1 of 1
                    COVERAGE PATH
                Coverage Path Number: 1
                    Next Path Number: 2    Linkage: ___ ___
COVERAGE CRITERIA
    Station/Group Status    Inside Call    Outside Call
              Active?             n              n
                Busy?             y              y
       Don't Answer?              y              y  Number of Rings: 3
                 All?             n              n
    SAC/Go to Cover?              y              y
COVERAGE POINTS
                  Point1: 1204                    Point3: _____
                  Point2: 1200
```

Figure 5-6. Example of Call Coverage Paths and Associated Linkage

```
                                  Page 1 of 1
                        COVERAGE PATH
                  Coverage Path Number: 2
                      Next Path Number: 3   Linkage: __ __
COVERAGE CRITERIA
    Station/Group Status    Inside Call    Outside Call
              Active?       n              n
                Busy?       y              y
       Don't Answer?        y              y      Number of Rings: 3
                All?        n              n
    SAC/Go to Cover?        y              y
COVERAGE POINTS
                  Point1: _1208          Point3: _____
                  Point2: _1212_
```

ADD COVERAGE PATH 2 FORM

```
                                  Page 1 of 1
                        COVERAGE PATH
                  Coverage Path Number: 3
                      Next Path Number: __   Linkage: __ __
COVERAGE CRITERIA
    Station/Group Status    Inside Call    Outside Call
              Active?       n              n
                Busy?       y              y
       Don't Answer?        y              y      Number of Rings: 3
                All?        n              n
    SAC/Go to Cover?        y              y
COVERAGE POINTS
                  Point1: _1216_         Point3: _2000_
                  Point2: _1220_
```

ADD COVERAGE PATH 3 FORM

FORM OBTAINED USING "display_coverage_path 1" COMMAND. SHOWS LINK FROM CALL COVERAGE PATH 2 TO 3.

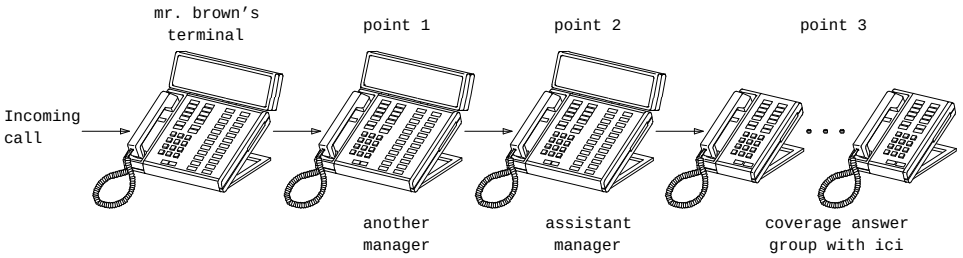
```
                                  Page 1 of 1
                        COVERAGE PATH
                  Coverage Path Number: 1
                      Next Path Number: 2   Linkage: 2 __
COVERAGE CRITERIA
    Station/Group Status    Inside Call    Outside Call
              Active?       n              n
                Busy?       y              y
       Don't Answer?        y              y      Number of Rings: 3
                All?        n              n
    SAC/Go to Cover?        y              y
COVERAGE POINTS
                  Point1: _1200_         Point3: _____
                  Point2: _1204
```

Figure 5-7. Example of Call Coverage Paths and Associated Linkage (Page 2 of 2)

EXAMPLE 1 COVERAGE PATH FOR OUTSIDE CALLS

call type - OUTSIDE

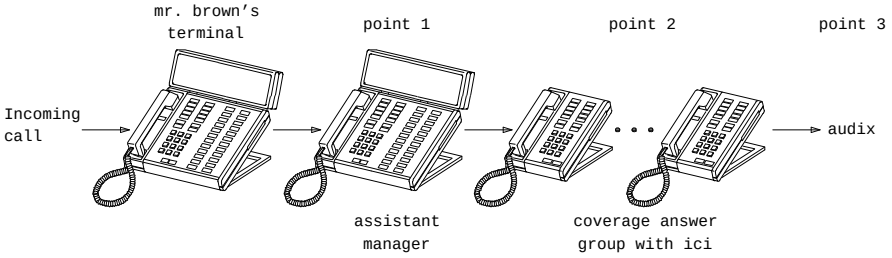
CRITERIA - busy, don't answer, and send all calls (when activated)



EXAMPLE 2 COVERAGE PATH FOR INSIDE CALLS

call type - INSIDE

criteria - BUSY AND DON'T ANSWER (SEND ALL CALLS NOT ACTIVATED)



EXAMPLE 3 COVERAGE PATH FOR INSIDE CALLS

call type - INSIDE

criteria - SEND ALL CALLS ACTIVATED

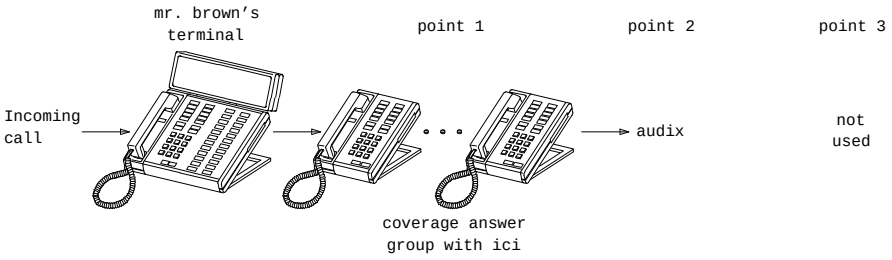


Figure 5-8. Typical Call Coverage Path Assignments

Call Detail Recording (CDR) System Parameters

This form allows the generating of records that contain information about particular calls controlled by the switch. This information is useful for call costing, diagnostics, abuse detection, and network optimization.

Administration Commands

The following administration commands can be used to access the CDR System Parameters form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	system-parameters cdr	
display	system-parameters cdr	[print]

* Brackets [ ] indicate the qualifier is optional. Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered. Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form.

Page 1 of the Form

- Record Outgoing Calls Only—Enter ''y'' to report outgoing calls; enter ''n'' (default) to report both outgoing and incoming calls.
- Suppress CDR for Ineffective Call Attempts—Enter ''y'' (default) to ingore reporting of ineffective call attempts. An ineffective call attempt occurs when a call originating at a voice/data terminal is blocked because of an authorization feature or unavailability of outgoing trunks. Enter ''n'' to report ineffective call attempts.
- Disconnect Information in Place of FRL—Enter ''y'' to record disconnect information or ''n'' (default) to record the call's FRL.

  NOTE:
  This field changes the *Facility Restriction Level* (FRL) field of the CDR record to record the reason for disconnect of a call rather than the FRL. It is used for isolating problems between the Generic 3r and the telephone network.

- Forced Entry of Acct. Code Calls Marked on Toll Analysis Form—Specifies whether an account code will be required when making a toll call. A toll call is defined to be any outgoing call with a 0 or 1 in either of the first two positions of the dialed number, except service calls (911, 411, etc.), directory assistance calls, or WATS calls (800). This will not necessarily be all chargeable calls and it may even include some non-chargeable calls. Entering ''y'' denies all toll calls without an account code. Entering ''prompt'' allows the call to proceed through the called

number digit collection and if the account code has not been entered, the system will provide recall dial tone and collect the account code at that time.

NOTE:
A ''prompt'' entry is required for the Feature Group B/D feature.

Default is ''n''.

- Vector Directory Number - Record—Enter ''y'' to included the Vector Directory Number (VDN) in the Dialed Number Field of an CDR record. Default is ''n''.

  NOTE:
  A VDN overrides group or member information which is otherwise stored in the Dialed Number Field of the CDR record. If a call is directed through more than one VDN, the first VDN used for the call is stored.

- Record Non-Call-Associated TSC—Enter ''y'' to record non-call-associated TSC information (e.g., a leave-word calling message left across DCS; default is ''n''.
- Record Call-Associated TSC—Enter ''y'' to record call-associated TSC information; default is ''n''.
- Intra-Switch CDR—Enter ''y'' to record record calls within the switch; default is ''n''.
- Node Number (Local PBX ID)—Enter the DCS switch node number (1–63) in a network of switches. It is not necessary to make this field equal to other Local PBX ID fields. However, it may be useful to administer this field with the same value used on the Dial Plan form for the Local PBX ID. Default is blank.
- Digits to Hide—Enter the number of digits (0–7) to be blanked (from right to left) from the CDR record; default is 0.

  NOTE:
  Some countries require that a certain number of digits must be blanked for every call to retain calling privacy.

  This entry must be greater than or equal to the value assigned in the CDR Minimum Digits to Hide field of the Miscellaneous Related System Parameters form.

- CDR Account Code Length—Enter the number of digits (1–15) collected when the CDR account code is entered. Default is 2.
- Calls to Hunt Group - Record—This field appears when the Vector Directory Number - Record field is ''n''. Enter ''member-ext'' (default) to record the extension of the voice/data terminal where the call terminated; enter ''group-ext'' to record the extension that was dialed. The extension of the

voice/data terminal in the hunt group that answered the call is the extension assigned to the hunt group.

- Call Record Handling Option—Used to control call routing when new calls come in, the CDR link is down, and the buffer is filled. Enter ''reorder'' to block with an intercept, ''overwrite'' (default) to overwrite records starting with the oldest record, or ''attendant'' to route the call to an attendant with options to proceed as a non-CDR call.
- Primary Output Format—Controls data presentation sent to the primary output device. Entering ''customized'' generates the second page with the customized record administration. Other options are ''59-char'', ''expanded'', ''lsu'', ''printer'', ''teleseer'', ''unformatted'', or blank (default).
- Primary Output Extension—Appears when the Primary Output Format is administered. Enter the extension number assigned to the primary output device. Default is blank.

  NOTE:
  The first digit of the CDR extension number and the length of that number must agree with the first digit table of the dial plan.

- Secondary Output Format—Controls data presentation sent to the secondary output device. Valid entries are ''lsu'', ''unformatted'', or blank (default).

  If the Primary Output Format is ''59-char'', ''lsu'', ''printer'', or ''teleseer'', valid entries are ''lsu', or blank (default).

  NOTE:
  This option should only be used by AT&T service personnel. This option may lose data when there are large amounts of data in the buffer.

- Secondary Output Extension—Appears when the secondary output format is administered. Enter the extension number assigned to the secondary output device. Default is blank.

  NOTE:
  The first digit of the CDR extension number and the length of that number must agree with the first digit table of the dial plan.

- Use ISDN Layouts—Appears when the Primary or Secondary Output Formats are neither ''59-char'' nor blank. Enter ''y'' to use ISDN record layouts; default is ''n''.

Page 2 of the Form

- Data Item—Enter the data items in the order they should appear on the customized record. Valid entries are ''acct-code'', ''attd-console'', ''auth-code'', ''bcc'', ''calling-num'', ''code-dial'', ''code-used'', ''cond-code'',

''dialed-num'', ''duration'', ''feat-flag'', ''frl'', ''in-crt-id'', ''in-trk-code'', ''ins'', ''ixc-code'', ''ma-uui'', ''node-num'', ''out-crt-id'', ''res-flag'', ''time'', ''line-feed'', ''null'', ''return'', ''space'', ''tsc-at'', and ''tsc-flag''. Default is blank, but at least one field must be entered. A ''line-feed'' and ''return'' must be used to complete a customized record (see page 2 sample).

- Length—Enter the length (1–default) of each data item. (Used with the Record Length field to determine the total length of the customized record.) The default for each field is the maximum length (except for ''space'' where the default is ''1''). Valid entries are 1–40.
- Record Length—A display-only field that shows the length the customized record. This field is updated each time the data item length field is changed.

```
                          CDR SYSTEM PARAMETERS              Page 1 of 2

                                        Record Outgoing Calls Only? n
                       Suppress CDR for Ineffective Call Attempts? y
                           Disconnect Information in Place of FRL? n
 Forced Entry of Acct. Code for Calls Marked on Toll Analysis Form? n

Vector Directory Number - Record? n
       Record Non-Call-Assoc TSC? n          Record Call-Assoc TSC? n
                 Intra-switch CDR? n
      Node Number (Local PBX ID): __      Privacy - Digits to Hide: 0
         CDR Account Code Length: 2_

                        Calls to Hunt Group - Record: member-ext
                         Call Record Handling Option: overwrite
                  Digits to Record for Outgoing Calls: dialed

       Primary Output Format: ____________    Primary Output Ext: _____
     Secondary Output Format: ____________  Secondary Output Ext: _____
            Use ISDN Layouts? n
```

CDR System Parameters Form (Page 1 of 2)

```
                              CDR SYSTEM PARAMETERS                Page 2 of 2

     Data Item - Length          Data Item - Length          Data Item - Length
 1: time_____________ 4 __   17: ___________________ - __   33: ___________________ - __
 2: space____________ 1 __   18: ___________________ - __   34: ___________________ - __
 3: duration_________ 4 __   19: ___________________ - __   35: ___________________ - __
 4: return___________ 1 __   20: ___________________ - __   36: ___________________ - __
 5: line-feed________ 1 __   21: ___________________ - __   37: ___________________ - __
 6: ___________________ - __   22: ___________________ - __   38: ___________________ - __
 7: ___________________ - __   23: ___________________ - __   39: ___________________ - __
 8: ___________________ - __   24: ___________________ - __   40: ___________________ - __
 9: ___________________ - __   25: ___________________ - __   41: ___________________ - __
10: ___________________ - __   26: ___________________ - __   42: ___________________ - __
11: ___________________ - __   27: ___________________ - __   43: ___________________ - __
12: ___________________ - __   28: ___________________ - __   44: ___________________ - __
13: ___________________ - __   29: ___________________ - __   45: ___________________ - __
14: ___________________ - __   30: ___________________ - __   46: ___________________ - __
15: ___________________ - __   31: ___________________ - __   47: ___________________ - __
16: ___________________ - __   32: ___________________ - __   48: ___________________ - __

                                  Record length = 11
```

CDR System Parameters Form (Page 2 of 2)

Application Note:

Page 2 appears when the Primary Output Format is ‘‘customized’’.

Call Vector

This form is used to program a series of commands that specify how to handle calls directed to a Vector Directory Number (VDN).

For additional information on Call Vectors, refer to ‘‘Call Vectoring’’ in Chapter 3.

Administration Commands

The following administration commands can be used to access the Call Vector form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviations when entering a command.

Action	Object	Qualifier*
change **	vector	[1–512]
display	vector	[1–512] ['print' or 'schedule']
list	vector	[1–512] ['count' 1–512] ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

** Do not change a call vector while it is processing a call. It is recommended to add a new vector and then change the VDN form to point to the new vector.

Form Instructions

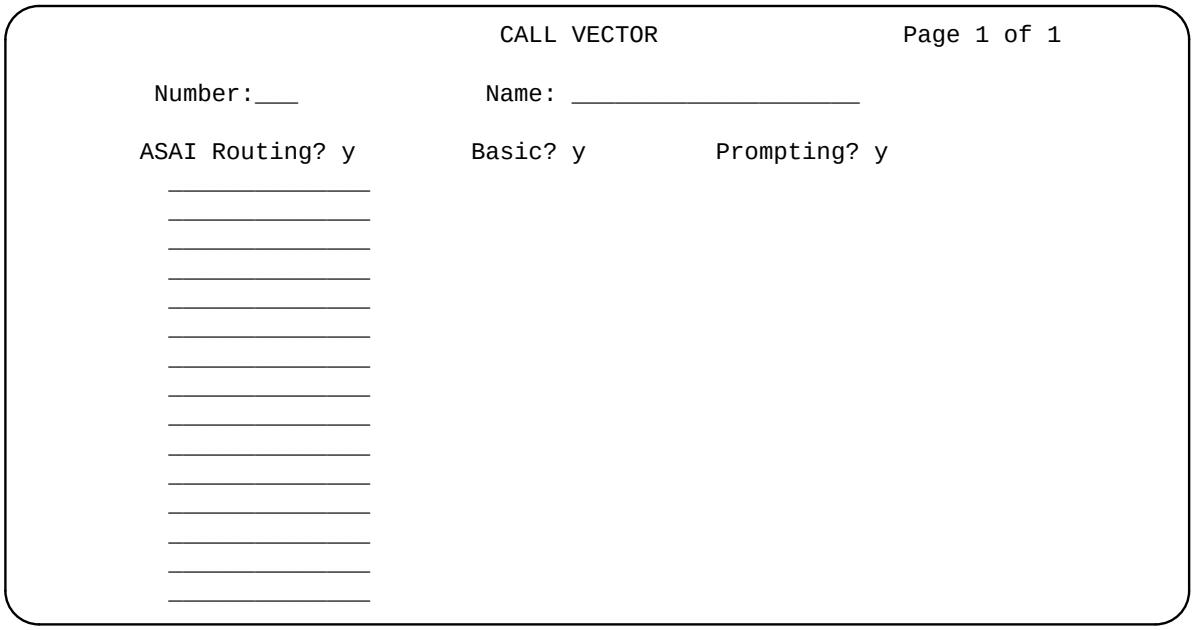
Make assignments as required for the following fields on the form:

- Number—Display-only field when the form is accessed using a *change* or *display* administration command. Enter a vector number in the range from 1–512 when completing a paper form or adding the vector.
- Name—Enter up to 15 alphanumeric characters to represent the vector name; default is blank.
- ASAI Routing—Display-only field. Indicates whether or not the Adjunct/Switch Applications Interface (ASAI) Routing option is enabled on the System-Parameters Customer-Options (SPCO) form. Valid entries are ''y'' or ''n''.
- Basic—Display-only field. Indicates whether or not the ''Vectoring (Basic)'' option is enabled on the SPCO form. Valid entries are ''y'' or ''n''.
- Prompting—Display-only field. Indicates whether or not the ''Vectoring (Prompting)'' option is enabled on the SPCO form. Valid entries are ''y'' or ''n''.
- 1 through 15—Enter up to 15 vector commands as required. Any Command field which is left blank is skipped during vector processing. There is an implicit ''Stop'' after Step 15. Valid vector commands are ''adjunct'', ''announcement'', blank (default), ''busy'', ''check'', ''collect'', ''disconnect'', ''goto'', ''messaging'', ''queue'', ''route'', ''stop'', or ''wait''. Blank steps may appear anywhere in a vector.

  Basic must be ''y'' before ''busy'', ''check'', ''disconnect'', or ''queue'' can be entered. Prompting must be ''y'' before ''collect'' can be entered (not allowed without Call Prompting). ASAI Routing and Basic must be ''y''. before ''Adjunct'' can be entered.

Call Vector—Dynamic Fields

Table 5-2 provides a summary of the Call Vector commands that can be entered in the Command field. Up to 15 commands may be entered on the form. The vector command line is shown in each of the following descriptions. The bold entry indicates the required data for the particular vector command and underlined entries indicate variable fields on the command line. Branching to other vectors from a vector is permitted but the system will stop all vector processing after 1000 vector steps have been processed.



Call Vector Form (Page 1 of 1)

Table 5-2. Call Vector Commands

Command	Conditions *	Description **
adjunct	routing link extension _____. Form Fields: ''ASAI Routing'' and ''Basic'' must be ''y''.	Enter the ASAI link extension (must be a valid ISDN-BRI link extension) through which the switch will send a routing request to the associated adjunct. This command is only available when the Inbound Call Management feature is active. The adjunct must be connected in order to be used.
announcement	extension _____.	Enter a valid announcement extension to be given callers. The announcement is treated as a forced announcement. If the announcement's queue is currently full, the call retries the announcement step indefinitely before processing any new vector steps.
busy	Form Fields: ''Basic'' must be ''y''.	Causes termination of vector processing and gives the caller busy tone. If the call is a CO trunk call and answer supervision (via announcement command or wait command with music) has not been sent, the CO will ignore the busy and continue giving the caller CO ringback. Busy, if successfully applied will timeout and the call will drop after 45 seconds.
check backup split _ (split: 1–255, default is blank)	priority _ if **unconditionally**. priority: l (low), m (medium) (default), h (high), t (top). Form Fields: ''Basic'' must be ''y''.	Enter the priority for queuing a call unconditionally (will always attempt to queue) to a second split or hunt group queue. (Split or hunt group must be vector controlled.)
check backup split _ (split: 1–255, default is blank)	priority _ if **available** agents > ___. priority: l (low), m (medium) (default), h (high), t (top). available agents >: 0–998, default is 0. Form Fields: ''Basic'' must be ''y''.	Enter the priority and the number of available agents requirement before queuing a call to the backup split.

* Legend: < (less than), > (greater than). Variable field entries shown below command line.

** Data that must be entered as part of the command line is shown in bold. Variable fields that must be completed are shown underlined. Detailed descriptions of the Call Vector and Call Prompting commands is provided in *Generic 1 and Generic 3—Feature Description*, 555-230-201.

Call Vector Commands (continued)

Command	Conditions *	Description **
check backup split _ (split: 1–255, default is blank)	priority _ if **staffed** agents > ___. priority: l (low), m (medium) (default), h (high), t (top). staffed agents >: 0–998, default is 0. Form Fields: ''Basic'' must be ''y''.	Enter the priority and the number of staffed (logged in) agents requirement before queuing a call to the backup split.
check backup split _ (split: 1–255, default is blank)	priority _ if **calls** queued < ___. priority: l (low), m (medium) (default), h (high), t (top). calls queued <: 1–999, default is 1. Form Fields: ''Basic'' must be ''y''.	Enter the priority and the number of calls queued (to the backup split) requirement before queuing a call to the backup split.
check backup split _ (split: 1–255, default is blank)	priority _ if **oldest-call-waiting** < ___. priority: l (low), m (medium) (default), h (high), t (top). oldest-call-waiting <: 2–998, default is 2. Form Fields: ''Basic'' must be ''y''.	Enter the priority and the oldest-call-waiting requirement (as the backup split) before queuing a call to the backup split. The call will queue if the oldest call has been waiting in the backup split's queue less than the specified number of seconds.
collect __ digits collect: (1 to 16, default is 1)	after announcement extension _____. extension: ''none'' or valid announcement extension. Form Fields: ''Prompting'' and ''Basic'' must both be ''y''.	Enter the number of digits to collect from a touch-tone phone and the extension number associated with an optional announcement to be given the calling party before receiving the digits; otherwise, enter ''none''.
disconnect	after announcement extension _____. extension: ''none'' or valid announcement extension. Form Fields: ''Basic'' must be ''y''.	Enter a valid announcement extension if an announcement is to be given a caller before disconnect occurs. Disconnect ends treatment of a call and removes the call from the switch.
goto step __ (step: 1–15) -or- **goto vector** ___ (vector: 1–512)	**unconditionally** Form Fields: ''Basic'' or ''Prompting'' must be ''y''.	Enter the vector step or vector to branch to. This command always branches.

* Legend: < (less than), > (greater than). Variable field entries shown below command line.

** Data that must be entered as part of the command line is shown in bold. Variable fields that must be completed are shown underlined. Detailed descriptions of the Call Vector and Call Prompting commands is provided in *Generic 1 and Generic 3—Feature Description*, 555-230-201.

Call Vector Commands (continued)

Command	Conditions *	Description **
goto step __ (step: 1–15) -or- **goto vector** ___ (vector: 1–512)	if **available-agents** in split __ is _ ___. split: 1–255, default is blank. is: < or >, 0–998, defaults are ''>'' and ''1''. Form Fields: ''Basic'' must be ''y''.	Enter the vector step or vector to branch to. This command executes if the available agents in the indicated split is less than (<) or greater than (>) the number specified (0–998).
goto step __ (step: 1–15) -or- **goto vector** ___ (vector: 1–512)	if **staffed-agents** in split __ is ___. split: 1–255, default is blank. is < or >: 0–998, default is 1. Form Fields: ''Basic'' must be ''y''.	Enter the vector step or vector to branch to. This command executes if the staffed (logged in) agents in the indicated split is greater than (>) the number specified (0–998).
goto step __ (step: 1–15) -or- **goto vector** ___ (vector: 1–512)	if **calls-queued** in split __ is _ ___ pri _. split: 1–255, default is blank. is: < or >, 1–999, defaults are ''<'' and ''1''. pri: Priority—l (low), m (medium) (default), h (high), t (top). Form Fields: ''Basic'' must be ''y''.	Enter the vector step or vector to branch to. This command executes if the calls queued in the indicated split is less than (<) or greater than (>) the number specified (1–999). Check for queued calls at the priority level specified and all higher priority levels.
goto step __ (step: 1–15) -or- **goto vector** ___ (vector: 1–512)	if **oldest-call-waiting** in split __ is _ ___. split: 1–255, default is blank. is: < or >, 0–998 (even numbers), defaults are ''>'' and ''2''. pri: Priority—l (low), m (medium) (default), h (high), t (top). Form Fields: ''Basic'' must be ''y''.	Enter the vector step or vector to branch to. This command executes if the oldest-call-waiting in the indicated split has been waiting less than (<) or greater than (>) the number of seconds specified (0–998). If a Priority is used, all Priorities at this level and higher are checked.
goto step __ (step: 1–15) -or- **goto vector** ___ (vector: 1–512)	if **digits** _____ digits: 1 to 16 digits Form Fields: ''Prompting'' must be ''y''.	Enter the vector step or vector to branch to. This command executes if the digits from the *Collect* command match the specified digit string.

* Legend: < (less than), > (greater than). Variable field entries shown below command line.

** Data that must be entered as part of the command line is shown in bold. Variable fields that must be completed are shown underlined. Detailed descriptions of the Call Vector and Call Prompting commands is provided in *Generic 1 and Generic 3—Feature Description*, 555-230-201.

Call Vector Commands (continued)

Command	Conditions *	Description **
goto step __ (step: 1–15) -or- **goto vector** ___ (vector: 1–512)	if **time-of-day** is ___ __:__ to ___ __:__. is (day) (hour):(minute) to (day) (hour):(minute): day: mon, tue, wed, thr, fri, sat, sun, all. Default is ''mon'' and ''fri''. hour: 00 to 23 (military format). Default is ''09'' and ''17''. minute: 00 to 59 (military format). Default is ''00'' and ''00''. Form Fields: ''Basic'' must be ''y''.	Enter the vector step or vector to branch to. This command executes if the time of day criteria are met.
messaging split __ (split: 1–255, default is blank)	for extension ____. extension: ''none'', or valid extension. Form Fields: ''Basic'' or ''Prompting'' must be ''y''.	Enter the split or hunt group number and extension for the desired AUDIX mailbox where the caller can leave a message; otherwise, enter ''none'' and the caller will be routed to the AUDIX mailbox for this VDN.
queue> to main split ___ (split: 1–255, default is blank)	priority _. priority: l (low), m (medium) (default), h (high), t (top). Form Fields: ''Basic'' must be ''y''.	Enter the split number and priority level to have a call queue at a split. A call sent with this command will either connect to an agent in the split (if available) or enter the split's queue.
route	to **number** _____ if **unconditionally** number: 1 to 16 digits Form Fields: ''Basic'' or ''Prompting'' must be ''y''.	Enter the number to route a call to. Abbreviated Dialing special characters ~p (pause), ~w (wait), ~m (mark), and ~s (suppress) can also be used. These characters count as two digits each when used. The destination can be; an attendant or attendant queue, a local extension, a remote extension (i.e., UDP extension), an external number, or a VDN number.
	to **number** _____ if **digits** equal _. number: 1–16 digits (includes * and # plus AD special characters) equals: 0–9 Form Fields: ''Prompting'' and ''Basic'' must both be ''y''.	Enter the number to route a call to if the digit entered by the calling party for the last *collect* digits command matches the single digit (0–9) entered following the word ''equal''. This command is used for routing based on single digit comparisons.

* Legend: < (less than), > (greater than). Variable field entries shown below command line.

** Data that must be entered as part of the command line is shown in bold. Variable fields that must be completed are shown underlined. Detailed descriptions of the Call Vector and Call Prompting commands is provided in *Generic 1 and Generic 3—Feature Description*, 555-230-201.

Call Vector Commands (continued)

Command	Conditions *	Description **
route	to **digits** with coverage _. coverage: ''n'' (default) or ''y''. Form Fields: ''Prompting'' and ''Basic'' must both be ''y''.	Enter whether call coverage should apply when routing a call based on the digits collected from the calling party using the last *collect* digits command.
stop	Form Fields: ''Basic'' or ''Prompting'' must be ''y''.	Enter **stop** to terminate processing of any subsequent vector steps. The following remain in effect after processing the *stop* command: any calls that are already queued, remain queued, and any wait treatment such as silence, ringback, or music is continued.
wait	time ___ secs hearing _____. time: 0–998 hearing: ''silence'' (default), ''ringing'', ''music''. Form Fields: ''Basic'' must be ''y''.	Enter the time (in seconds) before processing the next vector step and indicate the treatment to be given a caller during the wait period. A wait time of ''0'' seconds can be used to change the call treatment without executing a delay.

* Legend: < (less than), > (greater than). Variable field entries shown below command line.

** Data that must be entered as part of the command line is shown in bold. Variable fields that must be completed are shown underlined. Detailed descriptions of the Call Vector and Call Prompting commands is provided in *Generic 1 and Generic 3—Feature Description*, 555-230-201.

Circuit Pack Administration

This form is used to administer circuit packs to carrier slots before the circuit packs are actually installed in the carrier or cabinet. This then allows the System to be configured (administered) when the circuit packs have not yet been physically inserted in their appropriate slots. Before any voice terminals, attendant consoles, or trunks can be administered in the System, the correct type of circuit pack must be installed in the appropriate slot or, using the Circuit Pack form, a circuit pack must be assigned to the slot.

The Circuit Pack Administration forms do not have to be completed if the System cabinet is equipped with the circuit packs at the time of administration. However, for switch node carriers, these forms must be administered.

Refer to *Generic 1 and Generic 3—Installation and Test* (555-230-104) for circuit pack administration forms and associated instructions. (Note that the DS1 circuit pack and associated translations coverage is provided in Chapter 3.)

NOTE:
For initial installation procedures, circuit packs should only be assigned slots per the hardware Configuration Layout record (obtained from the factory or Customer Services Support Organization). Arbitrarily assigning circuit packs to slots should not be attempted because this will eventually require (at the time of installation and test) realignment of the circuit packs and reworking associated wiring to agree with the software translations or new software translations to agree with the shipped hardware configuration.

Class of Restriction (COR)

This form is used to control call origination and termination. A system may have one COR or as many as necessary to control calling privileges. Up to 96 different CORs (0–95) can be assigned. CORs can be assigned to any of the following facilities:

- Attendant Console
- Hunt Groups
- Loudspeaker Paging/Code Calling Access
- Data Module
- Station
- Remote Access
- Terminating Extension Group
- Authorization Codes
- Trunk Groups

NOTE:
Note that when a call is to a Vector Directory Number (VDN) extension, the COR of the caller and the VDN are compared to determine if the associated Call Vector can be accessed. After the vector is accessed, the COR of the VDN is used for further call permission checking.

Administration Commands

The following administration commands can be used to access the Class of Restriction form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	cor	0–95
display	cor	0–95 ['print' or 'schedule']
list	partitioned group	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

Page 1 of Form

- COR Number—Enter a number from 0–95 when completing a paper form. This is a display-only field when the form is accessed via an administration command such as *change* or *display*.
- FRL—Enter an originating Facility Restriction Level (FRL) number from 0–7. This entry is used by Automatic Alternate Routing (AAR) and/or Automatic Route Selection (ARS) features to determine call access to an outgoing trunk group. Outgoing call routing is determined by a comparison of the FRLs in the AAR/ARS Routing Pattern and the FRL associated with the COR of the call originator (typically, a voice terminal user). An originating FRL of 0 has the least calling privileges. Default is 7.

  Attendants use the FRL assigned via COR administration. This FRL is used for attendant origination and assisted calls.
- APLT—Enter ''n'' to allow access to Enhanced Private Switched Communications System (EPSCS) or Common Control Switched Arrangement (CCSA) off-net facilities; default is ''y''.

  NOTE:
  If fully restricted service is enabled, this field must be ''n''.

- Calling Party Restriction—Enter one of the following: ''origination'', ''outward'', ''all-toll'', ''tac-toll'', or ''none''.
  - origination—Blocks the calling party from originating a call from the facility at any time. The party can only receive calls.
  - outward—Blocks the calling party from directly accessing the exchange network.
  - all-toll—Blocks the calling party from making ARS and trunk access calls from a facility assigned the COR to certain toll areas as defined in the Dialed String Field on the Toll Analysis form. The Dialed String field on the form must be marked as being associated with the System's Toll List. The call will complete if the facilities COR is also associated with an Unrestricted Call List and whose

Dialed String field on the Toll Analysis form also matches the dialed number.

— tac-toll—Blocks the calling party from making trunk access calls from the facility assigned the COR to certain toll areas as defined in the Dialed String field on the Toll Analysis form. The Dialed String field on the form must be marked as being associated with the System's Toll List. The call will complete if the facilities COR is also associated with an Unrestricted Call List and whose Dialed String field on the Toll Analysis form also matches the dialed number. Refer to ''Toll Analysis'' elsewhere in this chapter for additional information.

- Called Party Restriction—Enter one of the following: ''inward'', ''manual'', ''termination'', or ''none''.

  — Inward—Blocks the calling party from receiving incoming exchange network calls, attendant originated calls, and attendant completed calls.

  — Manual—Blocks the called party from receiving all calls except for those originated or extended by the attendant.

  — Termination—Blocks the called party from receiving any calls at any time.

- Service Observing (see Caution)—Enter ''y'' to allow a voice terminal user to be monitored by a service observer; default is ''n''.

  NOTE:
  If the Service Observing option is not enabled on the System-Parameters Customer-Options form, this field must be ''n''.

  CAUTION:
  The use of Service Observing features may be subject to federal, state, or local laws, rules, or regulations; or require the consent of one or both of the parties to the conversation. Customers should familiarize themselves with and comply with all applicable laws, rules, and regulations before using these features.

- Forced Entry of Account Codes—Enter ''y'' to indicate that an account code must be dialed when making outgoing trunk calls. Here, any voice terminal assigned the associated COR must dial an account code before making an outgoing call. Any trunk group assigned that COR cannot be accessed until an account code is dialed. If a call is being routed by AAR or ARS, account code checking is not done on the COR. Entering ''n'' (default) indicates that an account code is not required.

NOTE:
If Forced Entry of Account Codes for Toll Calls on the System-Parameters Customer-Options form is ''y'', Forced Entry of Account Codes may also be required for all outgoing calls.

If a COR requiring entry of account codes is assigned a Vector Directory Number, the *route to* commands executed by the associated vector will not be successful.

- Priority Queuing—Enter ''y'' to allow the voice terminal user's calls to be placed ahead of nonpriority calls in a hunt group queue; default is ''n''.

  NOTE:
  If the ACD Option is not enabled on the System-Parameters Customer-Options form, this field must be ''n''.

- Direct Agent Calling—Enter ''y'' to allow a user to originate or receive direct ACD agent calls. A ''n'' (default) disallows the user to originate or receive direct agent calls. This is used whenever a caller should talk directly with a specific ACD agent, not just anyone in the pool of agents. If the System is in Night Service, the call routes to the Night Service extension.
- Restricted Call List—Enter ''y'' to specify that this COR will have access to the System's Restricted Call List (see Toll Analysis form). This list can be used whether or not the COR is toll restricted. The Restricted Call List (RCL) has priority over the Toll Analysis Unrestricted Call List (UCL). A call attempt from a facility assigned a COR (with RCL field = ''y''), whose dialed digit string is on the Toll Analysis form and is marked as being associated with the RCL, will be denied. Default is ''n''.
- Facility Access Trunk Test—Enter ''y'' to allow Facility Access Trunk Tests (FAT). Test calls from facilities (e.g., voice terminals) will be allowed to complete if COR FAT is ''y''. For calls from facilities whose COR FAT is ''n'' (default), intercept treatment will be given. An associated feature button (trk-ac-alm) status lamp will light when a successful FAT access has occurred. Pressing one of the alarm buttons (ten maximum) when it's associated status lamp is lighted will turn off all lamps on all buttons whether or not the access is still in progress or has completed.
- Unrestricted Call List—Enter ''x'' in the appropriate field (1–10) to assign the dialed string to one of the System's Unrestricted Call Lists (UCL); default is blank for all fields. A UCL (up to 10 in the System) is a list of dialed strings that can be dialed from a facility whose COR assignment includes the UCL List number. The UCL number or numbers (1–10) are assigned on appropriate COR forms and associate the COR with the UCL List(s). A toll call from a facility that is ''all-toll'' restricted, for example, will complete if the facilities COR is associated with a UCL whose dialed string field matches the dialed number.

NOTE:
The call *will not* complete if the COR is also associated with the System's RCL and whose dialed string also matches the dialed number. The RCL takes precedence over the UCL.

- Access to MCT—This field refers to Malicious Call Trace. If ''y'' is entered in this field, then the class has permissions to activate a request to trace a malicious call.
- Fully Restricted Service—When enabled (''y'' entered in field) for a given COR, stations assigned that COR will not have access to the public network for either incoming or outgoing calls.

NOTE:
If this field is enabled, the APLT field must be ''n''.

```
                          CLASS OF RESTRICTION

            COR Number: __                                FRL: _
                  APLT? _           Calling Party Restriction: ___________
                                     Called Party Restriction: ___________
      Service Observing? _       Forced Entry of Account Codes? _
       Priority Queuing? _                 Direct Agent Calling? _
  Restricted Call List? _           Facility Access Trunk Test? _
Unrestricted Call List? _ _ _ _ _ _ _ _ _ _

          Access to MCT? _             Fully Restricted Service? _
```

COR Form (Page 1 of 2)

Page 2 of Form

- CALLING PERMISSION **0** through **95**—Enter ''n'' for each COR number (0–95) that cannot be called by the COR being implemented. A ''y'' (default) means that an originating facility assigned this COR can be used to call facilities assigned this COR.

```
                                CLASS OF RESTRICTION

CALLING PERMISSION (Enter "y" to grant permission to call specified COR)
  0? _     12? _     24? _     36? _     48? _     60? _     72? _     84? _
  1? _     13? _     25? _     37? _     49? _     61? _     73? _     85? _
  2? _     14? _     26? _     38? _     50? _     62? _     74? _     86? _
  3? _     15? _     27? _     39? _     51? _     63? _     75? _     87? _
  4? _     16? _     28? _     40? _     52? _     64? _     76? _     88? _
  5? _     17? _     29? _     41? _     53? _     65? _     77? _     89? _
  6? _     18? _     30? _     42? _     54? _     66? _     78? _     90? _
  7? _     19? _     31? _     43? _     55? _     67? _     79? _     91? _
  8? _     20? _     32? _     44? _     56? _     68? _     80? _     92? _
  9? _     21? _     33? _     45? _     57? _     69? _     81? _     93? _
 10? _     22? _     34? _     46? _     58? _     70? _     82? _     94? _
 11? _     23? _     35? _     47? _     59? _     71? _     83? _     95? _
```

COR Form (Page 2 of 2)

Class of Service (COS)

Used to administer access permissions for call processing features that require dial code and/or feature button access permission. Note that class of service (COS) does not apply to trunk groups except for the Remote Access feature. A COS assignment defines whether or not a voice terminal user may access or use the following features and functions. Refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for descriptions of the listed features. Up to 16 different COS numbers may be administered (0–15).

- Automatic Callback—(feature)
- Call Forwarding All Calls—(feature)
- Data Privacy—(feature)
- Priority Calling—(feature)
- Console Permission—(allows multi-appearance voice terminal users to control the following features (normally controlled by the attendant):
  - Automatic Wakeup
  - Controlled Restrictions
  - Do Not Disturb
  - Call Forwarding All
  - Integrated Announcement Recording
- Off-Hook Alert—(see Emergency Access to Attendant feature). Requires that either the Hospitality or Emergency Access to Attendant (optional features) be enabled on the System-Parameters Customer-Option form.

- Client Room—(see Hospitality Services—allows use of the Check-In, Check-Out, Room Change/Swap, and Maid Status features). Requires that the Hospitality feature (optional feature) be enabled on the System-Parameters Customer-Option form. When Client Room is ‘‘y’’, a user is required to dial a feature access code (FAC) and then the extension when activating a feature.

Administration Commands

The following administration commands can be used to access the Class of Service form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	cos	—
display	cos	[’print’ or ’schedule’]

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required on the form.

The form lists the default values for each COS/feature combination. For a particular combination, a ‘‘y’’ allows access to the feature and an ‘‘n’’ denies access to the feature. Assign entries on the form for each COS to be implemented.

```
                                CLASS OF SERVICE                    Page 1 of 1

                    0  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15
Auto Callback       y  y  y  y  y  y  y  y  y  y   y   y   y   y   y   y
Call Fwd-All Calls  y  y  y  y  y  y  y  y  y  y   y   y   y   y   y   y
Data Privacy        y  y  y  y  y  y  y  y  y  y   y   y   y   y   y   y
Priority Calling    y  y  y  y  y  y  y  y  y  y   y   y   y   y   y   y
Console Perms       n  n  n  n  n  n  n  n  n  n   n   n   n   n   n   n
Off-hook Alert      n  n  n  n  n  n  n  n  n  n   n   n   n   n   n   n
Client Room         n  n  n  n  n  n  n  n  n  n   n   n   n   n   n   n
```

Class of Service Form (Page 1 of 1)

Console Parameters

This form is used to administer attendant console group parameters. This includes basic parameters for Centralized Attendant Service (CAS) and Inter-PBX Attendant Service (IAS). A list of the administered attendant consoles is also displayed on this form.

Administration Commands

The following administration commands can be used to access the Console Parameters form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	console-parameters	—
display	console-parameters	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

Page 1 of Form

- COS—Enter a class of service (COS) number (0–15) that reflects the desired features for the attendant; default is 1.
- COR—Enter the class of restriction (COR) number (0–95) that reflects the desired restrictions for the attendant console group; default is 1.
- Calls In Queue Warning—Enter a number from 1–300 to indicate the number of incoming calls that can be in the attendant queue before the console's Call Waiting lamp lights. The first (leftmost) console's Call Waiting lamp lights when one, or more, incoming call(s) is waiting to be answered. The second lamp lights when the preset number is reached.
- Attendant Lockout—Enter ''y'' (default) to activate the Privacy—Attendant Lockout feature. Here, the attendant is prohibited from reentering a call that has been extended to a voice terminal unless recalled by a voice terminal user on the call.
- Ext Alert Port (TAAS)—Enter the seven-digit port number assigned to the external alerting device (this supports the Night Service—Trunk Answer From Any Station feature). The first two characters identify the cabinet (1–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20); the last two characters identify the circuit number (01–24).

NOTE:
When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment.

If an ''X'' is used here, you must also fill in the Ext Alert (TAAS) Extension field.

When the attendant is not on duty, a voice terminal user can answer calls made to the attendant. The incoming call will activate a gong, bell, or chime. The voice terminal user then dials an access code from any unrestricted voice terminal and answers the call.

- Ext Alert (TAAS) Extension—Displayed when Ext Alert Port (TAAS) is ''X''. This extension is used by the Terminal Translation Feature (TTI) to assign a port to the Ext Alert Port from a terminal on the Ext Alert port during system installation or provisioning. Once a port is assigned (either via TTI or by changing the Ext Alert Port field from the G3-MA) the extension is automatically removed and treated as unassigned.
- DID-LDN Only to LDN Night Ext.—Enter ''y'' to allow only listed directory number (LDN) calls to go to the listed directory night service number extension; otherwise, enter ''n'' (default) (all attendant seeking calls will be routed there).
- CAS—Enter ''main'' to enable the CAS Main feature; enter ''branch'' to enable the CAS Branch feature; otherwise, enter ''none'' (default).

  NOTE:
  The CAS Main or Branch features must be enabled on the System-Parameters Customer-Options form for either of these features to be functional here.

- RLT Trunk Group No.—Enter the trunk group number from 1–666 corresponding to the Release Link Trunk (RLT) trunk group to the main location when supporting CAS Branch service.
- CAS Back-Up Ext.—If the system is a CAS Branch location, a CAS Back-Up Extension can be the extension of a station, individual attendant console, hunt group, or Terminating Extension Group (TEG). The CAS Back-Up Extension handles attendant-seeking calls if the RLT trunk group to the CAS Main PBX is out of service or if CAS Back-Up is activated. The CAS Back-Up Extension must be explicitly defined as an extension in the dialplan; prefixed extensions cannot be used. A VDN extension is not allowed. Valid entries are an extension number for a station, individual attendant console, hunt group, TEG, or leave blank.
- Night Service Act. Ext.—Is a display-only field that contains the extension of the current night service activation station, if any. Such a station is administered by assigning it a ''night-serv'' button.
- IAS (Branch)—Enter ''y'' to enable or ''n'' (default) to disable the Inter-PBX Attendant Service (IAS) Branch feature.

NOTE:
CAS and IAS cannot both be active at the same time.

- IAS Tie Trunk Group No.—Enter the number of the tie trunk group (1–666) to the main for the IAS (Branch). This entry is required when the IAS Branch field is ''y''.
- IAS Att. Access Code—Enter the extension number of the attendant group at the main PBX (typically ''0''). This entry is required when the IAS Branch field is ''y''.
- Alternate FRL Station—Displays the extension of the alternate FRL activation station.
- Timed Reminder on Hold (sec)—Enter the time in seconds (10–1024) that a call remains on hold at the console before the attendant is alerted; default is 10. In a CAS arrangement, the main and the branch consoles (when administered) should be administered the same.
- Return Call Timeout (sec)—Enter the time in seconds (10–1024) before a split away call (call removed from the console by the attendant for the purpose of answering another call) returns to the console; default is 30.
- Time In Queue Warning (sec)—Enter the number of seconds from 0–999 that a call can remain in the attendant queue before activating an alert.
- No Answer Timeout (sec)—Enter the number of seconds (10–1024) a call to the attendant can remain unanswered without incrementing the delay threshold count.
- Alerting (sec)—Enter the number of seconds (10–1024) after which the attendant console goes into night service.

  NOTE:
  The call is disconnected from the attendant loop, the console is put into Night Service, and the call is transferred to the Night Service extension.

  If there are multiple consoles, the call is transferred to the next available console.

- List1:, List2:, List3:—Enter ''system'', ''group'', or ''enhanced'' to each List # as required. If ''group'' is entered, a subfield (1–1000) for the group number is displayed; default is 1. Abbreviated Dialing Personal Lists cannot be assigned.

COMMON SHARED EXTENSIONS—provided to the attendant group for parking calls. Common Shared Extensions are administered using two fields, a starting extension of the common shared block and the number of common shared extensions in the block. For additional information on the Call Park feature and Common Shared Extensions, refer to *Generic 1 and Generic 3—Feature Description*, 555-230-201.

- Starting Extension—Enter an unassigned extension number that conforms

to the Dial Plan Record. The associated numbers are used by the attendant to park calls.

- Count—Enter a number (1–40 or blank) to indicate the number of consecutive extensions (beginning with the Start Extension) to be used as common shared extensions.

  These extension numbers (with no physical voice terminals assigned) are used by the attendant to park calls. For example, you may enter 4300/3 which directs the System to store three consecutive extension numbers: 4300, 4301, and 4302. These numbers are given to the attendant so that he/she knows where to park a call and how many calls can be parked.

  The extensions should be assigned to the optional Attendant Selector Console in the 00–09 block (bottom row) in any hundreds group for easy identification by the attendant. The lamp associated with the number will identify ‘‘call parked’’ or ‘‘no call parked’’ (instead of busy or idle status).

Page 2 of Form

- Queue Priority—Enter a number (1–12) that indicates the order in which the attendant should answer calls of the following types:

Emergency Access	Assistance Call	CO Call
DID to Attendant	Tie Call	Redirected DID Call
Redirected Call	Return Call	Serial Call
Individual Attendant Access	Interposition	Miscellaneous Call

Page 3 of Form

- ASSIGNED MEMBERS (Installed attendant console types)—Display-only field. A list of all attendants in the group will be displayed. Individual attendant consoles are administered using the Attendant Console form.

```
                          CONSOLE PARAMETERS              Page 1 of 3

                     COS: 0_                                  COR: 0_
    Calls in Queue Warning: 5_                 Attendant Lockout? y
     Ext Alert Port (TAAS): _______
                     CAS: none__
                                             Night Service Act. Ext.: xxxxx
             IAS (Branch)? n                 IAS Tie Trunk Group No.: ____
      IAS Att. Access Code: _____              Alternate FRL Station:
                                        DID-LDN Only to LDN Night Ext? n
 TIMING
  Time Reminder on Hold (sec): 10__     Return Call Timeout (sec): 30__
  Time in Queue Warning (sec): ___
INCOMING CALL REMINDERS
      No Answer Timeout (sec): 10__     Alerting (sec): 10__

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

                   COMMON SHARED EXTENSIONS
  Starting Extension: _____          Count: __
```

Attendant Group Console Parameters Form (Page 1 of 3)

Implementation Note:

Default values are defined above.

```
                                                          Page 2 of 3
                          CONSOLE PARAMETERS
  QUEUE PRIORITIES
                Emergency Access:1_
                 Assistance Call:2_
                         CO Call:2_
                DID to Attendant:2_
                        Tie Call:2_
             Redirected DID Call:2_
                 Redirected Call:2_
                     Return Call:2_
                     Serial Call:2_
    Individual Attendant Access:2_
                 Interpositional:2_
              Miscellaneous Call:2_
```

Attendant Group Console Parameters Form (Page 2 of 3)

Implementation Note:

Default values are defined above.

```
                                                          Page 3 of 3
                          CONSOLE PARAMETERS

ASSIGNED MEMBERS ( Installed attendant console types )
 1:                        11:                           21:
 2:                        12:                           22:
 3:                        13:                           23:
 4:                        14:                           24:
 5:                        15:                           25:
 6:                        16:                           26:
 7:                        17:                           27:
 8:                        18:                           28:
 9:                        19:
10:                        20:
```

Attendant Group Console Parameters Form (Page 3 of 3)

Data Modules

The following types of data modules can be used with the System:

Announcement	The ‘‘announcement’’ data module (TN750 circuit pack) is a port on the Announcement port board. An ‘‘announcement’’ data module and a ‘‘system-port’’ data module must be administered to transfer the recorded announcements file from the announcement board to the System tape/disk and vice versa.
Data Line	The ‘‘data-line’’ data module is an EIA RS-232C compatible port on the data line circuit (DLC) port board. They provide connection of asynchronous EIA RS-232C compatible Data Terminal Equipment.
Processor	The ‘‘pdm’’ data module provides an RS-232C data circuit-terminating equipment (DCE) interface for connecting to data terminals, applications processors (APs), and host computers; and provides a Digital Communications Protocol (DCP) interface for connection to a communications system.
System Port	The ‘‘system-port’’ data module is a port on a DLC that provides switched access to applications on the SPE. Applications may dial out or be dialed into via system ports.
Trunk	The ‘‘tdm’’ data module provides the interface for connection between off-premises private-line trunk facilities and the System. The TDM provides conversion between the RS-232C and the Digital Communications Protocol (DCP), and can connect to direct distance dialing (DDD) modems

as the DCP member of a modem pool.

X.25 — The ‘‘x.25’’ data module (TN577 circuit pack) is a port on the PGATE board which acts as protocol converter and packet handler. It provides RS-232 connectivity at the physical layer.

7400-7500 Series — To be provided.

NOTE:
51X series of Business Communications Terminals (BCTs) are not administered on the Data Module form. The 510 BCT (equivalent to a 7405D with a display and built-in DTDM), 515 BCT (equivalent to a 7403D integrated with 7405D display module function, data terminal and built-in DTDM), and the 7505D, 7506D, and 7507D have a DCP interface but have built-in data module functionality. Both are administered through Station form.

The 513 BCT has an EIA interface rather than a DCP interface (no built in data module, attachable telephone, or telephone features). The 513 BCT is not administered; only the data module to which the 513 BCT is connected is administered.

Administration Commands

The following administration commands can be used to access all module types administered on the Data Module form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	data-module	xxxx (extension or ‘next’)
change	data-module	xxxx (extension number)
display	data-module	xxxx (extension number) [print or schedule]
duplicate	data-module	xxxx (extension number to be duplicated)
list	data-module	(starting ext number) xxxx (‘count’) [print or schedule]
remove	data-module	xxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

The following pages describe the purpose of each data module type and provide form instructions.

Announcement Data Module

The TN750 Announcement circuit pack has a built-in data module that is administered using the Announcement Data Module form. This data module allows the System to transfer the recorded announcements file from the TN750 announcement circuit pack to the System tape/disk (save operation) and from the System tape/disk to the announcement circuit pack (restore operation).

Form Instructions

Make assignments as required for the following fields on the form:

Administer only **one** Recorded Announcement Data Module form.

- Data Extension—When completing a paper form, enter the extension number assigned to the announcement data module. A data extension can be a 1- to 5-digit number. The digits assigned must agree with the Dial Plan Record. When implementing the form using an administration command, the extension number is part of the input command.
- Type—Enter ''announcement''.
- Board—Enter the five-alphanumeric character announcement board number that indicates to which physical board the announcement module is connected. The first two characters are the cabinet number (01–22); the third character is a letter that identifies the carrier (A–E); the fourth and fifth characters compose a two digit slot number (01–20 for a medium cabinet or 01–18 for an XE cabinet); default is blank.

  NOTE:
  When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment.

- Name—Enter the name of the user associated with the data module. The name is optional, it can be left blank.
- COS—Enter the desired class of service (COS) number from 0–15; default is 1.
- COR—Enter the desired class of restriction (COR) number from 0–95; default is 1.
- Ext—Make no entry. This is the extension number of the user (previously administered) with associated Data Extension buttons who will share the module.
- Name—Make no entry. This is the name assigned to the above extension number.

```
                                DATA MODULE                          Page 1 of 1

 Data Extension: _____              Type: announcement    Board: _______
           Name: ________________    COS: 1_                 COR: 1_

ASSIGNED MEMBER ( Station with a data extension button for this data module )
       Ext      Name
   1: _____    ___________
```

Recorded Announcement Data Module Form (Page 1 of 1)

Data Line Data Module

The Data Line Data Module (DLDM) form is used to assign ports on the TN726 Data Line circuit pack (DLC) that allows EIA (RS-232C) devices to connect to the System.*[1] The DLC, with a companion Asynchronous Data Unit (ADU), provides a less expensive data interface to the System than data modules such as Digital Terminal Data Modules (DTDMs), Modular Processor Data Modules (MPDMs), or Modular Trunk Data Modules (MTDMs).

The DLC supports asynchronous transmissions at speeds of Low and 300, 1200, 2400, 4800, 9600, and 19200-bps over 2-pair (full-duplex) lines. These lines can have various lengths, depending on the transmission speed and wire gauge.

The DLC has eight ports. The connection from the port to the EIA device is *direct*, meaning that no multiplexing is involved. A single port of the DLC is equivalent in functionality to a data module and a digital line port. The DLC appears as a data module to the Digital Terminal Equipment (DTE) and as a digital line port to the switch.

The DLC connects the following EIA RS-232C equipment to the System:

- Printers
- Non-Intelligent Data Terminals
- Intelligent Terminals, Personal Computers (PCs)
- Host Computers
- ISN (Information Systems Network), RS-232C LANs (Local Area Networks), or other data switches.

Figures 5-9 and 5-10 show some typical DLC applications.

1. In this chapter, the term ‘‘device’’ refers to EIA (RS-232C) equipment including data terminals, personal computers, printers, and host computers.

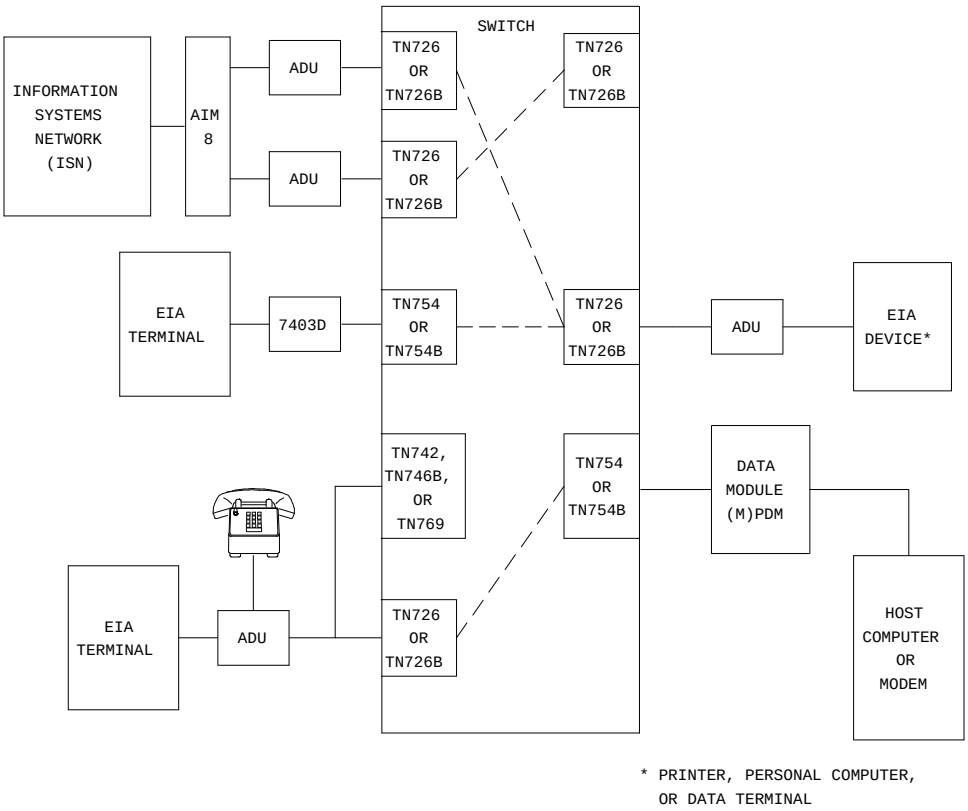


Figure 5-9. TN726 Data Line Circuit Pack Applications

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Data Extension—Enter the extension number assigned to the Data Line port. A data extension number can be from 1 to 5 digits. The digits assigned must agree with the Dial Plan Record.
- BCC (Bearer Capability Class)—Displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form. It is a display-only field. The value in the field corresponds to the speed setting of the data module. A BCC of ‘‘1’’ relates to 56-kbps, BCC values of 2, 3, and 4 relate to 64-kbps. The entry in this field should be compared with the BCC value in an associated routing pattern when attempted calls utilizing the data module fail to complete. The BCC values must be the same.

NOTE:
Refer to ‘‘Generalized Route Selection’’ in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls. The BCC value is used to determine compatibility when non-ISDN-PRI facilities are connected to ISDN facilities (ISDN-PRI Interworking feature).

- Type—enter ‘‘data-line’’.
- Port—Enter the seven-alphanumeric-digit port location to which the data module is connected. The first two characters identify the cabinet number (01–22); the third character identifies the carrier (A–E); the fourth and fifth characters identify the slot number in the carrier (01–20 for medium cabinets, 01–18 for XE cabinets, and 01–20 for the x.25 board); the last two characters identify the circuit number (01–24 for medium and XE cabinets, and 01–04 for the x.25 board).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Name—Enter the name of the user associated with the data module. The name is optional, it can be left blank.
- COS—Enter the desired class of service (COS) number from 0–15; default is 1.
- COR—Enter the desired class of restriction (COR) number from 0–95; default is 1.
- ITC (Information Transfer Capability)—Displayed when the Comm Type field is ‘‘56k-data’’ or ‘‘64k-data’’. Enter ‘‘restricted’’ or ‘‘unrestricted’’. The default value of this field is set to the value administered on the ITC field on the Feature-Related System Parameters form.
- Connected To—Enter ‘‘dte’’ (default) (Data Terminal Equipment) or ‘‘isn’’ (Information Systems Network). This field shows to what the ADU (Asynchronous Data Unit) is connected.
- List1—Enter ‘‘p’’ for personal, ‘‘s’’ for system, ‘‘g’’ for group, or ‘‘e’’ for enhanced. If ‘‘g’’ or ‘‘p’’ is entered, a group number (1–100) or personal list number (1–3) is also required.
- SPECIAL DIALING OPTION—Enter one of three dialing options that are available. This identifies the type of dialing for calls when this data module originates calls. Valid entries are ‘‘hot-line’’, ‘‘default’’, or leave blank for regular (normal) keyboard dialing.
- HOT LINE DESTINATION Abbreviated Dialing Dial Code—Displayed when Special Dialing Option is ‘‘hot-line’’. Enter a list number (associated with the above AD List) from 0–999. The associated AD (Abbreviated

Dialing) number will be dialed when the user goes off-hook on a Data Hot Line call.

- DEFAULT DIALING Abbreviated Dialing Dial Code From above list—displayed when Special Dialing Option is ''default''. Enter a list number (associated with the above AD List) from 0–999. The associated AD number will be dialed when the user goes off-hook and enters a return following the ''DIAL'' prompt. The data call originator can also perform data terminal dialing by specifying a dial string that may or may not contain alphanumeric names. Line call.
- Ext—Make no entry. The extension number is automatically assigned when the system is administered. This is the extension number of the user who has an associated Data Extension button and will share the module.
- Name—Make no entry. The name is assigned when the System is administered. This is the name assigned to this extension number.

Page 2 of the Form

Refer to ''DLC Option Settings'' following these instructions for additional information when assigning entries for the remaining fields on the form.

- KYBD Dialing—Enter ''y'' to allow keyboard dialing. This enables the data endpoint to receive and transmit text during call origination or termination. If ''y'' is entered, the Low field must be ''n''. If ''y'' is entered, complete the following applicable fields.

  This option must be enabled to allow data endpoints to originate calls via the RS-232C interface and obtain ASCII feedback text. When enabled, the user will get the dial prompt. This option is normally enabled for ''originate/receive'' DTE that has a need to set up data calls. If this option is disabled, originations cannot be done at the DTE and text feedback will not occur at the DTE during call setup/take down. Data call answering is still allowed but without text feedback.
- Configuration—Displayed when ''KYBD Dialing'' is enabled. Enter ''y'' to allow the viewing and changing of options from the DTE.

  This option is normally enabled for ''originate/receive'' DTE, such as non-intelligent terminals, and disabled for intelligent devices such as computers. Keyboard dialing must be enabled with this option.
- Busy Out—Enter ''y'' to place the DLC port in a busied-out state once the DTE control lead to the DLC is dropped. This option should be enabled for DTEs that are members of a hunt group and to allow ''busy out'' when DTE turns power off so that calls will not terminate on that DTE.
- SPEEDS—Low—Enter ''y'' to instruct the DLC to operate at a low speed from 0–1800 bits per second (bps). Enter ''n'' if ''y'' is entered in the Keyboard Dialing field.

- SPEEDS—300; 1200; 2400; 4800; 9600; 19200—Enter ‘‘y’’ beside the desired operating speed. Enter ‘‘n’’ if the speed is not desired. The DLC can be any one of these speeds. The speed will be matched for the duration of the call, from call setup to call takedown.

  When multiple speeds are selected (select three or more, do not select just two speeds) and autoadjust is disabled, the DTE’s speed must be the highest selected speed. This is required because all feedback text is delivered to the DTE at the highest selected speed.

- SPEEDS—Autoadjust—Displayed when ‘‘KYBD Dialing’’ is enabled. Enter ‘‘y’’ which tells the DLC port to automatically adjust to the operating speed and parity of the DTE it is connected to. Enter ‘‘n’’ if this option is not desired. Autoadjust can be selected with any of the speed selected in the previous step. Autoadjust allows the DLC port to determine the speed and parity of the DTE and then match itself to this speed. Autoadjust applies to calls originated by the user through Keyboard Dialing.

- Permit Mismatch—Enter ‘‘y’’ to instruct the DLC to operate at the highest selected speed, which is a higher rate than the far-end data module. Enter ‘‘n’’ if this option is not desired.

  This option allows the EIA interface to operate at a rate different than that agreed to in the data module handshake. (The data module handshake is always the highest compatible rate as determined by the reported speed option of each data module.) Permit Mismatch eliminates the need to change the DTE/DLC speed every time a call is placed to/from an endpoint operating at a different speed. When this option is enabled, the DLC reports the highest optioned speed and all the lower speeds (or the previously selected autoadjust speed) during the handshake process.

  CAUTION:
  Caution must be used when using this option to send information from a DTE/DCE that is transmitting data at higher rates than that of the far end. Sustained usage of this type transmission will result in loss of data. Whenever this option is enabled, the DTE must match the highest speed selected for the associated DLC port.

  This option is intended to be used by a DTE device operating locally at a higher baud rate than that of its far-end connection but transmitting relatively low amounts of data (for example, a user typing at a terminal). Also, this option may be selected whether or not Keyboard Dialing is selected.

  NOTE:
  The Low speed setting is not reported as an available speed when Permit Mismatch is enabled.

- Dial Echoing—Displayed when ‘‘KYBD Dialing’’ is enabled. Enter ‘‘y’’ to echo characters back to the DTE. Dial echoing should be disabled when keyboard dialing is done by an intelligent device.

- Disconnect Sequence—Displayed when ‘‘KYBD Dialing’’ is enabled. Enter ‘‘long-break’’ or ‘‘two-breaks’’ to select the sequence for a disconnect. A long-break is greater than 2 s and two-breaks is within 1 s.
- Answer Text—Displayed when ‘‘KYBD Dialing’’ is enabled. Enter ‘‘y’’ to allow text messages to be delivered to the DTE when a call is being answered. Enter ‘‘n’’ if this option is not desired.

  This option enables text feedback which is normally delivered to the DTE when a call is answered or disconnected. The Answer Text option applies to DLC-generated text as well as text received from the System. If this option is disabled, the System will still generate the text, but the DLC will prevent it from being sent to the device. This applies to the following messages:

  — INCOMING CALL

  — ANSWERED

  — DISCONNECTED

  — DISCONNECTED OTHER END.

  This option is usually disabled when the answering DTE is a computer or an intelligent device.
- Parity—Displayed when ‘‘KYBD Dialing’’ is enabled. Enter ‘‘even’’, ‘‘odd’’, ‘‘mark’’, or ‘‘space’’ to select the desired type of parity. The parities (even, odd, mark, and space) are generated by the DLC when call setup text is sent to the DTE. The DLC does not check the parity when receiving dialing characters. Parity has nothing to do with the far end; it is used by the DLC to terminal communications during call setup.
- Connected Indication—Displayed when ‘‘KYBD Dialing’’ is enabled. Enter ‘‘y’’ to give text feedback to the DTE when a connection has been established. This option generates a ‘‘CONNECTED’’ message to the DTE when the connection has been established. If KYBD Dialing is not selected, the connected indication is provided by the DLC activating its RS-232C control lead.

DLC Option Settings

The following provides additional information on the option settings for DLCs when used with the following types of devices:

- Printers
- Non-Intelligent Terminals
- Data Terminals and Personal Computers
- Host Computers
- Information Systems Network (ISN).

This information must be considered when completing the various fields on the Data Line Data Module form.

Printers

A DLC port, attached to a printer, usually terminates a data call. Therefore, in this connection, the printer is the endpoint device. The originating device may be attached to a DCP mode 2 data module (such as the MPDM) or the DLC. A Z3A ADU extends the range of the RS-232C connection.

When a receive-only printer (or any printer that does not generate the Transmit Data and DTR leads) is used, the ADU must be powered from a small plug-mounted transformer (2012D, or equivalent) connected to pins 7 and 8 of the modular jack. (Refer to *ADU User Manual*, 555-401-701, for details.)

An ADU cannot be used if the printer has hardware flow control using the Clear To Send (CTS) lead. An ADU can be used, however, if the printer is using software flow control.

A printer connected to a DLC is usually assigned as a line. Table 5-3 lists the option settings for printer connections:

Table 5-3. DLDM Form Option Settings for Printer Connection

Field On Form	Option	Comments
Speed	Highest speed at which the Printer operates	*Subject to distance limitations; Autoadjust not used*
KYBD Dialing	no	
Busy Out	yes	*If printer is member of Hunt Group*
Permit Mismatch	yes	*No, if printer is low speed*
Parity	-	*Don't care*
Dial Echoing	-	*Don't care*
Disconnect Sequence	-	*Don't care*
Answer Text	-	*Don't care*
Connected Indication	-	*Don't care*
Configuration	no	

Non-Intelligent Terminals

A non-intelligent terminal connected to the DLC is usually assigned as a line.

Table 5-4 lists the option settings for non-intelligent terminals.

Table 5-4. DLDM Form Option Settings for Connection to Non-Intelligent Terminals

Field On Form	Option	Comments
Speed	All speeds at which the terminal can operate; autoadjust	*Subject to distance limitations; Autoadjust when Keyboard Dialing is "y" and the Terminal can generate an ASCII "return"*
KYBD Dialing	yes	
Busy Out	no	*Yes, if terminal is member of a hunt group*
Permit Mismatch	yes	-
Parity	Same as DTE	
Dial Echoing	yes	*Only if KYBD Dialing is yes*
Disconnect Sequence	2 <BREAK>s	*Depends on terminal*
Answer Text	yes	
Connected Indication	-	*Don't care*
Configuration	yes	

Data Terminals and Personal Computers

An intelligent data terminal or a personal computer (PC) attached to a DLC can either originate or terminate a data call. A single ADU at the site of the originating device extends the distance signals can travel to the switch (the model ADU depends on the terminal connector). An analog telephone can be attached to this arrangement whenever an ADU uses the standard building wiring.

Table 5-5 lists the option settings used for data terminal and personal computer connections.

Table 5-5. DLDM Form Option Settings for Connection to Data Terminal or Personal Computer

Field On Form	Option	Comments
Speed	All speeds at which the Data Terminal or PC can operate	*Subject to distance limitations; Autoadjust not used*
KYBD Dialing	yes	
Busy Out	no	*Yes, if device is accessed through a hunt group*
Permit Mismatch	yes	*No, if device does not support XON/XOFF flow control*
Parity	Same as DTE	
Dial Echoing	no	*These devices can dial in the ASCII stream without human intervention*
Disconnect Sequence	Long <BREAK>	-
Answer Text	no	*These devices may not want to see any text*
Connected Indication	-	*Don't care*
Configuration	yes	

Host Computers

A host computer may originate and terminate a data call. For this application, the number of DLCs required depend on the number of ports needed. An MADU can be used (instead of eight ADUs) to complete the connection.

Table 5-6 lists option settings for a port that has a terminating connection to a host computer.

NOTE:
When Keyboard Dialing is disabled, the rest of the option settings are irrelevant.

Table 5-6. DLDM Form Option Settings for Terminating Connection to Host Computer

Field On Form	Option	Comments
Speed	All speeds at which the computer can operate	*Subject to distance limitations; Autoadjust not used*
KYBD Dialing	no	
Busy Out	-	*Don't care*
Permit Mismatch	-	*Don't care*
Parity	-	*Don't care*
Dial Echoing	-	*Don't care*
Disconnect Sequence	-	*Don't care*
Answer Text	-	*Don't care*
Connected Indication	-	*Don't care*
Configuration	-	*Don't care*

Table 5-7 shows the option settings for a port that has an originating connection from a host computer.

Table 5-7. DLDM Form Option Settings for Originating Connection from a Host Computer

Field On Form	Option	Comments
Speed	All speeds at which the computer can operate	*Subject to distance limitations; Autoadjust not used*
KYBD Dialing	yes	
Busy Out	no	*Yes, if computer is accessed through a hunt group*
Permit Mismatch	yes	*No, if computer does not support XON/XOFF flow control*
Parity	Same as DTE	
Dial Echoing	no	*The computer can dial in the ASCII stream without human intervention*
Disconnect Sequence	Long <BREAK>	-
Answer Text	no	*The computer may not want to see any text*
Connected Indication	-	*Don't care*
Configuration	no	

Information Systems Network

The DLC can also connect the Information Systems Network (ISN) to the System. The ISN can originate and terminate data calls.

Two lines are required for bidirectional data transmission between ISN and the System. As viewed by the System, these are: one terminating line (from ISN to the System) and one originating line (from the System to ISN). Fixed baud rate lines should be used in both directions.

To successfully connect the Z3A3 ADU to the DLC, a crossover cord (or 25-pair crossover cable) must be used between the DLC and the ADU. This connects the near-end pair of transmit data wires to the far-end receive pair and connects the near-end receive pair to the far-end transmit pair. Without crossover, data transfer cannot take place. Refer to *ADU User Manual*, 555-401-701, for cabling information. Another method to achieve the necessary crossover is to use the D8AM-87 cord.

An ISN connected to a DLC is usually translated as two lines. Tables 5-8 and 5-9 list the basic option settings for both the originating (outgoing) and the terminating (incoming) line. See *ISN Application Notes*, 555-300-400, for additional information.

Table 5-8. DLDM Form Option Settings for Outgoing Line to ISN

Field On Form	Option	Comments
Speed	Highest Speed at which the ISN can operate	*Subject to distance limitations; Autoadjust not used*
KYBD Dialing	no	
Busy Out	no	*Yes, if ISN is accessed through a hunt group*
Permit Mismatch	no	*The ISN can operate at higher speeds than the data communications link; data loss can occur if* **Permit Mismatch** *is yes and the ISN is transmitting*
Parity	Same as ISN	
Dial Echoing	no	*The ISN can dial in the ASCII stream without human intervention*
Disconnect Sequence	Long <BREAK>	
Answer Text	no	*The ISN may not want to see any text*
Connected Indication	-	*Don't care*
Configuration	no	

Table 5-9. DLDM Form Option Settings for Incoming Line From ISN

Field On Form	Option	COMMENTS
Speed	Highest Speed at which the ISN can operate	*Subject to distance limitations; Autoadjust not used*
KYBD Dialing	yes	
Busy Out	-	*Don't care*
Permit Mismatch	no	*The ISN can operate at higher speeds than the data communications link; yes, if ISN has its Outgoing port set to high speed such as 9.6-kbps and the far-end connections will be at no greater than 9.6-kbps*
Parity	Same as ISN	
Dial Echoing	yes	
Disconnect Sequence	Long <BREAK>	
Answer Text	no	*The ISN may not want to see any text*
Connected Indication	-	*Don't care*
Configuration	no	

```
                              DATA MODULE                          Page 1 of 2

   Data Extension:       BCC: __      Type: data-line         Port: _______
            Name: _________________     COS: 1_                  COR: 1_
     Connected To: dte_                                          ITC: restricted

ABBREVIATED DIALING
  List1: _____________

SPECIAL DIALING OPTION: _____
   HOT LINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (From above list): _

ASSIGNED MEMBER ( Station with a data extension button for this data module )
        Ext      Name
     1: _____    ___________
```

Data Line Data Module Form (Page 1 of 2)

Implementation Note:

This page is displayed when the Data Module field on Page 1 of the Station form is ‘‘y’’.

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

Hot Line Destination is displayed when the Special Dialing Option field is ‘‘hot-line’’.

Default Dialing is displayed when the Special Dialing Option field is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’ or ‘‘default’’.

```
                                DATA MODULE                Page 2 of 2
CAPABILITIES
               KYBD Dialing? y                     Configuration? n
                   Busy Out? n
SPEEDS
      Low? y           1200? y           4800? y          19200? y
      300? y           2400? y           9600? y     Autoadjust? n
OPTIONS
            Permit Mismatch? n                     Dial Echoing? y
        Disconnect Sequence: two-breaks             Answer Text? y
                      Parity: even          Connected Indication? y
```

NOTE:
If KYBD Dialing is ‘‘y’’, the above page is displayed.

```
                                DATA MODULE                Page 2 of 2
CAPABILITIES
               KYBD Dialing? n
                   Busy Out? n
SPEEDS
      Low? y           1200? y           4800? y          19200? y
      300? y           2400? y           9600? y
OPTIONS
            Permit Mismatch? n
```

NOTE:
If KYBD Dialing is ‘‘n’’, the above page is displayed.

Data Line Data Module Form (Page 2 of 2)

Processor/Trunk Data Modules

These forms are used to assign Modular Processor Data Modules (MPDMs) and Modular Trunk Data Modules (MTDMs). One form is required for assigning MPDMs (700A, 700D) or 7400B Data Modules and another form for MTDMs (700B, 700C, 700E, 7400A). One form must be completed for each MPDM, 7400B, or MTDM.

The MPDM or 7400B Data Module provides a Data Communications Equipment (DCE) interface for connection to equipment such as data terminals, CDR output devices, on-premises administration terminal, Message Server, Property Management System (PMS), AUDIX, and host computers. It also provides a Digital Communications Protocol (DCP) interface to the digital switch. (DCE is the equipment on the network side of a communications link that provides all the functions required to make the binary serial data from the source or transmitter compatible with the communications channel.)

The MTDM provides an Electronic Industries Association (EIA) Data Terminal Equipment (DTE) interface for connection to off-premises private line trunk facilities or a switched telecommunications network and a DCP interface for connection to the digital switch. (DTE is the equipment comprising the endpoints in a connection over a data circuit. For example, in a connection between a data terminal and a host computer, the terminal, the host, and their associated modems or data modules make up the DTE.) The MTDM or 7400A Data Module can also serve as part of a conversion resource for Combined Modem Pooling.

Form Instructions

These instructions can be used to assign an MPDM and an MTDM. The differences in the fields on the forms are explained in the instructions.

NOTE:
Administration instructions for a 7400B Data Module associated with a 7400D-series voice terminal are provided in the appropriate voice terminal information provided later in this chapter.

Make assignments as required for the following fields on the form:

- Data Extension—When completing a paper form, enter the extension number to be assigned to the data module. A data extension can be a 1- to 5-digit number. The digits assigned must agree with the Dial Plan Record. When implementing the form, ''Data Extension'' is part of the input command used to access the form and is a display-only field.
- BCC (Bearer Capability Class)—Displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form. It is a display-only field. The value in the field corresponds to the speed setting of the data module. A BCC of ''1'' relates to 56-kbps, BCC values of 2, 3, and 4 relate to 64-kbps. This field may be compared with the BCC value in an associated routing pattern when attempted calls utilizing the data module fail to complete. The BCC values must be the same.

NOTE:
Refer to ‘‘Generalized Route Selection’’ in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls. The BCC value is used to determine compatibility when non-ISDN-PRI facilities are connected to ISDN facilities (ISDN-PRI Interworking feature).

- Type—Enter ‘‘pdm’’ (default) when assigning a DCE interface or ‘‘tdm’’ when assigning a DTE interface.
- Port—Enter the seven-alphanumeric-digit port location to which the data module is connected. The first two characters identify the cabinet number (01–22); the third character identifies the carrier (A–E); the fourth and fifth characters identify the slot number in the carrier (01–20 for medium cabinets, 01–18 for XE cabinets, and 01–20 for the x.25 board); the last two characters identify the circuit number (01–24 for medium and XE cabinets, and 01–04 for the x.25 board).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

- Name—Enter the name of the user associated with the data module. The name is optional, it can be left blank.
- COS—Enter the desired class of service (COS) number from 0–15; default is 1.
- COR—Enter the desired class of restriction (COR) number from 0–95; default is 1.
- ITC (Information Transfer Capability)—Displayed when the Comm Type field is ‘‘56k-data’’ or ‘‘64k-data’’. Enter ‘‘restricted’’ or ‘‘unrestricted’’. The default value of this field is set to the value administered on the ITC field on the Feature-Related System Parameters form.
- Connected To—Enter ‘‘dte’’ if the data module is connected to Data Terminal Equipment (DTE) or enter ‘‘isn’’ if connected to an Information Systems Network (ISN).

- Remote Loop-Around Test—Enter ‘‘y’’ if the data module supports a loop-back test at the EIA interface. In general, AT&T equipment will support this test but it is not required by Level 2 Digital Communications Protocol.
- ABBREVIATED DIALING List1—Enter ‘‘p’’ for personal, ‘‘s’’ for system, ‘‘g’’ for group, or ‘‘e’’ for enhanced. If ‘‘g’’ or ‘‘p’’ is entered, a group number (1–100) or personal list number (1–3), respectively, is also required. The entry in this field and the following HOT LINE DESTINATION field support the Data Hot Line feature. This field can be left blank.
- SPECIAL DIALING OPTION—Enter one of three dialing options that are available. This identifies the type of dialing for calls when this data module originates calls. Valid entries are ‘‘hot-line’’, ‘‘default’’, or leave blank for regular (normal) keyboard dialing.
- HOT LINE DESTINATION—Abbreviated Dialing Dial Code—Displayed when Special Dialing Option is ‘‘hot-line’’. Enter a list number (associated with the above AD List) from 0–999. The associated AD number will be dialed when the user goes off-hook on a Data Hot Line call.
- DEFAULT DIALING Abbreviated Dialing Dial Code From above list—Displayed when Special Dialing Option is ‘‘default’’. Enter a list number (associated with the above AD List) from 0–999. The associated AD number will be dialed when the user goes off-hook and enters a return following the ‘‘DIAL’’ prompt. The data call originator can also perform data terminal dialing by specifying a dial string that may or may not contain alphanumeric names. Default is blank.
- Ext—Make no entry. The extension number is automatically assigned when the system is administered. This is the extension number of the user who has an associated Data Extension button and will share the module.
- Name—Make no entry. The name is automatically assigned when the System is administered. This is the name assigned to the above extension number.

```
                                DATA MODULE                          Page 1 of 1

   Data Extension: _____   BCC: __     Type: pdm_________        Port: __
             Name: _________________     COS: 1_                   COR: 1_
                                                                   ITC: restricted
      Connected To: dte                        Remote Loop-Around Test: __
    ABBREVIATED DIALING
      List1: _____________
SPECIAL DIALING OPTION: _____
   HOT LINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (From above list): _
ASSIGNED MEMBER ( Station with a data extension button for this data module )
        Ext      Name
     1: _____    ___________
```

MPDM/MTDM Data Module Form (Page 1 of 1)

Implementation Note:

The Type field may be either ‘‘pdm’’ or ‘‘tdm’’. If ‘‘tdm’’ is entered, the Connected to field is not displayed.

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

HOT LINE DESTINATION is displayed when the SPECIAL DIALING OPTION field is ‘‘hot-line’’.

DEFAULT DIALING is displayed when the SPECIAL DIALING OPTION field is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’ or ‘‘default’’.

System Port Data Modules

These forms are used to assign System Port Data Modules in the System.

Form Instructions

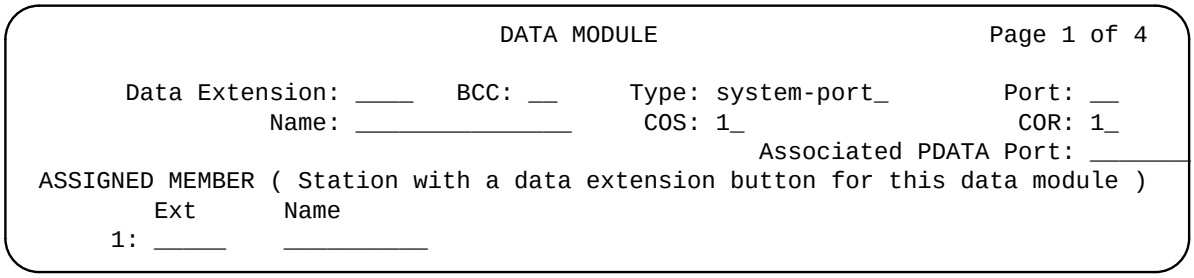
These instructions can be used to assign an System Port data module. Make assignments as required for the following fields on the form:

- Data Extension—Display-only field. A 1- to 5-digit extension number to be assigned to the data module. These digits must agree with the Dial Plan Record.

- BCC (Bearer Capability Class)—Displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form. It is a display-only field. The value in the field corresponds to the speed setting of the data module. A BCC of ''1'' relates to 56-kbps, BCC values of 2, 3, and 4 relate to 64-kbps. This field may be compared with the BCC value in an associated routing pattern when attempted calls utilizing the data module fail to complete. The BCC values must be the same.

  NOTE:
  Refer to ''Generalized Route Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls. The BCC value is used to determine compatibility when non-ISDN-PRI facilities are connected to ISDN facilities (ISDN-PRI Interworking feature).

- Type—Enter ''system-port''.
- Port—Enter the seven-alphanumeric-digit port location to which the data module is connected. The first two characters identify the cabinet number (01–22); the third character identifies the carrier (A–E); the fourth and fifth characters identify the slot number in the carrier (01–20 for medium cabinets, 01–18 for XE cabinets); the last two characters identify the circuit number (01–08).
- Name—Enter the name of the user associated with the data module. The name is optional, it can be left blank.
- COS—Enter the desired class of service (COS) number from 0–15; default is 1.
- COR—Enter the desired class of restriction (COR) number from 0–95; default is 1.
- Associated PDATA Port—Used to relate the physical PDATA port to which the mode 3 portion of the system port is connected. Enter a seven-alphanumeric-digit port location to which the data module is connected where the first two characters identify the cabinet number (01–22); the third character identifies the carrier (A–E); the fourth and fifth characters identify the slot number in the carrier (01–20 for medium cabinets, 01–18 for XE cabinets); the last two characters identify the circuit number (01–12). This entry must be assigned to a port on a PDATA Line Board.
- ASSIGNED MEMBER — Ext—Make no entry. This is the extension number of the user (previously administered) with associated Data Extension buttons who will share the module.
- ASSIGNED MEMBER — Name—Make no entry. This is the name assigned to the above extension number.



System Port Data Module Form (Page 1 of 4)

X.25 Data Modules

These forms are used to assign BX.25 Data Modules in the System for communications to Adjuncts and other nodes in a DCS network. Each one of these data modules must correspond to an entry in the Interface Link form.

Form Instructions

These instructions can be used to assign an X.25 data module. Make assignments as required for the following fields on the form:

- Data Extension—When completing a paper form, enter the extension number to be assigned to the data module. A data extension can be a 1- to 5-digit number. The digits assigned must agree with the Dial Plan Record. When implementing the form, ''Data Extension'' is part of the input command used to access the form and is a display-only field.
- BCC (Bearer Capability Class)—Displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form. It is a display-only field. The value in the field corresponds to the speed setting of the data module. A BCC of ''1'' relates to 56-kbps, BCC values of 2, 3, and 4 relate to 64-kbps. This field may be compared with the BCC value in an associated routing pattern when attempted calls utilizing the data module fail to complete. The BCC values must be the same.

  NOTE:
  Refer to ''Generalized Route Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls. The BCC value is used to determine compatibility when non-ISDN-PRI facilities are connected to ISDN facilities (ISDN-PRI Interworking feature).

- Type—Enter ''x.25''.

- Port—Enter the seven-alphanumeric-digit port location to which the data module is connected. The first two characters identify the cabinet number (01–22); the third character identifies the carrier (A–E); the fourth and fifth characters identify the slot number in the carrier (01–20 for medium cabinets, 01–18 for XE cabinets, and 01–20 for the x.25 board); the last two characters identify the circuit number (01–24 for medium and XE cabinets, and 01–04 for the x.25 board).

  NOTE:
  When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment.

- Name—Enter the name of the user associated with the data module. The name is optional, it can be left blank.
- COS—Enter the desired class of service (COS) number from 0–15; default is 1.
- COR—Enter the desired class of restriction (COR) number from 0–95; default is 1.
- Endpoint Type—Must be assigned as ''adjunct''. An endpoint type is a type of packet switched data endpoint that uses X.25 call control procedures. The X.25 Endpoint connects to external ports on the PGATE board and to the TDM bus via a DS1 trunk. Ports connected to the adjunct endpoint can be either DTEs or DCEs. The type of endpoint (DTE or DCE) is administerable on the ''data-mod'' form.
- DTE/DCE—Specifies how the above endpoint type will act (DTE or DCE); default is ''dte''.
- Baud Rate—The maximum raw data transmission speed (300, 1200, 2400, 4800, 9600, or 19200; may also be ''switched'' if the Cable Type field on the PGATE form is set to ''none''); default is blank.
- Error Logging—To record X.25 protocol errors in the hardware error log, enter ''y''. Refer to *Generic 3r—Maintenance* (555-230-105) for more information about error logs.
- Remote Loop-Around Test—To allow remote loop-around tests on this port, enter ''y''. A ''n'' will abort a request for this test. Refer to *Generic 3r—Maintenance* (555-230-105) for more information about remote loop-around tests.
- Permanent Virtual Circuit—Indicates that the logical channels for PVC are allowed for this port; default is ''y'' (cannot be changed).
- Switched Virtual Circuit—Indicates that the Switched Virtual Circuit is not allowed for this port; default is ''n'' (cannot be changed).
- Highest PVC Logical Channel—Indicates that 1–64 Logical Channels are allowed on this port; default is 64 (cannot be changed).

```
                              DATA MODULE                          Page 1 of 2

Data Extension: 20000              Type: x.25________          Port: 01C0301
          Name: G2 DCIU LINK 4      COS: 1_                     COR: 1_
 Endpoint Type: adjunct         DTE/DTC: dce             Baud Rate: 9600
 Error Logging? y                         Remote Loop-Around Test? n

   Permanent Virtual Circuit? y          Highest PVC Logical Channel: 64
    Switched Virtual Circuit? n
```

X.25 Data Module Form (Page 1 of 2)

Form Instructions for Page 2 of the Adjunct Form:

- Number of Outstanding Frames (w)—Specifies layer 2 window size (1–7 frames). If the value is 2, up to 2 frames can be sent without confirmation.
- Retry Attempt Counter (N2)—Specifies the number of times (0–7) to send one frame when this frame is not confirmed for a period of time; default is 2.
- Frame Size (N1)—Specifies the number of bytes (135 or 263) in a frame; default is 135. If the value is ‘‘135’’, there can be up to 1080 bits within a frame. This value is suitable for all adjuncts and for DCS.
- Retransmission (T1) Timer (1/10 seconds)—The T1 timer is started at the beginning or the end of the transmission of a frame. At the end of this timer (0–250), retransmission of a frame will be initiated according to the procedures for link set-up and disconnection or information transfer; default is 10.
- Idle (T4) Timer (1/10 seconds)—The T4 timer is a system parameter which represents the time a DTE will allow without frames being exchanged on the data link (0–250); default is 30.
- Number of Outstanding Packets—Specifies the number of packets (2–7) that can be sent without confirmation; default is 2.
- Restart (T20) Timer (seconds)—The T20 timer is a DTE time-limit (0–500) started when DTE issues a restart indication and terminated when the restart request is received or confirmed; default is 8.
- Reset (T22) Timer (seconds)—The T22 timer is a DTE time-limit (0–500) started when DTE issues a reset indication and terminated when the reset request is received or confirmed; default is 180.

```
                                DATA MODULE                          Page 2 of 2
LAYER 2 PARAMETERS
         Number of Outstanding Frames (w): 2
               Retry Attempt Counter (N2): 2
                           Frame Size (N1): 135
 Retransmission (T1) Timer (1/10 seconds): 10
           Idle (T4) Timer (1/10 seconds): 30

LAYER 3 PARAMETERS
  Number of Outstanding Packets: 2
  Restart (T20) Timer (seconds): 8
    Reset (T22) Timer (seconds): 180
```

Adjunct Data Module Form (Page 2 of 2)

Dial Plan

The Dial Plan is the System's guide to translating the digits dialed by various System users. Refer to ''Dial Plan'', ''Single-Digit Dialing'', and ''Mixed Station Numbering'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for additional information. Typical Dial Plan examples are shown for both Single-Digit and Mixed Station Numbering.

Administration Commands

The following administration commands can be used to access the Dial Plan Record form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	dialplan	—
display	dialplan	[print or schedule]

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Area Code—Enter the area code number where the System is located. Valid entries are any area code in the form NXX where N is any digit 2–9 and X is any digit 0–9. Entry must be all digits.
- Local Node Number—Enter a number from 1–63 to uniquely identify a node in a PBX network. The PBX ID is used by the automatic restoration capability of Administered Connections. The PBX ID entry sets the DCS switch node number and the CDR node number if they are specified. The field may be left blank if automatic restoration, DCS, and CDR are not used.
- ETA Node Number—Enter the number of the destination switch for ETA calls.
- ETA Routing Pattern—Enter the number of the routing pattern to reach the destination switch.
- ARS Prefix 1 Required—Enter ''y'' (default) if dialing a ''1'' is required to call an area code. Enter ''y'' if the office codes in the HNPA are interchangeable with NPAs. Requiring a ''1'' Prefix is typically used within those area codes where local central office codes resemble area codes (middle digit is a ''0'' or a ''1''). For example: 201 in New Jersey, or 212 in New York.
- Uniform Dialing Plan—Enter ''y'' if a Uniform Dialing Plan is to be administered on this switch; otherwise, enter ''n'' (default).

  NOTE:
  The Uniform Dialing Plan option must be enabled on the System-Parameters Customer-Option form before a ''y'' can be entered in this field.

  The UDP provides a common 4- or 5-digit dial plan that can be shared among a group of switches. Interswitch dialing and intraswitch dialing both require 4- or 5-digit dialing.

  NOTE:
  Local extensions of fewer digits can still be administered, but cannot be reached from other switches.

  The Uniform Dial Plan (UDP) is used with Electronic Tandem Network (ETN), Main/Satellite/Tributary, and Distributed Communications System (DCS) configurations. Additionally, UDP can be used alone to provide uniform 4- or 5-digit dialing between two or more private switching systems without ETN, Main/Satellite/Tributary, or DCS configurations.

- Plan Length—Displayed when Uniform Dialing Plan is ‘‘y’’. Enter the number of digits in the UDP. Valid entries are ‘‘4’’ (default) or ‘‘5’’. These numbers are used to signify the use of a 4- or 5-digit Dial Plan.
- FIRST DIGIT TABLE—The First Digit table consists of fields for each possible first digit and dialed number length. The first digit ranges from 0–9 plus the * (star) and # (pound) symbols. The dialed digit length ranges from 1–6. Entries on the table (referred to as dial types) can be the following:
  - — blank (no object is assigned)—All fields default to blank except for the first digit of 0 and dialed digit length of 1, which is assigned as ‘‘attendant’’. Users dialing the single digit 0 will be connected to the attendant group.
  - — ‘‘extension’’ (primary extension number)—can have a first digit of 1–9 (* and # not allowed) and a dialed digit length of 1–5. For example, if extension numbers 400–499 are required, ‘‘extension’’ is entered at the intersection of the ‘‘-3-’’ column and the First Digit ‘‘4’’ row. If a 4-digit number is administered with a first digit of 6, the extension numbers 6000–6999 will be allowed (‘‘extension’’ is entered at the intersection of the ‘‘-4-’’ column and the First Digit ‘‘6’’ row).

    NOTE:
    The ‘‘extension’’ cannot have the same first digit as the ARS or AAR facility access code (FAC).

  - — ‘‘fac’’ (feature access code)—can have a first digit of 1–9 plus the * (star) and # (pound) symbols. A FAC can be from one to three digits in length. The * and # symbols count as a digit each when used and must be the first digit. For example, *2 could be used to activate a feature and #2 used to deactivate the feature. It is recommended that a FAC be the last item entered in a row when mixed numbering is used. Otherwise, problems may be encountered when 3-digit FACs and 4-digit extension numbers begin with the same first digit and the FAC is an abbreviated dialing list access code. If the abbreviated dial list entry that a user wants to dial in on a station feature button, no problems will be encountered in dialing. If a user manually dials the access code and the list entry number, he/she must wait for the interdigit time-out to expire after dialing the list access code and before dialing the list entry number. Otherwise, the call will go to intercept or to an extension number.

— ‘‘tac’’ (trunk access code)—can have a first digit of 1–9 (* and # not allowed) and be one to three digits in length. For example, 9 could be used for local trunk access, 8 for Wide Area Telecommunications System (WATS) trunk access, and 7 for tie trunk access. A TAC must be the last item entered in a row when mixed station numbering is used.

NOTE:
The ‘‘tac’’ cannot have the same first digit as the ARS or AAR facility access code (FAC).

— ‘‘attendant’’—the attendant group number is fixed at the single digit 0 (default) and cannot be changed. Individual attendant access is provided by assigning each attendant an individual extension number.

— ‘‘prefixed extension’’—is made up of a prefix (first digit) which can be a 1–9 (* and # not allowed) and an extension number of up to five digits in length. The maximum length of a prefix and extension combination is six digits. When a prefixed extension is entered in the dial plan, no other dial type (that is, extension, fac, tac) or prefixed extension can be entered on the same row on the table. The purpose of the prefix is to identify the dial type as an extension. After digit collection, the prefix digit is removed from the string of dialed digits. The remaining digits (extension number) are then processed. A prefixed extension allows the use of extensions numbers with any first digit (the extension length must be specified on the table).

NOTE:
The ‘‘prefixed extension’’ cannot have the same first digit as the ARS or AAR facility access code (FAC).

NOTE:
When a dial plan has mixed station numbering, extension numbers of various lengths (all with the same first digit) are mapped on the First Digit table as shown on page 1 of the form. The System then employs an interdigit time-out to ensure that all dialed digits are collected. The interdigit time-out may add several seconds to the dial time. An alternative to the delay required in the time-out mechanism at the expense of dialing an extra digit is to use prefixed extensions in the dial plan.

— ‘‘misc’’—To be provided.

Dial Plan for Hotel/Motel Use

The dial plan can be implemented to provide easy access to internal hotel/motel services and to provide the capability to associate room numbers with guest room voice terminals. These numbers can be printed on a faceplate (not provided by AT&T) which can be placed over the front of the voice terminal. Figure 5-10 provides an example of how the numbers and features can be used on a faceplate.

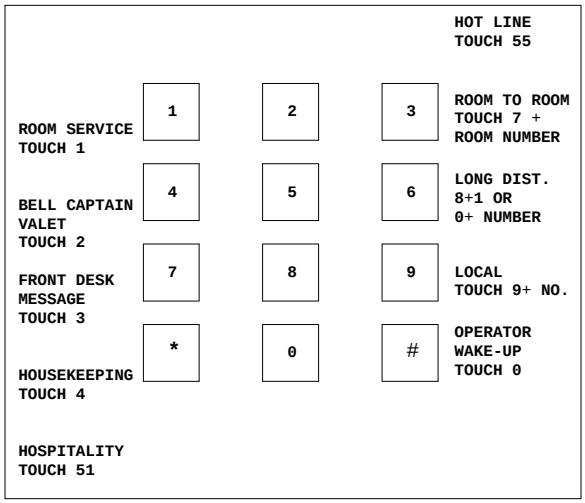


Figure 5-10. Typical Hotel/Motel Feature Assignments

```
                              DIAL PLAN RECORD

                  Area Code: ___                    Local Node Number: __
       ARS Prefix 1 Required? y                       ETA Node Number: ___
        Uniform Dialing Plan? n  Plan Length: _   ETA Routing Pattern: ___
FIRST DIGIT TABLE
First                                  Length
Digit  - 1 -       - 2 -       - 3 -       - 4 -       - 5 -       - 6 -
  1: __________  __________  __________  __________  __________  __________
  2: __________  __________  __________  __________  __________  __________
  3: __________  __________  __________  __________  __________  __________
  4: __________  __________  __________  __________  __________  __________
  5: __________  __________  __________  __________  __________  __________
  6: __________  __________  __________  __________  __________  __________
  7: __________  __________  __________  __________  __________  __________
  8: __________  __________  __________  __________  __________  __________
  9: __________  __________  __________  __________  __________  __________
  10: _________  __________  __________  __________  __________  __________
  11: _________  __________  __________  __________
  12: _________  __________  __________  __________
```

Dial Plan Record Form (Page 1 of 1)

Digit Absorption

This form is used to implement up to five digit absorption lists. The form may be required for each CO and FX trunk group connected to a step-by-step central office. Each outgoing digit string from the switch to the step-by-step office is treated per entries in the ‘‘Absorption Treatment Assignment’’ section of the form.

Administration Commands

The following administration commands can be used to access the Digit Absorption form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	digit-absorption	0–4
display	digit-absorption	0–4 [print or schedule]

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

- List Number—This is a display-only field when accessed during administration using a command such as *change* or *display*. When completing a paper form, enter a list number 0, 1, 2, 3, or 4. The list number is referenced via field entry on the associated trunk group. Up to five different Digit Absorption forms may be administered.
- ABSORPTION TREATMENT ASSIGNMENT—0, 1, 2 , 3, 4, 5, 6, 7, 8, or 9—Enter a desired treatment letter (A-F); default is A. All choices for the digits 0–9 must be taken from the same group (Group I or Group II).

```
                            DIGIT ABSORPTION                    Page  1 of 1

                          List Number: __
ABSORPTION TREATMENT INFORMATION (All selections must be from same group)
              Choice      Meaning
  Group I.      A       Digit not absorbed.
                B       Digit absorbed repeatedly.
                C       Digit absorbed once with no further absorption.
  Group II.     A       Digit not absorbed.
                D       Digit absorbed only if it is the first digit.
                E       Digit absorbed only if it is the second digit and
                        the first digit was already absorbed.
                F       Digit absorbed only if it is the first or second digit.
ABSORPTION TREATMENT ASSIGNMENT (Select treatment (A-F) for each digit below)
        0: A          2: A         4: A         6: A         8: A
        1: A          3: A         5: A         7: A         9: A
```

Digit Absorption Form (Page 1 of 1)

Duplication

To be provided.

Extended Trunk Access Call Screening

This form is used to allow a set of digit strings to be identified that should not be routed via ETA. This form can also block the routing of certain FACs or TACs. For example, if the system administrator were to notice a digit string being mistakenly dialed repeatedly which ended up being routed via ETA to a remote PBX only to have the remote PBX return intercept treatment, then that digit string would be a candidate for the entry into the ETA call screening table. Entry into this table would have the effect of return intercept treatment to the caller without first attempting to route the digits to the remote PBX for interpretation via ETA.

Administration Commands

The following administration commands can be used to access the Extended Trunk Access Call Screening form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	eta	
change	eta	
delete	eta	
display	eta	

* Brackets [ ] indicate the qualifier is optional. Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form.

- Call Screening Entry—Assign those digit strings (up to 10) that should be blocked for this RNX. Each string can have up to 6 digits and/or special or wildcard characters.

```
                          ETA CALL SCREENING TABLE              Page 1 of 1
Entry
  No. Call Screening Entry
   0: _______
   1: _______
   2: _______
   3: _______
   4: _______
   5: _______
   6: _______
   7: _______
   8: _______
   9: _______
```

Extended Trunk Access Call Screening Form (Page 1 of 1)

Extension Number Portability (ENP) Numbering Plan

This form is used to convert a 4- or 5-digit Uniform Dialing Plan (UDP) extension to an AAR-like 7-digit ENP number. Conversion of a 5-digit UDP extension is done by replacing the leading digit (10 thousands digit) with a 3-digit ENP code; the conversion of a 4-digit UDP extension is done by prepending a 3-digit ENP code to the UDP extension. UDP extensions are converted to ENP numbers if node number routing is specified for the extensions in the UDP table. The 3-digit ENP conversion codes are specified by ENP Numbering Plan administration. The ENP Numbering Plan specifies which 3-digit ENP code is to be used with each extension starting with the same one or two leading digits. ENP codes are different from AAR location codes because they are location-independent within the ENP sub-network. That is, each 3-digit ENP code is administered to be home (AAR digit conversion to extension) on every node within the ENP sub-network.

This feature allows stations to be moved across PBXs while retaining the original extension number, as long as these PBXs are part of the ENP subnetwork.

NOTE:
Though up to 100 3-digit ENP codes can be used, only 1 ENP code is required for a 4-digit UDP; 5-digit UDP requires only 1 ENP code for each leading digit of extensions used within the ENP sub-network.

DCS message signaling links are not required to support ENP. As a result, many multiple switch configurations are possible with ENP. Typically the ENP network will be a subnetwork of a UDP or ETN network.

NOTE:
Both the UDP customer option and on the Dial Plan administration fields must be administered to ''y'' before ENP Numbering Plan administration is allowed. If the UDP customer option is not administered to ''y'', then enp-number-plan is not even listed as an option to the administrator; if UDP is administered to ''y'', then the option is available, but the command is denied if UDP is not also administered to ''y'' on the Dial Plan form.

The UDP plan length is also administered on the Dial Plan form. This plan length determines if an additional check should be made when the ENP Numbering Plan form is submitted.

All ENP codes specified in the ENP Numbering Plan should be administered as home in AAR Digit Conversion administration, but there is no automatic cross checking to verify that ENP codes have been administered correctly in AAR.

Administration Commands

The following administration commands can be used to access the ENP Numbering Plan form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	enp-number-plan	
display	enp-number-plan	

* Brackets [ ] indicate the qualifier is optional. Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form.

- ENP Code—Assign a three-digit code (000–999) to translate each 4- or 5-digit UDP extension that is node number routed to a 7-digit, AAR-like number used for outpulsing a call within an ENP sub-network. This field maps each leading digit of a UDP extension to an ENP Code.

```
                          EXTENSION NUMBER PORTABILITY              Page 1 of 1
                                NUMBERING PLAN

    ENP      ENP      ENP      ENP      ENP      ENP      ENP      ENP      ENP      ENP
   Code     Code     Code     Code     Code     Code     Code     Code     Code     Code
0x: ___ 1x: ___ 2x: ___ 3x: ___ 4x: ___ 5x: 234 6x: ___ 7x: ___ 8x: ___ 9x: ___

00: ___ 10: ___ 20: ___ 30: ___ 40: ___ 50: ___ 60: ___ 70: ___ 80: ___ 90: ___
01: ___ 11: ___ 21: ___ 31: ___ 41: ___ 51: 567 61: ___ 71: ___ 81: ___ 91: ___
02: ___ 12: ___ 22: ___ 32: ___ 42: ___ 52: ___ 62: ___ 72: ___ 82: ___ 92: ___
03: ___ 13: ___ 23: ___ 33: ___ 43: ___ 53: ___ 63: ___ 73: ___ 83: ___ 93: ___
04: ___ 14: ___ 24: ___ 34: ___ 44: ___ 54: ___ 64: ___ 74: ___ 84: ___ 94: ___
05: ___ 15: ___ 25: ___ 35: ___ 45: ___ 55: ___ 65: ___ 75: ___ 85: ___ 95: ___
06: ___ 16: ___ 26: ___ 36: ___ 46: ___ 56: ___ 66: ___ 76: ___ 86: ___ 96: ___
07: ___ 17: ___ 27: ___ 37: ___ 47: ___ 57: ___ 67: ___ 77: ___ 87: ___ 97: ___
08: ___ 18: ___ 28: ___ 38: ___ 48: ___ 58: ___ 68: ___ 78: ___ 88: ___ 98: ___
09: ___ 19: ___ 29: ___ 39: ___ 49: ___ 59: ___ 69: ___ 79: ___ 89: ___ 99: ___
```

Extension Number Portability Numbering Plan Form (Page 1 of 1)

Feature Access Codes

This form is used to assign feature access codes (FACs) that, when dialed, will activate or cancel certain System features.

Administration Commands

The following commands are used to access the Feature Access Codes form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	feature-access-codes	—
display	feature-access-codes	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Pages 1–4 of the Form

- In each field that ends with **Access Code**—enter the digits required to access the feature.

  The Emergency Access to Attendant Access Code cannot be used if the feature is not enabled on the System-Parameters Customer-Options form.

  The access codes assigned to the Housekeeping Status (Client Room) and Housekeeping Status (Station) are assigned to reflect the customer requirements. These codes are transmitted to the Property Management System (PMS) for processing.

- In each field that ends with **Activation**—enter the digits required to activate the feature.
- In each field that ends with **Deactivation**—enter the digits required to cancel or deactivate a feature.

Valid entries are a 1- to 3-digit number consisting of the digits 0–9; * and # can be used as the first digit.

```
                              FEATURE ACCESS CODE (FAC)          Page 1 of 4

           Abbreviated Dialing List1 Access Code: 2101
           Abbreviated Dialing List2 Access Code: 2102
           Abbreviated Dialing List3 Access Code: 2103
                        Announcement Access Code: ____
                         Answer Back Access Code: 2120
         Auto Alternate Routing (AAR) Access Code: ____
         Auto Route Selection (ARS) Access Code 1: ____  Access Code 2: ____
                    Automatic Callback Activation: *5__   Deactivation: #5__
                       Call Forwarding Activation: *2__   Deactivation: #2__
                            Call Park Access Code: 2115   (see Note)
                          Call Pickup Access Code: *7__
  CAS Remote Hold/Answer Hold-Unhold Access Code: ____
                     CDR Account Code Access Code: ____
                     Data Origination Access Code: 2134
                         Data Privacy Access Code: 2135
       Emergency Access To Attendant Access Code: ____
                  Facility Test Calls Access Code: 2197
```

Feature Access Code Form (Page 1 of 4)

Implementation Notes:

The Emergency Access to Attendant Access Code field is displayed when the optional Emergency Access to the Attendant feature has been enabled on the System-Parameters Customer-Options form.

Call Park Access Code—Do not administer to have the same first digit as another feature access code that is longer in length.

```
                              FEATURE ACCESS CODE (FAC)        Page 2 of 4

            Group Control Restrict Activation: 2125    Deactivation: 2126
                   Hunt Group Busy Activation: *8__    Deactivation: #8__
               Last Number Dialed Access Code: *9__
     Leave Word Calling Message Retrieval Lock: *1__
   Leave Word Calling Message Retrieval Unlock: #1__
             Leave Word Calling Send A Message: *4__
          Leave Word Calling Cancel a Message: #4__
              Malicious Call Trace Activation: ____    Deactivation: ____
                   Print Messages Access Code: ____
                 Priority Calling Access Code: 2117
                         Program Access Code: *0__
                    Send All Calls Activation: *3__    Deactivation: #3__
Terminal Translation Initialization Merge Code: ____ Separation Code: ____
                         Transfer into AUDIX: ____ (see Note)
          Trunk Answer Any Station Access Code: 112
              User Control Restrict Activation: 2105    Deactivation: 2106
  Voice Coverage Message Retrieval Access Code: ____
 Voice Principal Message Retrieval Access Code: ____
```

Feature Access Code Form (Page 2 of 4)

Implementation Note:

Transfer into AUDIX Access Code—Do not administer to have the same first digit as another feature access code that is longer in length.

```
                        FEATURE ACCESS CODE (FAC)           Page 3 of 4
                    Automatic Call Distribution Features

                   After Call Work Access Code: ____
                            Assist Access Code: ____
                          Auto-In Access Code: ____
                         Aux Work Access Code: ____
                            Login Access Code: ____
                           Logout Access Code: ____
                        Manual-In Access Code: ____
```

Feature Access Code Form (Page 3 of 4)

Implementation Note:

The ACD split group features are displayed when the optional ACD feature has been enabled on the System-Parameters Customer-Options form.

```
                    FEATURE ACCESS CODE (FAC)          Page 4 of 4

                         Hospitality Features
                   Automatic Wakeup Call Access Code: _______
        Housekeeping Status (Client Room) Access Code: _______
        Housekeeping Status (Client Room) Access Code: _______
        Housekeeping Status (Client Room) Access Code: _______
        Housekeeping Status (Client Room) Access Code: _______
        Housekeeping Status (Client Room) Access Code: _______
        Housekeeping Status (Client Room) Access Code: _______
            Housekeeping Status (Station) Access Code: _______
            Housekeeping Status (Station) Access Code: _______
            Housekeeping Status (Station) Access Code: _______
            Housekeeping Status (Station) Access Code: _______
               Verify Wakeup Announcement Access Code: _______
                     Voice Do Not Disturb Access Code: _______
```

Feature Access Code Form (Page 4 of 4)

Implementation Notes:

The Hospitality features are displayed when the Hospitality feature has been enabled on the System-Parameters Customer-Options form.

This page may be page 3 of 3 if ACD is not enabled.

Feature-Related System Parameters

This form is used to implement System parameters associated with various System features.

Administration Commands

The following administration commands can be used to access the Feature-Related System Parameters form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	system-parameters features	—
display	system-parameters features	[’print’ or ’schedule’]

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Additional information on the parameters listed below can be found within feature descriptions of the same name by referring to *Generic 1 and Generic 3—Feature Description*, 555-230-201.

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- Trunk-to-Trunk Transfer—Enter ''y'' to enable trunk-to-trunk transfer. This allows voice terminal users to set up trunk-to-trunk transfer, go on-hook without disconnecting the call, and forward the call to a remote location. Trunk-to-Trunk Transfer affects calls where both trunks are CO, FX, WATS, or CPE. Enter ''n'' (default) if this option is not desired.
- Coverage—Don't Answer Interval for Subsequent Redirection (rings)—Enter the number of times a voice terminal in a Call Coverage path will ring before the call is routed to the next coverage point. Valid entries are 1–99; default is 3. A typical (recommended) interval is 2 to 3 rings.
- Coverage—Caller Response Interval (seconds)—Enter the time in seconds that the internal caller has before the call redirects to the called party's first coverage point. The calling party can either hang up, use Leave Word Calling, or press the Go to Cover button during this time interval. Valid entries are 0–10; default is 4.
- Keep Held SBA at Coverage Point—Enter ''y'' to keep a simulated bridged appearance on hold at the coverage point when the principal enters the call. If the bridged appearance is kept, the covering user may then enter the call along with the principal and the calling party.
- Automatic Callback—No Answer Timeout Interval (rings)—Enter the number of times that the callback call rings at the calling station before the callback call is canceled. Valid entries are 2–9; default is 4.
- Call Park Timeout Interval (minutes)—Enter the number (of minutes) that a call can remain parked before it is canceled. Valid entries are 1–90; default is 10.
- Off-Premises Tone Detect Timeout Interval (seconds)—Enter the number of seconds that a call progress tone receiver (CPTR) will try to detect a tone from off-premises during dialing. Once the time-out interval occurs, any additional call progress tones will not be recorded. Valid entries are 5–25; default is 20.
- AAR/ARS Dial Tone Required—Enter ''y'' (default) to indicate that a second dial tone is to be given to the calling party on a incoming tie or DID trunk call that is to be routed via AAR/ARS. A second dial tone provides feedback to the user that additional dialing can occur.

- Music On Hold Port—Enter the port number that will provide Music-on-Hold access. This requires a port on a TN763 Auxiliary Trunk circuit pack. For multi-carrier cabinets, enter the cabinet (1–22), the carrier letter (A to E), the slot numbers (01–20 depending on carrier type), and circuit number (01–24). For single-carrier cabinets, enter the cabinet (1–22), the carrier letter (A–E), the slot numbers (01–18 depending on cabinet type), and circuit number (01–24).
- Music (or Silence) On Transferred Trunk Calls—Enter ''all'' to allow all transferred trunk calls to receive music until the call is answered if the Music-on-Hold feature is available. Enter ''no'' if trunk callers are to hear music (or silence if Music-on-Hold is not administered) while waiting to be transferred, and then ringback as soon as the transfer is completed till the call is answered. Enter ''call-wait'' if trunk calls transferred to stations that require the call to wait, will hear music (if administered), all other transferred trunk calls will receive ringback tone.
- DID/Tie/ISDN Intercept Treatment—Enter a recorded announcement extension number or ''0'' for the attendant to be used for intercept of invalid Direct Inward Dialing and/or tie trunk calls; default is 0.
- Automatic Circuit Assurance (ACA) Enabled—Enter ''y'' if Automatic Circuit Assurance (ACA) measurements will be taken; otherwise, enter ''n'' (default). If ''y'' is entered, complete the following ACA-related fields.
- ACA Referral Calls—Displayed when ACA Enabled is ''y''. Enter ''local'' (default), ''primary'', or ''remote'' to indicate where ACA referral calls will be generated. Remote referral calls are generated at another switch in a DCS network. Local referral calls are generated on and for the local switch. Primary referral calls are generated on the local switch for remote switches as well as the local switch. Also, ACA button status will be transmitted to other switches when in a DCS network.
- ACA Referral Destination—Displayed when the ACA Referral Calls is ''local'' or ''primary''. Enter the extension on the local switch that is to receive the ACA referral call or enter ''0'' for attendant. The specified extension should be equipped with a display module.
- ACA Remote PBX Identification—Displayed when ACA Referral Calls is ''remote''. Enter a number from 1–63 to identify the switch in a DCS network that makes the referral call. The remote PBX identified in this field must not be defined as ''local'' on the System's Dial Plan form.
- ACA Short Holding Time Originating Extension and ACA Long Holding Time Originating Extension—Displayed when ACA Referral Calls is ''local'' or ''primary''. Enter an unassigned extension number in each field. Do not use the same extension number for both fields. The specified extensions are automatically assigned by the System when the form is submitted.

The extension number assigned to ACA Short Holding Time originates ACA referral calls for short holding time warnings and is identified on the destination's display module as ''ACA CALL(SHORT)''. The extension number assigned to ACA Long Holding Time originates ACA referral calls for long holding time warnings and is identified on the destination's display module as ''ACA CALL(LONG)''.

- Terminal Translation Initialization (TTI) Enabled Field—Enter ''y'' to start a background maintenance task to generate TTI port translations for unadministered ports on TTI-supported boards. Enter ''n'' to remove existing TTI port translations and ensure that no new TTI port translations will be generated.

  If the value of this field is ''no'', the next two TTI fields (given below) will not appear on this form.

  CAUTION:
  Changing the TTI Enable field from ''n'' to ''y'' or from ''y'' to ''n'' triggers a background maintenance task that either generates (when going from ''n'' to ''y'') or removes (when going from ''y'' to ''n'') TTI port translation for unadministered ports in the system.

- TTI State—Displayed when the TTI Enabled field is ''y''. Enter ''data'', ''resume'', ''suspend'', or ''voice'' (default). The value of this field determines what type of TTI default port translation is generated for unadministered digital ports. The ''suspend'' state allows any current generation or removal of TTI port translations to be halted and access to TTI will also be denied.
- TTI Security Code—Displayed when the TTI Enabled field is ''y''. The TTI security code is a 1 to 7-digit code that TTI users must enter when accessing TTI from their terminals. (It is also known as the TTI authorization code but is not the same as system authorization codes.)

Page 2 of the Form

Leave Word Calling Parameters/Security Violation Notification Parameters

- Maximum Number of Messages Per Station (when MSA not in service)—Enter the maximum number of LWC Messages (0–125) that can be stored by the System for a voice terminal at a given time; default is 10.
- Stations With System-wide Retrieval Permission (enter extension)—Enter up to 10 voice terminal extension numbers that can retrieve LWC Messages for all other voice terminals. A VDN extension is not allowed. A zero entry gives retrieval permission to all attendants.

- SVN Login Violation Notification Enabled—Enter ‘‘y’’ if a designated referral destination will be notified in the event of a login security violation; otherwise, enter ‘‘n’’ (default).

The following four fields are displayed when SVN Login Violation Notification Enabled is ‘‘y’’.

— Originating Extension—Enter the originating extension that is to initiate the referral call in the event of a login security violation. It also triggers the display of the appropriate alerting message on the referral destination display module. Valid entry is an unassigned extension number; default is blank.

— Referral Destination—Enter the extension assigned to the station with display or attendant console that will receive the referral call in the event of a login security violation. Valid entry is an assigned extension or the attendant group access code (usually ‘‘0’’); default is blank. The referral destination, if a station, must be equipped with a display module.

— Login Threshold—Enter the minimum number of login security violations that will be permitted before a referral call is generated. The entry in this field and in the Time Interval field will determine whether a login security violation has occurred. Valid entries are 1–99; default is 5.

— Time Interval—Enter the time period within which the login security violations must occur. The time interval (in hours and minutes) is specified as two fields separated by a colon (h:mm); default is ‘‘0:03’’.

- SVN Remote Access Violation Notification Enabled—Enter ‘‘y’’ if a designated referral destination will be notified in the event of a remote access violation; otherwise, enter ‘‘n’’ (default).

The following four fields are displayed when SVN Remote Access Violation Notification Enabled is ‘‘y’’.

— Originating Extension—Enter the originating extension that is to initiate the referral call in the event of a remote access security violation. It also triggers the display of the appropriate alerting message on the referral destination display. Valid entry is an unassigned extension number; default is blank.

— Referral Destination—Enter the extension assigned to the station or attendant console that will receive the referral call in the event of a remote access security violation. Valid entry is an assigned extension or the attendant group access code; default is blank. The referral destination, if a station, must be equipped with a display module.

— Barrier Code Threshold—Enter the minimum number of barrier code security violations that will be permitted before a referral call is generated. The entry in this field and in the Time Interval field, will determine whether a remote access security violation has occurred. Valid entries are 1–99; default is 10.

— Time Interval—Enter the time period within which the remote access security violations must occur. The time interval is specified as two fields separated by a colon (h:mm); default is ''0:03''.

Page 3 of the Form

- Reserved Slots for Attendant Priority Queue—Enter the number of calls from 1–50 that can go in to the emergency queue; default is 5.
- Time Before Off-Hook Alert—Enter the time in seconds that a voice terminal with an Off-Hook Alert Class of Service can remain off-hook before an emergency call is sent to the attendant. Valid entries are 10–3000 s; default is 10.
- Emergency Access Redirection Extension—Enter the extension number (can be a VDN) where emergency queue overflow will redirect.
- Service Observing Warning Tone (see Note)—Enter ''y'' to assign a warning tone to be given to voice terminal users and calling parties whenever their calls are being monitored using the Service Observing feature. Enter ''n'' (default) if this feature is not desired.

  NOTE:
  The use of Service Observing features may be subject to federal, state, or local laws, rules or regulations or require the consent of one or both of the parties to the conversation. Customers should familiarize themselves with and comply with all applicable laws, rules, and regulations before using these features.

- Outgoing Call Management COR—Enter desired class of restriction (COR) number from 0–95.
- Outgoing Call Management COS—Enter desired class of service (COS) number from 0–15.
- Deluxe Paging and Call Park Timeout to Originator—An entry of ''y'' enables the Loudspeaker Paging—Deluxe feature which essentially integrates the Loudspeaker Paging and Call Park features. All parked calls that time out (not answered by paged party) return to the parking party. An entry of ''n'' (default) enables the Loudspeaker Paging feature. Paged calls that are to be parked require separate activation of the Call Park feature. All parked calls that time out return to the attendant.

- Controlled Outward Restriction Intercept Treatment—Enter the type of intercept treatment the caller receives when the call is outward restricted. Valid entries are: ''announcement'', ''attendant'', ''extension'' (may not be a VDN extension), or ''tone'' (default). If announcement or extension is entered, the extension number for the announcement or extension must be entered in an associated field.
- Controlled Termination Restriction (Do Not Disturb)—Enter the type of intercept treatment the caller receives when the call is placed to a termination restricted voice terminal. Valid entries are: ''announcement'', ''attendant'', ''extension'' (may not be a VDN extension), or ''tone'' (default). If announcement or extension is entered, an associated extension number field must be completed.
- Controlled Station-to-Station Restriction—Enter the type of intercept treatment the caller receives when the call is placed to a restricted voice terminal. Valid entries are: ''announcement'', ''attendant'', ''extension'' (may not be a VDN extension), or ''tone'' (default). If announcement or extension is entered, an associated extension number field is displayed. Enter the extension of the restricted voice terminal in the field.
- Authorization Codes Enabled—A ''y'' entry enables the Authorization Codes feature on a system-wide basis. This field cannot be administered if the Authorization Codes feature is not enabled on the System-Parameters Customer-Options form. Default is ''n''.
- Authorization Code Length—Enter a number from 4–7 that defines the number of digits (length) in the Authorization Code field; default is 7. This field is displayed and must be completed if the Authorization Codes Enabled field is enabled. This is the number of digits that must be assigned to the Authorization Code (AC) field on the Authorization Code form.
- Authorization Code Cancellation Symbol—Enter the symbol a caller must dial to cancel the 10 s wait period during which the user can enter an authorization code; default is ''#''. The cancellation code # should be entered if the main and tandem switches are both the same type of switch. The cancellation code 1 must be entered if an AT&T System 85 or DIMENSION® PBX switch is part of the complex/network. This field is displayed when the Authorization Code field is ''y''.
- Attendant Time Out Flag—Enter ''y'' if a call is to be routed to the attendant if the caller does not dial an authorization code within 10 s or dials an invalid authorization code; default is ''n''. If this field is not enabled, the caller will receive Intercept tone. This flag affects remote users or incoming calls over trunks requiring an authorization code.

Page 4 of the Form

System Printer Parameters (printer dedicated to support the Report Scheduler feature):

- System Printer Extension—Enter either the data module extension number associated with the System printer; default is 475.
- Lines Per Page—Enter the number of lines per page required for the report. Valid entries are 24–132; default is 60.

System-Wide Parameters:

- Switch Name—Enter the name of the switch.

Call Management Parameters:

- BCMS Measurement Interval—Enter the time interval (''hour'' or ''half-hour'') to be used for polling and reporting measurement data. There are up to 25 time slots available for measurement intervals. If ''hour'' (default) is specified, an entire day of traffic information is available for history reports; otherwise, a half day is available. This does not affect daily summaries as they will always reflect traffic information for the entire day. The interval may be changed at any time, but will not go into effect until the current interval completes.

  The BCMS Measurements option must be enabled on the System-Parameters Customer-Options form before associated forms or fields on forms can be activated.
- Adjunct CMS Release—Specifies the release of the CMS adjunct used with the system. Valid entries are ''R3'' or blank (default).
- Automatic Call Distribution (ACD) Log-in Identification Length—Enter the number of characters (0–9) for an ACD Agent Login ID; default is ''0''.

Malicious Call Trace Parameters:

- Apply MCT Warning Tone—Enter ‘‘y’’ to provide an audible tone to the controlling station when an MCT recorder is actively recording a malicious call; default is ‘‘n’’.
- MCT Voice Recorder Trunk Group—Assign the trunk group (1–666 or blank) for MCT voice recorders; default is blank.

```
              FEATURE-RELATED SYSTEM PARAMETERS           Page 1 of 4

                                        Trunk-to-Trunk Transfer? n
Coverage - Don't Answer Interval for Subsequent Redirection(rings): 3_
                     Coverage - Caller Response Interval (seconds): 4_
                                   Keep Held SBA at Coverage Point? _
           Automatic Callback - No Answer Timeout Interval (rings): 4
                               Call Park Timeout Interval (minutes): 10
               Off-Premises Tone Detect Timeout Interval (seconds): 20
                                    AAR/ARS Dial Tone Required? y
                                            Music On Hold Port: _______
                     Music (or Silence) on Transferred Trunk Calls? n________
                                DID/Tie/ISDN Intercept Treatment: 0____
                          Message Server Adjunct (MSA) Connected? n
                       Automatic Circuit Assurance (ACA) Enabled? y
                                            ACA Referral Calls: local___
                                      ACA Referral Destination: _____
                                  ACA Remote PBX Identification: _____
                        ACA Short Holding Time Originating Extension: _____
                        ACA Long  Holding Time Originating Extension: _____
      WARNING!  SEE USER DOCUMENTATION BEFORE CHANGING TTI STATE
                   Terminal Translation Initialization (TTI) Enabled? y
                    TTI State: voice__    TTI Security Code: _______
```

Feature-Related System Parameters Form (Page 1 of 4)

Implementation Notes:

If ACA Enabled is ‘‘n’’, associated ACA fields will not be displayed.

If ACA Referral Calls is ‘‘local’’ or ‘‘primary’’, the ACA Referral Destination and the ACA Short and Long Holding Time fields are displayed.

If ACA Referral Calls is ‘‘remote’’, the ACA Remote PBX Identification field is displayed.

If Terminal Translation Initialization (TTI) is not enabled, associated TTI fields will not be displayed.

```
                    FEATURE-RELATED SYSTEM PARAMETERS      Page 2 of 4

LEAVE WORD CALLING PARAMETERS
  Maximum Number of Messages Per Station (when MSA not in service): ___
  Stations with System-wide Retrieval Permission (enter extension)
    1: _____   3: _____   5: _____   7: _____    9: _____
    2: _____   4: _____   6: _____   8: _____   10: _____

SECURITY VIOLATION NOTIFICATION PARAMETERS
  SVN Login Violation Notification Enabled? y
    Originating Extension: _____   Referral Destination: _____
          Login Threshold: __            Time Interval: _:__

  SVN Remote Access Violation Notification Enabled? y
    Originating Extension: _____   Referral Destination: _____
   Barrier Code Threshold: __            Time Interval: _:__
```

Feature-Related System Parameters Form (Page 2 of 4)

```
                    FEATURE-RELATED SYSTEM PARAMETERS     Page 3 of 4

                  Reserved Slots for Attendant Priority Queue: __
                                   Time before Off-hook Alert: ____
                       Emergency Access Redirection Extension: _____
                               Service Observing Warning Tone? _
                                 Outgoing Call Management COR: __
                                 Outgoing Call Management COS: __
             Deluxe Paging and Call Park Timeout to Originator? _

 Controlled Outward Restriction Intercept Treatment: ____________
Controlled Termination Restriction (Do Not Disturb): ____________
          Controlled Station to Station Restriction: ____________

AUTHORIZATION CODE PARAMETERS        Authorization Codes Enabled? _
                                       Authorization Code Length: _
                           Authorization Code Cancellation Symbol: _
                                        Attendant Time Out Flag? _
```

Feature-Related System Parameters Form (Page 3 of 4)

```
                  FEATURE-RELATED SYSTEM PARAMETERS        Page 4 of 4

SYSTEM PRINTER PARAMETERS
                  System Printer Extension: _____
                            Printer Speed: ____
                           Lines Per Page: ___
SYSTEM-WIDE PARAMETERS
                       Switch Name: ____________________

CALL MANAGEMENT SYSTEM PARAMETERS
                                    Basic Measurement Interval: _________
                                           Adjunct CMS Release: _________
Automatic Call Distribution (ACD) Log-in Identification Length: _

MALICIOUS CALL TRACE PARAMETERS
                                        Apply MCT Warning Tone? _
                                  MCT Voice Recorder Trunk Group: ___
```

Feature-Related System Parameters Form (Page 4 of 4)

Fiber Link

To be provided.

Hop Channel Assignments

This form is used to assign up to 128 Hop Channels. Up to 128 connections may be established between channels on the System's interface links.

Administration Commands

The following administration commands can be used to access the Hop Channel Assignment form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	communication-interface	hop-channels
display	communication-interface	hop-channels ['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Observe the following when assigning hop channels:

— The Link/Chan pair must not be assigned to a local processor channel on the Processor Channel Assignments form.

— The four associated hop channel fields must be either filled in or left blank.

Make assignments as required for the following fields on each page of the form:

Pages 1 and 2 of the Form

- **Link** (two fields)—Enter an interface link number in each field (1–16).
- **Chan** (two fields)—Enter a number (1–64) in each field.

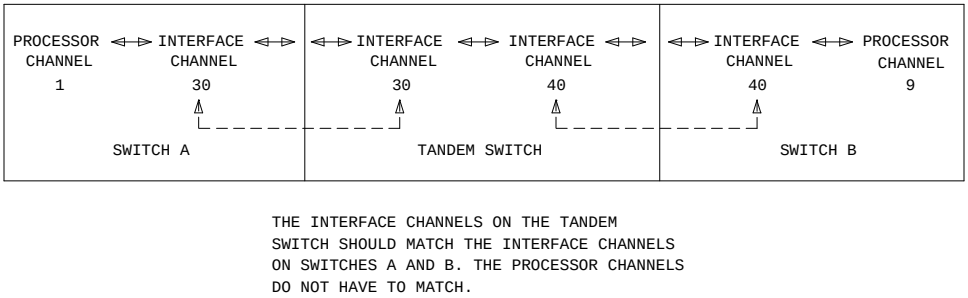


Figure 5-11. Interface Channel Assignments Between Switches

```
                        HOP CHANNEL ASSIGNMENT                Page 1 of 4

   Link/Channel A   Link/Channel B       Link/Channel A   Link/Channel B
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
       __   __         __   __              __   __         __   __
```

Hop Channel Assignment Form (Page 1 of 4)

(To reduce repetition, only page 1 is shown)

Hospitality-Related System Parameters

This form is used to implement the System parameters associated with the hospitality features.

Administration Commands

The following administration commands can be used to access the Hospitality-Related System Parameters form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	system-parameters hospitality	—
display	system-parameters hospitality	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- **Message Waiting Configuration**—Indicates if message waiting notification requests and changes are being exchanged between the System and PMS. If it is active, the System and the PMS, when used, exchange message waiting information. Valid entries are ''act-nopms'' (default), or ''act-pms''; act-nopms indicates message waiting is activated but no waiting message information is being transmitted between PMS and the System; act-pms indicates message waiting is activated and transmitting information between the PMS and the System.
- **Controlled Restrictions Configuration**—Indicates if notification of controlled restriction is being exchanged between the System and PMS. If ''act-pms'', the System and the PMS, when used, exchange controlled restriction information. Valid entries are ''act-nopms'' (default), or ''act-pms''.
- **Housekeeper Information Configuration**—Indicates if housekeeper information is being exchanged between the System and PMS. If ''act-pms'', the System and PMS exchange housekeeper information. Valid entries are ''act-nopms'' (default), or ''act-pms''.
- **Number of Housekeeper ID Digits**—Enter the number of digits (0–6) that the housekeeper must dial for identification; default is 0.
- **Extension of PMS Log Printer**—Enter the extension number (may not be a VDN extension) of the data module or data line that is connected to the PMS/Log printer.
- **Extension of Journal/Schedule Printer**—Enter a valid data extension number (may not be a VDN extension) assigned to the Journal/Log printer. This extension number is dialed by the System so it can send log and scheduled hospitality reports information to the printer.

- **Client Room Coverage Path Configuration**—This field indicates if the PBX and PMS exchange coverage path information for guest stations. Setting this field to ''act-pms'' enables the PMS to update the coverage path of a guest station. Setting this field to ''act-nopms'' (default) prevents the PMS from setting a room's coverage path. When upgrading from a release that does not support this field, the field will be ''act-pms'' if the PMS protocol made was administered as ''transparent''. Otherwise, this field will be ''act-nopms''.
- **Default Coverage Path For Client Rooms**—Displayed when PMS Protocol Mode is ''transparent''. Enter Coverage Path number (1–600) or leave blank (default). This field defines the call coverage path number set for an extension when the System receives a check-out message in the ''transparent'' mode. The extension must belong to a station that has ''Client Room'' class of service (COS) and has ''occupied'' room status (before check out). This value is also used during a ''save translations'' operation as the coverage path for each station with ''Client Room'' COS.
- **Extension of PMS**—Enter the data extension number (may not be a VDN extension) the System must dial to access PMS.
- **PMS Protocol Mode**—Enter ''normal'' (default) or ''transparent'' to identify the mode of the message protocol and the message set used between the digital switch and the PMS. The ''normal'' mode supports up to 4-digit room extension numbers and the ''transparent'' mode supports up to 5-digit room extension numbers, name registration, and other enhancements.
- **Seconds Before PMS Link Idle Timeout**—Enter the idle time in seconds (5–20) the System will wait before it concludes that the PMS is not sending data across the transmission link; default is 10.
- **Milliseconds Before PMS Link Acknowledgement Timeout**—Enter the time in ms (100–500) the System waits for an acknowledgement from the PMS indicating it correctly received a message; default is 200.

- **PMS Link Maximum Retransmissions**—Enter the number of times (1–5) that the System will retransmit a message in response to a negative acknowledgement or send an inquiry for an acknowledgement from the PMS for a message before giving up on the message transmission; default is 3.
- **PMS Link Maximum Retransmission Request**—Enter the number of times (1–5) that the switch will request the PMS to retransmit a message; default is 3.
- **Take Down Link for Lost Messages**—Enter a ''y'' (default) to cause the PBX to take down the PMS link if a message is sent and rejected the number of times specified in the ''PMS Link Maximum Retransmissions'' field. An ''n'' in this field causes the PBX to leave up the PMS link but to stop trying to send the message. Careful monitoring of the PMS error log is recommended when using this option.

  NOTE:
  It is recommended that this field be left at the default setting.

Page 2 of the Form

- **Time of Scheduled Wakeup Activity Report**—Enter the time the Wakeup Activity Report will be printed. This report summarizes the wakeup activity for each extension that had wakeup activity for the past 24 hours. Enter the time hh[:mm][a/pm] where hh=hour, mm=minute, a/pm=am or pm.

- **Time of Scheduled Wakeup Summary Report**—Enter the time the Wakeup Summary Report will be printed. This report gives an hour-by-hour summary of the number of scheduled wakeup calls and a list of extensions to which wakeup calls were attempted but did not complete during the hour. Enter the time hh[:mm][a/pm] where hh=hour, mm=minute, a/pm=am or pm.
- **Time of Scheduled Emergency Access Activity Report**—Enter the time the Emergency Access Activity Report will be printed. Enter the time hh[:mm][a/pm] where hh=hour, mm=minute, a/pm=am or pm.
- **Announcement Type**—Enter the type of automatic wakeup announcement the hotel guest will receive. Valid entries are ''external'', ''music-on-hold'', ''silence'', or ''voice-synthesis''. If ''voice-synthesis'' is entered, complete the Announcement Ports field. If ''external'' is entered, complete the Auxiliary Board for Announcement field.
- **Announcement Ports**—Enter two port numbers of seven characters each. The port numbers are assigned to two different ports (01, 02, 03, 04—any two of the four) on the Voice Synthesizer circuit pack. The first two port characters identify the cabinet (1–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth characters identify the slot number in the carrier (01–20); the last two characters identify the circuit number (01–04).
- **Auxiliary Board For Announcement**—Enter a 4- or 5-character circuit pack number. This field requests the circuit pack address that connects to the external announcement equipment. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20).
- **Length of Time To Remain Connected To Announcement**—Enter the length of time in seconds (0–300) the hotel guest will receive a wakeup call announcement.
- **Extension To Receive Failed Wakeup LWC Messages**—Enter the extension number (may not be a VDN extension) where unsuccessful wakeup LWC messages will be stored. A dedicated unassigned extension (0 not allowed) is required.
- **Routing Extension On Unavailable Voice Synthesis**—Enter the extension number (may not be a VDN extension) or the attendant group code to which a call will be placed during voice synthesis entry of wakeup requests when a voice synthesis port is not available.

- **Display Room Information in Call Display**—Enter ‘‘y’’ when the information in the Room field on Station forms is to be used in the Extension Display field on display-equipped voice terminals; default is ‘‘n’’. If the associated station form defines a ‘‘Client Room’’ COS and a non-blank

value in the Room field, the characters in the Room field are shown in the extension portion of call displays. If the Room field has more than five characters, only the first five characters are shown. This supports situations where there are several phones with different extension numbers in one guest room. The room number will always be displayed no matter which phone is in use.

```
                HOSPITALITY RELATED SYSTEM PARAMETERS     Page 1 of 2

                        Message Waiting Configuration: act-nopms
                   Control Restrictions Configuration: act-nopms
                Housekeeper Information Configuration: act-nopms
                      Number of Housekeeper ID Digits: 0
                         Extension of PMS Log Printer: ____
                Extension of Journal/Schedule Printer: ____
              Client Room Coverage Path Configuration: act-nopms
               Default Coverage Path For Client Rooms: ___
                           PMS LINK  PARAMETERS
                                     Extension of PMS: ___
                                   PMS Protocol Mode: normal_____
                 Seconds before PMS Link Idle Timeout: 10
Milliseconds before PMS Link Acknowledgement Timeout: 200
                       PMS Link Maximum Retransmissions: 3
            PMS Link Maximum Retransmission Request: 3
                       Take Down Link for Lost Messages: y
```

Hospitality-Related System Parameters Form (Page 1 of 2)

```
                                                          Page 2 of 2
          HOSPITALITY RELATED SYSTEM PARAMETERS
             Time of Scheduled Wakeup Activity Report: ______
              Time of Scheduled Wakeup Summary Report: ______
    Time of Scheduled Emergency Access Activity Report: ______
                                    Announcement Type: silence
    Length of Time To Remain Connected To Announcement: 30____
       Extension To Receive Failed Wakeup LWC Messages: ______
      Routing Extension On Unavailable Voice Synthesis: ______
              Display Room Information in Call Display? n
```

Hospitality-Related System Parameters Form (Page 2 of 2)

Implementation Note:

This is Page 2 when the Announcement Type field is ‘‘silence’’.

```
              HOSPITALITY RELATED SYSTEM PARAMETERS      Page 2 of 2

          Time of Scheduled Wakeup Activity Report: _______
           Time of Scheduled Wakeup Summary Report: _______
Time of Scheduled Emergency Access Activity Report: _______
                                 Announcement Type: voice-synthesis
                                Announcement Ports: _____
Length of Time To Remain Connected To Announcement: _______
   Extension To Receive Failed Wakeup LWC Messages: _______
  Routing Extension On Unavailable Voice Synthesis: _______
          Display Room Information in Call Display? n
```

Hospitality-Related System Parameters Form (Page 2 of 2)

Implementation Note:

This is Page 2 when the Announcement Type field is ‘‘voice-synthesis’’. The Announcement Ports field must be completed if ‘‘voice-synthesis’’ is entered as the Announcement Type.

```
              HOSPITALITY RELATED SYSTEM PARAMETERS      Page 2 of 2

          Time of Scheduled Wakeup Activity Report: _______
           Time of Scheduled Wakeup Summary Report: _______
Time of Scheduled Emergency Access Activity Report: _______
                                 Announcement Type: external
                   Auxiliary Board For Announcement: _____
Length of Time To Remain Connected To Announcement: _______
   Extension To Receive Failed Wakeup LWC Messages: _______
  Routing Extension On Unavailable Voice Synthesis: _______
          Display Room Information in Call Display? n
```

Hospitality-Related System Parameters Form (Page 2 of 2)

Implementation Note:

This is Page 2 when the Announcement Type field is ‘‘external’’. The Auxiliary Board For Announcement field must be completed if ‘‘external’’ is entered as the Announcement Type.

Hunt Group

This form is used to allow calls to be answered by users (agents) at a pre-designated group of terminals or devices.

This form is used to create a Hunt Group that is identified by a Hunt Group number (1–255). Users assigned to a Hunt Group are identified by their extension number. Up to 999 users can be assigned to a Hunt Group.

NOTE:
If the Hospitality Parameters Reduction option is enabled on the System-Parameters Customer-Options form; up to five Hunt Groups may be assigned.

The Hunt Group form can be used to implement a hunt group and its associated features such as Automatic Call Distribution (ACD) and Hunt Group Queuing. Look at the various hunt group forms and choose the forms that can be used to implement your hunt group requirements.

The System checks for the busy or idle status of extension numbers in the hunt group when answering calls. A Uniform Call Distribution (UCD) type hunt group selects the ‘‘most idle’’ extension in the group when answering a new call. A Direct Department Calling (DDC) type hunt group selects the first available extension (in the administered sequence) when answering a new call.

Once the forms have been chosen, review the following instructions and use them for the fields that appear on the forms. The instructions listed below describe all the fields that can be used; however, some of the fields may not appear on the forms you selected. Implementation Notes at the bottom of the screen form examples lists the field entries required to obtain the associated form.

NOTE:
Vector controlled splits (ACD hunt group with vector = ‘‘y’’) may be called directly via the split extension (instead of calling a VDN mapped to a vector that will terminate the call to a vector controlled split). However, the calls will not receive any announcements, be forwarded, redirect to coverage, or intraflow/interflow to another hunt group and therefore this is not recommended; vector controlled calls take priority.

Administration Commands

The following administration commands can be used to access the Hunt Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*	
Without Hospitality Parameter Reduction Feature	add	hunt-group	1–255 (or ‘next’)
	change	hunt-group	1–255
	display	hunt-group	1–255 [’print’ or ’schedule’]
	list	hunt-group	[’print’ or ’schedule’]
	remove	hunt-group	1–255
With Hospitality Parameter Reduction Feature	add	hunt-group	1–5 (or ‘next’)
	change	hunt-group	1–5
	display	hunt-group	1–5 [’print’ or ’schedule’]
	list	hunt-group	[’print’ or ’schedule’]
	remove	hunt-group	1–5

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of Form

- **Group Number**—Enter a hunt group number (1–255) when completing a paper form (up to five Hunt Groups may be assigned when the Hospitality Parameters Reduction option is enabled on the System-Parameters Customer-Options form). This is a display-only field when the form is accessed by an administrative command such as *add* or *change*.
- **Group Extension**—Enter an unused extension number (1–5 digits) to be assigned to the hunt group.
- **Group Type**—Enter the desired type of hunt group: ‘‘ucd’’ or ‘‘ddc’’. Enter ‘‘ucd’’ (default) if the hunt group has an AUDIX or Message Server Adjunct (MSA) message . Also, ‘‘ucd’’ is required when supporting the Outbound Call Management feature and when the ‘‘Controlling Adjunct’’ field is administered as ‘‘asai’’ or ‘‘bx.25’’.

- **Group Name**—Enter up to a 15-character-long string that uniquely identifies the group, for example, ‘‘parts dept.’’, ‘‘purchasing’’, or ‘‘sales dept.’’
- **ACD**—Enter ‘‘y’’ if the hunt group will function as an ACD split. (If this field is ‘‘y’’, then the Type field should be ‘‘ucd’’.) AUDIX and MSA hunt groups may function as ACD splits. This field cannot be completed if the ACD option is not enabled on the System-Parameters Customer-Options (SPCO) form. Enter ‘‘n’’ if this feature is not desired, even though ACD is enabled on the SPCO form. When the hunt group is assigned as an ACD split, the hunt group members will serve as ACD agents. The agents in this split must log in to receive ACD split calls. If this hunt group is on a remote switch using the AUDIX in a DCS feature, enter ‘‘n’’ in this field.
- **Queue**—Enter ‘‘y’’ if the hunt group will be served by a queue; default is ‘‘n’’.
- **AAS**—Displayed when the ‘‘ACD’’ field for this hunt group is ‘‘y’’. Enter ‘‘y’’ when this hunt group will serve as an Auto-Available Split.
- **Vector**—Enter ‘‘y’’ to indicate that this hunt group will be vector controlled. The Vectoring-Basic option must be enabled on the System-Parameters Customer-Option form before ‘‘y’’ can be entered in the field. Valid entries are ‘‘y’’ or ‘‘n’’ (default). (See example screen forms for fields that are displayed when ‘‘y’’ is entered in this field.)
- **Security Code**—Enter a 4-digit security code (password) used for the Demand Print feature. Valid entries are a 4-digit security code, or leave blank.
- **Night Service Destination**—Enter the destination where calls to this ACD split will redirect when the split is in the night service mode. Valid entries are an assigned extension number (can be a VDN extension), the attendant group code, or leave blank.

  NOTE:
  This field is not supported when the Controlling Adjunct field entry is ‘‘bx.25’’.

- **COR**—Enter the class of restriction (COR) number 0–95 that reflects the desired restriction for the hunt group; default is 1. If this is a hunt group supporting the AUDIX in a DCS feature, the CORs on the Hunt Group form on each switch must be the same.
- **ISDN Caller Disp**—Enter ‘‘grp-name’’ or ‘‘mbr-name’’ to specify whether the hunt group name or member name, respectively, will be sent to the originating user. This field is required if the ISDN-PRI option on the System-Parameters Customer-Options form is enabled. If ISDN-PRI is not enabled, this field must be blank.

- **Coverage Path**—Enter a coverage path number (1–5000 or blank). This assigns a coverage path for the Hunt Group. The coverage path is assigned using the Call Coverage Path form.

This field is displayed if Queue is ‘‘y’’ and ACD is ‘‘y’’.

1. **Inflow Threshold**—Enter the number of seconds (0–999) that a call can remain in the queue before no more calls will be accepted by the queue. If ‘‘0’’ is entered, a call will be redirected to this split only if there is an available agent.

The next **four** fields are displayed if ACD is ‘‘y’’.

1. **Measured**—Enter ‘‘internal’’ to have change of state messages for the ACD split measured by the Basic Call Management System (internal to switch) and enter ‘‘external’’ to have measurements made by the Call Management System (external to switch). Enter ‘‘both’’ to have data sent to both systems for measurement reports. Enter ‘‘none’’ (default) if measurement reports for this hunt group are not required.

   NOTE:
   All bx.25 controlled splits (Controlling Adjunct field is ‘‘bx.25’’) must have the same entry in this field.

2. **Supervisor Extension**—Enter the extension number (may not be a VDN number) of the ACD split supervisor that agents will reach when using the Assist feature.
3. **Controlling Adjunct**—Displayed when the ACD field is ‘‘y’’. Enter ‘‘none’’ to indicate that members of the split or hunt group are not controlled by an adjunct processor. When set to ‘‘asai’’ or ‘‘bx.25’’, all agent logins are controlled by an associated adjunct and logged-in agents can only use their data terminal keyboards (locked out from using their associated voice terminals). If the controlling adjunct is a CONVERSANT® voice system (requires an ASAI link), then enter ‘‘asai’’ in this field. (The ASAI option must be enabled on the System-Parameters Customer-Option form for ASAI capability.)

The next seven fields apply if Queue is ‘‘y’’.

1. **Queue Length**—Enter the number of calls (1–999) that can be in the queue at the same time. This field must have an entry when Queue is ‘‘y’’.
2. **Calls Warning Threshold**—Enter the number of calls that can be queued before the System flashes the queue status (feature buttons assigned on agents voice terminals) and the optional Auxiliary Queue Call Warning Threshold lamp assigned to the split. These lamps are lighted steadily when at least one call is in queue and the threshold has not yet been reached. Valid entries are a number from 1–1024 and must be less than or equal to the queue length, or leave blank. This field must not be left blank if the Calls Warning Port field is assigned a port number.
3. **Calls Warning Port**—Enter the port number assigned to connect the optional external Auxiliary Queue Call Warning Threshold lamp that will flash when the number of calls in queue has exceeded the queue warning threshold (assigned in the Calls Warning Threshold field). Enter 7 characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20); the last two characters identify the circuit number (01–24).

   NOTE:
   The port is assigned to an Analog Line circuit pack or given an ‘‘X’’ designation if an extension is used.

4. **(Queue Calls Warning) Extension**—An extension is needed when an X is placed in the Calls Warning Port field. This extension may be used by the Terminal Translation Initialization (TTI) feature to assign a port to this extension from the port itself. Once the Calls Warning Port field is assigned a valid port (either via TTI or the ‘‘change hunt-group command), then the extension is removed and considered unassigned.
5. **Time Warning Threshold**—Enter the time in seconds (0–999 or blank) that a call can remain in the queue before the System flashes the Queue status lamps (feature buttons assigned members voice terminals) and the Auxiliary Queue Time Warning lamp assigned to this split. An entry of ‘‘0’’ provides a warning whenever a call is queued.

6. **Time Warning Port**—Enter the port number assigned to the Auxiliary Queue Time Warning lamp that flashes when the time entered in the Time Warning Threshold field has been reached by a call in queue. Enter 7 characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20); the last two characters identify the circuit number (01–24).

   NOTE:
   This port is assigned to an Analog Line circuit pack or given an ''X'' designation if an extension is used.

7. **(Queue Time Warning) Extension**—An extension is needed when an X is placed in the Time Warning Port field. This extension may be used by the Terminal Translation Initialization (TTI) feature to assign a port to this extension from the port itself. Once the Time Warning Port field is assigned a valid port (either via TTI or the ''change hunt-group command), then the extension is removed and considered unassigned.

- **Forced Entry of Stroke Counts or Call Word Codes**—Displayed when ACD is ''y'' and Controlling Adjunct is ''none''. Enter ''y'' if either a Stroke Count or Call Work Code must be entered for each call answered by an agent when in the Manual-In mode.
- **ASAI Link Extension**—Displayed when Controlling Adjunct field is ''asai''. Enter the appropriate ASAI Link extension. (See Adjunct/Switch Applications Interface Link information elsewhere is this chapter.) Field may not be blank.

  NOTE:
  ''asai'' and ''bx.25'' interfaces cannot both be provided on the switch. Only one of the interface types can be administered.

Page 2 of the Form

- **Message Center**—Enter the type of messaging adjunct for the hunt group. Valid entries are ''msa'' (Message Server Adjunct), ''rem-audix'' (DCS feature allowing AUDIX to be located on another switch), or ''audix'' (for AUDIX located on this switch). Entering ''none'' (default) indicates the hunt group does not serve as a message hunt group. Only one hunt group in the System may be administered as msa, one as rem-audix, and one as audix.
- **AUDIX Extension**—Displayed when Message Center is ''rem-audix''. Enter a valid 4–5 digit Uniform Dial Plan (UDP) extension that identifies the AUDIX extension number on the host switch used as the message for this hunt group (supports the AUDIX In A DCS feature).
- **Message Center AUDIX Name**—Appears for hunt groups with ''audix'' or ''rem-audix'' as the Message Center. Enter the name of the AUDIX machine as it appears on the User-Defined Adjunct Names Form.

- **Message Center MSA Name**—Appears for hunt groups with ‘‘msa’’ as the Message Center. Enter the name of the Message Server Adjunct as it appears on the User-Defined Adjunct Names Form.
- **Primary**— Appears for hunt groups with ‘‘audix’’ or ‘‘msa’’ as the Message Center. Enter ‘‘y’’ to indicate that the Message Server is the primary adjunct.
- **LWC Reception**—Defines the source for Leave Word Calling (LWC) messages. Valid entries are ‘‘audix’’, ‘‘msa’’, ‘‘spe’’, or ‘‘none’’.
- **First Announcement Extension**—Enter a recorded announcement extension number or leave blank. This is the announcement the caller will receive after being in the queue for the time interval specified in the First Announcement Delay field. If the call hasn’t been answered after the announcement, the caller will hear music (for the first announcement) if Music-on-Hold is provided or ringing for as long as it remains in the queue. Leaving this field blank indicates there will be no announcement. If this is the forced first announcement, the caller always hears ringback after the announcement; otherwise, the caller will hear music (if provided).

These next **four** fields are displayed if Queue is ‘‘y’’ and ACD is ‘‘y’’.

- **First Announcement Delay (sec**)—Enter the number of seconds (0–99 or blank) that a call can remain in queue before the associated first announcement is given the calling party. The call retains its place in the queue while the caller is listening to the recorded announcement. If the call hasn’t been answered after the announcement, the caller will hear music (for the first announcement) if Music-on-Hold is provided or ringing for as long as the call remains in queue. When ‘‘0’’ is entered, the first announcement is provided immediately to the caller. This value is automatically ‘‘0’’ if there is no queue. This field must be blank if there is no first announcement.
- **Second Announcement Extension**—Enter the extension number assigned to a recorded announcement or leave blank. Leaving the field blank indicates that there is no second announcement.
- **Second Announcement Delay (sec)**—Enter the time in seconds (1–99 or blank) before the call in the queue receives second recorded announcement or that the second announcement is repeated. Leave blank if there is no second announcement. It is recommended that if this split or hunt group is a coverage point for another split, that this delay should not be more than 15 s.

- **Second Announcement Recurring**—Enter ‘‘y’’ to have the second announcement repeated each time the Second Addnouncement Delay expires. Leave blank if there is no second announcement.

Pages 3–27 of the Form

- **Group Number**—Display-only field.
- **Group Extension**—Display-only field.
- **Type**—Display-only field.
- **Member Range Allowed**—The range of allowed members will be displayed on all 25 member pages. These values vary depending on the particular system and/or configuration.
- **Administered Members (min/max)**—Indicates the minimum and maximum member number administered for this hunt group.
- **Total Administered Members**—Indicates the total number of members administered for this hunt group.
- **More Members Exist**—Display-only field showing that there are more members than currently displayed (the current page is not the last page).
- **At End of Member List**—Display-only field showing that the current page is also the last page.
- **Ext**—Display-only field if the Controlling Adjunct field is ‘‘y’’. Controlled Agent extensions must be entered on the Adjunct Controlled Agent Table form. For Controlling Adjunct = ‘‘n’’, enter the extension number associated with a member in the Hunt Group or with an associated data module. The extension may not be a VDN. The data module cannot be a member of an ACD split.
- **Name**—Make no entry, this is a display-only field. The name is assigned to the above extension number when it is administered in the System.

```
                              HUNT GROUP                  Page 1 of 27

    Group Number: xxx           Group Extension: _____    Group Type: ucd
      Group Name: _________________                            ACD? y
           Queue? n                              AAS? _          Vector? n
   Security Code: ____ Night Service Destination: _____          COR: __
ISDN Caller Disp: _________         Coverage Path: ____

              Measured: none                    Supervisor Extension: _____
  Priority on Intraflow? n
    Controlling Adjunct? none
```

Hunt Group Form (Page 1 of 27)

```
                              HUNT GROUP                  Page 2 of 27

              Message Center: none
               LWC Reception: none
                  AUDIX Name: ________
          Message Server Name: ________
First Announcement Extension: _____
```

Hunt Group Form (Page 2 of 27)

Implementation Note:

The following are Pages 1 and 2 when the Queue and Vector fields are ‘‘n’’ and the ACD field is ‘‘y’’.

```
                                HUNT GROUP                  Page 1 of 27

    Group Number: xxx           Group Extension: _____    Group Type: ucd
      Group Name: _________________                            ACD? n
           Queue? y                                          Vector? y
   Security Code: ____                                          COR: 1
ISDN Caller Disp: _________        Coverage Path: ____

           Queue Length: ___
Calls Warning Threshold: ___     Calls Warning Port: ________
 Time Warning Threshold: ___      Time Warning Port: ________
```

Hunt Group Form (Page 1 of 27)

```
                                HUNT GROUP                  Page 2 of 27

            Message Center: none
             LWC Reception: none
                AUDIX Name: ________
      Message Server Name: ________
```

Hunt Group Form (Page 2 of 27)

Implementation Note:

The following are Pages 1 and 2 when the Queue and Vector fields are ‘‘y’’ and ACD field is ‘‘n’’.

```
                              HUNT GROUP                  Page 1 of 27

    Group Number: xxx           Group Extension: _____    Group Type: ucd
      Group Name: _________________                            ACD? n
           Queue? n                                         Vector? y
   Security Code: ____                                         COR: _
ISDN Caller Disp: _________
```

Hunt Group Form (Page 1 of 27)

```
                              HUNT GROUP                  Page 2 of 27

            Message Center: none
             LWC Reception: none
                AUDIX Name: ________
      Message Server Name: ________
```

Hunt Group Form (Page 2 of 27)

Implementation Note:

This is Page 1 and 2 when the Vector field is ‘‘y’’ and the ACD and Queue fields are ‘‘n’’.

```
                                HUNT GROUP                  Page 1 of 27

    Group Number: xxx            Group Extension: _____    Group Type: ucd
      Group Name: _________________                             ACD? n
           Queue? n                                          Vector? n
   Security Code: ____ Night Service Destination: _____        COR: 1
ISDN Caller Disp: _________         Coverage Path: ____
```

Hunt Group Form (Page 1 of 27)

```
                                HUNT GROUP                  Page 2 of 27

            Message Center: rem-audix      AUDIX Extension: _____
  Message Center AUDIX Name: _____                 Primary? n
```

Hunt Group Form (Page 2 of 27)

Implementation Note:

This is Page 1 and 2 when the Queue, ACD, and Vector fields are ‘‘n’’ and Message Center field is ‘‘rem-audix’’.

```
                              HUNT GROUP                  Page 1 of 27

    Group Number: xxx           Group Extension: _____    Group Type: ucd
      Group Name: _________________                            ACD? n
           Queue? n                                          Vector? n
  Security Code: ____ Night Service Destination: _____          COR: 1
ISDN Caller Disp: _________         Coverage Path: ____
```

Hunt Group Form (Page 1 of 27)

```
                              HUNT GROUP                  Page 2 of 27

            Message Center: audix
  Message Center AUDIX Name: _________________        Primary? n
```

Hunt Group Form (Page 2 of 27)

Implementation Note:

This is Page 1 and 2 when the Vector, Queue, and ACD fields are ‘‘n’’ and Message Center field is ‘‘audix’’.

```
                                HUNT GROUP                  Page 1 of 27

    Group Number: xxx           Group Extension: _____    Group Type: ucd
      Group Name: _________________                             ACD? y
           Queue? y                          AAS? n           Vector? y
   Security Code: ____                                          COR: __
ISDN Caller Disp: _________        Coverage Path: ____

              Measured: none                    Supervisor Extension: _____
    Controlling Adjunct? none
           Queue Length: ___
Calls Warning Threshold: ___     Calls Warning Port: ________
 Time Warning Threshold: ___      Time Warning Port: ________

         Forced Entry of Stroke Counts or Call Work Codes? n
```

Hunt Group Form (Page 1 of 27)

```
                                HUNT GROUP                  Page 2 of 27

            Message Center: none
             LWC Reception: none
                AUDIX Name: ________
      Message Server Name: ________
```

Hunt Group Form (Page 2 of 27)

Implementation Note:

This is Page 1 and 2 when the Vector, Queue, and ACD fields are ‘‘y’’.

```
                              HUNT GROUP                  Page 1 of 27

    Group Number: xxx            Group Extension: _____    Group Type: ucd
      Group Name: _________________                             ACD? n
           Queue? n                                          Vector? n
   Security Code: ____ Night Service Destination: _____        COR: __
ISDN Caller Disp: _________         Coverage Path: ____
```

Hunt Group Form (Page 1 of 27)

```
                              HUNT GROUP                  Page 2 of 27

            Message Center: none
             LWC Reception: _____
                AUDIX Name: ________
      Message Server Name: ________
```

Hunt Group Form (Page 2 of 27)

Implementation Note:

This is Page 1 and 2 when the ACD, Queue, and Vector fields are ‘‘n’’.

```
                                HUNT GROUP                  Page 1 of 27

    Group Number: xxx            Group Extension: _____    Group Type: ucd
      Group Name: _________________                             ACD? n
           Queue? y                                          Vector? n
   Security Code: ____ Night Service Destination: _____        COR: 1
ISDN Caller Disp: _________         Coverage Path: ____

           Queue Length: ___
Calls Warning Threshold: ___     Calls Warning Port: ________
 Time Warning Threshold: ___      Time Warning Port: ________
```

Hunt Group Form (Page 1 of 27)

```
                                HUNT GROUP                  Page 2 of 27

              Message Center: none
               LWC Reception: none
                  AUDIX Name: ________
          Message Server Name: ________
First Announcement Extension: _____       First Announcement Delay (sec): __
```

Hunt Group Form (Page 2 of 27)

Implementation Note:

This is Page 1 and 2 when the Queue field is ‘‘y’’ and the ACD and Vector fields are ‘‘n’’.

```
                              HUNT GROUP                          Page 3 of 27

Group Number: __              Group Extension: ____              Type: ___
Member Range Allowed: 1-999          Administered Members (min/max): xxx/yyy
                                         Total Administered Members: xxx
       Ext      Name           Ext      Name                 Ext       Name
    1: ____                14: ____                    27: ____
    2: ____                15: ____                    28: ____
    3: ____                16: ____                    29: ____
    4: ____                17: ____                    30: ____
    5: ____                18: ____                    31: ____
    6: ____                19: ____                    32: ____
    7: ____                20: ____                    33: ____
    8: ____                21: ____                    34: ____
    9: ____                22: ___                     35: ____
   10: ____                23: ___                     36: ____
   11: ____                24: ___                     37: ____
   12: ____                25: ___                     38: ____
   13: ____                26: ___                     39: ____
                                                       40: ____
```

Hunt Group Form (Page 3 of 27)

To reduce repetition, pages 2–27 are not shown.

Intercom Group

The Automatic and Dial Intercom features are available to users whose voice terminals have intercom feature button assignments. Members of an intercom group may have Dial Intercom, Automatic Intercom, both, or neither with respect to placing an Intercom call. Single-line voice terminals, if a member of the group, can receive an Intercom call, but cannot place an Intercom call.

This form is used to specify the group members, not the type of Intercom. (The intercom type and associated feature buttons are assigned to multi-appearance voice terminals using the multi-appearance voice terminal forms.)

Up to 256 Dial Intercom groups can be assigned. A group can have up to 32 members. The total number of Intercom group members allowed in the System is 8192.

Administration Commands

The following administration commands can be used to access the Intercom Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	intercom-group	1–32 (or 'next')
change	intercom-group	1–32
display	intercom-group	1–32 ['print' or 'schedule']
list	intercom-group	['print' or 'schedule']
remove	intercom-group	1–32

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Pages 1 and 2 of the Form

- **Group Number**—Enter a number from 1–32 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- **Length of Dial Code**—On Page 1, enter ''1'' (default) or ''2''. This is the number of digits that must be dialed to access someone in the group. Enter ''1'' if group members are less than ten or ''2'' if group members are ten or more. (Page 2 is a display-only field.)
- **Ext**—Enter the extension number of each member of the group.

  NOTE:
  VDN extensions are not allowed.

- **DC**—Enter a 1- or 2-digit code. The number of digits entered depends on the number assigned in the Length of Dial Code field. The digit 0 (zero) may **not** be used and this field cannot be left blank. This is the code that must be dialed to access that group member.
- **Name**—Make no entry. The name is assigned when the member's associated extension was administered.

```
                              INTERCOM GROUP                  Page 1 of 2

                                 Group Number: __
                            Length of Dial Code: 1
GROUP MEMBER ASSIGNMENTS
          Ext    DC   Name                        Ext    DC   Name
       1: _____  __                          9: _____  __
       2: _____  __                         10: _____  __
       3: _____  __                         11: _____  __
       4: _____  __                         12: _____  __
       5: _____  __                         13: _____  __
       6: _____  __                         14: _____  __
       7: _____  __                         15: _____  __
       8: _____  __                         16: _____  __
```

Intercom Group Form (Page 1 of 2)

```
                              INTERCOM GROUP                  Page 2 of 2

                                 Group Number: __
                            Length of Dial Code: 1
GROUP MEMBER ASSIGNMENTS
          Ext    DC   Name                        Ext    DC   Name
      17: _____  __                         25: _____  __
      18: _____  __                         26: _____  __
      19: _____  __                         27: _____  __
      20: _____  __                         28: _____  __
      21: _____  __                         29: _____  __
      22: _____  __                         30: _____  __
      23: _____  __                         31: _____  __
      24: _____  __                         32: _____  __
```

Intercom Group Form (Page 2 of 2)

Inter-Exchange Carrier (IXC) Codes

This form is used to allow identification of the IXC in the CDR record.

Administration Commands

The following administration commands can be used to access the Inter-Exchange Carrier Codes form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering

a command.

Action	Object	Qualifier*
change	ixc-codes	—
display	ixc-codes	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

- **IXC Access Number**—Enter the digits dialed or inserted by AAR/ARS into the outpulsed digit string to gain access to the inter-exchange carrier. No duplicate access numbers are allowed in the table.
- **IXC Name**—Enter 0–15 characters to identify the IXC. This description is for information purposes.

```
                INTER-EXCHANGE CARRIER CODES            Page 1 of 1

IXC Codes Assignments (Enter up to 15)
CDR  IXC                          CDR  IXC
IXC   Access                       IXC   Access
Code  Number    IXC Name           Code  Number    IXC Name
1.    _______   ________________    9.   _______   ________________
2.    _______   ________________   10.   _______   ________________
3.    _______   ________________   11.   _______   ________________
4.    _______   ________________   12.   _______   ________________
5.    _______   ________________   13.   _______   ________________
6.    _______   ________________   14.   _______   ________________
7.    _______   ________________   15.   _______   ________________
8.    _______   ________________
```

Inter-Exchange Carrier Codes Form (Page 1 of 1)

Intra-switch CDR

This form is used to administer extensions for which Inter-switch CDR is to be enabled. Attendants are not allowed to be optioned for the Intra-switch CDR feature. To add the Intra-switch CDR feature to additional extensions, add the extension(s) to this form.

```
                              INTRA-SWITCH CDR
Assigned Members
  1: 72447 17: _____ 33: _____ 49: _____ 65: _____ 81: _____  97: _____
  2: 72448 18: _____ 34: _____ 50: _____ 66: _____ 82: _____  98: _____
  3: _____ 19: _____ 35: _____ 51: _____ 67: _____ 83: _____  99: _____
  4: _____ 20: _____ 36: _____ 52: _____ 68: _____ 84: _____ 100: _____
  5: _____ 21: _____ 37: _____ 53: _____ 69: _____ 85: _____ 101: _____
  6: _____ 22: _____ 38: _____ 54: _____ 70: _____ 86: _____ 102: _____
  7: _____ 23: _____ 39: _____ 55: _____ 71: _____ 87: _____ 103: _____
  8: _____ 24: _____ 40: _____ 56: _____ 72: _____ 88: _____ 104: _____
  9: _____ 25: _____ 41: _____ 57: _____ 73: _____ 89: _____ 105: _____
 10: _____ 26: _____ 42: _____ 58: _____ 74: _____ 90: _____ 106: _____
 11: _____ 27: _____ 43: _____ 59: _____ 75: _____ 91: _____ 107: _____
 12: _____ 28: _____ 44: _____ 60: _____ 76: _____ 92: _____ 108: _____
 13: _____ 29: _____ 45: _____ 61: _____ 77: _____ 93: _____ 109: _____
 14: _____ 30: _____ 46: _____ 62: _____ 78: _____ 94: _____ 110: _____
 15: _____ 31: _____ 47: _____ 63: _____ 79: _____ 95: _____ 111: _____
 16: _____ 32: _____ 48: _____ 64: _____ 80: _____ 96: _____ 112: _____
```

Intra-Switch CDR Form (Page 1 of 1)

Implementation Note:

Up to 500 (non-ASAI) extensions may be optioned.

The *change intra-switch-cdr* and *display intra-switch-cdr* commands with this feature.

Listed Directory Numbers

This form allows up to eight Direct Inward Dialing (DID) numbers to be treated as public Listed Directory Numbers (LDNs). When one of these numbers is direct inward dialed, the calling party is routed to the attendant. The attendant display indicates a Listed Directory Number call and the name associated with the dialed extension. Refer to ‘‘Multiple Listed Directory Numbers’’ in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for additional information.

Administration Commands

The following administration commands can be used to access the Listed Directory Numbers form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	listed-directory-numbers	—
display	listed-directory-numbers	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

- **Ext**—Enter a valid unassigned extension number (1 to 5 digits).
- **Name**—Enter a name used to identify the Listed Directory Number. Up to 15 alphanumeric characters may be used.
- **Night Destination**—Enter the valid assigned extension number (may be a night service extension, a recorded announcement extension, a Vector Directory Number, an individual attendant extension, or an AUDIX hunt group extension) that will receive calls to these listed numbers when the System is in the Night Service mode. Enter 1 to 5 digits.

```
                        LISTED DIRECTORY NUMBERS                Page 1 of 1

    Ext       Name                          Ext       Name
 1: ____      ____________________     11: ____      ____________________
 2: ____      ____________________     12: ____      ____________________
 3: ____      ____________________     13: ____      ____________________
 4: ____      ____________________     14: ____      ____________________
 5: ____      ____________________     15: ____      ____________________
 6: ____      ____________________     16: ____      ____________________
 7: ____      ____________________     17: ____      ____________________
 8: ____      ____________________     18: ____      ____________________
 9: ____      ____________________     19: ____      ____________________
10: ____      ____________________     20: ____      ____________________

                                Night Destination: ___________
```

Listed Directory Numbers Form (Page 1 of 1)

Loudspeaker Paging and Code Calling Access

These forms are used to implement Loudspeaker Paging, Loudspeaker Paging—Deluxe, and Code Calling Access. The Loudspeaker Paging Access form contains the fields required to assign zone (speaker location) information for

the Loudspeaker Paging, Loudspeaker Paging—Deluxe, and Code Calling Access features.

The Code Calling IDs form is used to assign extension numbers to code calling identification numbers. As many as 125 three-digit chime codes can be provided. Only one extension number can be assigned to each chime code. The System translates the ID number associated with a code calling extension to a chime code and then plays the code over a zone loudspeaker as assigned on the Loudspeaker Paging form.

Administration Commands

The following administration commands can be used to access the Loudspeaker Paging Access form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	paging loudspeaker	—
display	paging loudspeaker	['print' or 'schedule']
change	paging code-calling-ids	—
display	paging code-calling-ids	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

Page 1 of the Loudspeaker Paging Access Form

- **CDR**—Enter ''y'' (default) to indicate if you want CDR data collection on the paging ports.
- **Voice Paging Timeout (sec)**—Enter from 10–600 s. This is the length of time the user can be connected to the paging equipment. After the time has elapsed, the call is disconnected. Analyze the typical messages you expect to broadcast; time them; then add another 4 to 5 s.
- **Code Calling Playing Cycles**—Enter a number from 1–3 to indicate the number of times the code calling identification will play. Analyze who your code calling users are and whether they are likely to hear the code chime the first time.

- **Port**—Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment.

  Each assigned paging zone requires a port on a TN763 Auxiliary Line circuit pack.

  If a port is not assigned to a zone, then the CDR, Voice Paging Timeout, and Code Calling Playing Cycles are assigned the System default values when the System is administered.

- **Voice Paging—TAC**—Enter a 1-, 2-, 3-, or 4-digit Trunk Access Code (TAC) that corresponds with the Dial Plan Record. One TAC must be assigned for each zone. This is the code you will dial to access the zone (the physical location of the loudspeakers). TAC for the field labeled **ALL** activates all speakers in the nine zones when that access code is dialed. These codes can be assigned to Abbreviated Dialing feature buttons on user stations or to the DTGS buttons on the attendant consoles for easy activation by attendants. A different TAC must be assigned for each paging zone.
- **Voice Paging—COR**—Enter the desired number (0–95). Each TAC must be assigned a class of restriction (COR) that reflects the desired restriction for Loudspeaker Paging.
- **Code Calling—TAC**—Enter a 1-, 2-, 3-, or 4-digit TAC that corresponds with the Dial Plan Record. These codes can be assigned to Abbreviated Dialing feature buttons on user stations or to the DTGS buttons on the attendant console for direct access to the zone by the attendant. A different TAC must be assigned for each paging zone.
- **Code Calling—COR**—Enter the desired number from 0–95. Each TAC must be assigned a class of restriction (COR) that reflects the desired restriction for Code Calling.
- **Location**—Enter the location where the loudspeakers are installed, for example, conference room A, warehouse, storeroom; default is ''PAGING''.

```
                        LOUDSPEAKER PAGING ACCESS          Page 1 of 1

                                      CDR? y
                  Voice Paging Timeout (sec): ___
                 Code Calling Playing Cycles: _
PAGING PORT ASSIGNMENTS
                          Voice Paging     Code Calling
     Zone  Port           TAC      COR     TAC      COR        Location
       1: ______         ___       __     ___       __      PAGING_________
       2: ______         ___       __     ___       __      PAGING_________
       3: ______         ___       __     ___       __      PAGING_________
       4: ______         ___       __     ___       __      PAGING_________
       5: ______         ___       __     ___       __      PAGING_________
       6: ______         ___       __     ___       __      PAGING_________
       7: ______         ___       __     ___       __      PAGING_________
       8: ______         ___       __     ___       __      PAGING_________
       9: ______         ___       __     ___       __      PAGING_________
     ALL:                ___       __     ___       __
```

Loudspeaker Paging Access Form (Page 1 of 1)

Pages 1 and 2 of the Code Calling IDs Form

Make assignments as required for the following fields on each page of the form:

- **Ext**—Enter an assigned or unassigned extension number (may not be a VDN extension). The extension number, when dialed using the Code Calling Access feature, will cause an associated chime signal to be broadcast via an associated zone loudspeaker. Leave this field blank if you do not want to assign a code.

```
                                CODE CALLING IDs              Page 1 of 2
ID ASSIGNMENTS
          Id   Ext     Id   Ext     Id   Ext     Id   Ext     Id   Ext
          111: ____    141: ____    221: ____    251: ____    331: ____
          112: ____    142: ____    222: ____    252: ____    332: ____
          113: ____    143: ____    223: ____    253: ____    333: ____
          114: ____    144: ____    224: ____    254: ____    334: ____
          115: ____    145: ____    225: ____    255: ____    335: ____
          121: ____    151: ____    231: ____    311: ____    341: ____
          122: ____    152: ____    232: ____    312: ____    342: ____
          123: ____    153: ____    233: ____    313: ____    343: ____
          124: ____    154: ____    234: ____    314: ____    344: ____
          125: ____    155: ____    235: ____    315: ____    345: ____
          131: ____    211: ____    241: ____    321: ____    351: ____
          132: ____    212: ____    242: ____    322: ____    352: ____
          133: ____    213: ____    243: ____    323: ____    353: ____
          134: ____    214: ____    244: ____    324: ____    354: ____
          135: ____    215: ____    245: ____    325: ____    355: ____
```

Code Calling IDs Form (Page 1 of 2)

To reduce repetition, page 2 of the form is not shown.

Miscellaneous Related System Parameters

This form is used to administer the translation data associated with various feature-related parameters.

Administration Commands

The following administration commands can be used to access the Miscellaneous Related System Parameters form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier
change	system-parameters miscellaneous	
display	system-parameters miscellaneous	

Form Instructions

Make assignments as required for the following fields on the form.

- **Public Network Trunks on Conference Call**—Enter the number of Public Network trunks allowed on a conference call (0–5).
- **Conference Parties with Public Network Trunks**—Enter the number of parties allowed in a conference call involving a Public Network subscriber (3–6).

  If the Public Network Trunks on Conference Call field is "0", this field will not appear.
- **Conference Parties without Public Network Trunks**—Enter the number of parties allowed in a conference call involving no Public Network trunks (3–6).
- **Short Interdigit Timer (seconds)**—Enter the time (3–9) in seconds between digits collected from a station set by the PBX if digit processing predicts the digits already collected might form a complete dialed number.
- **Unanswered DID Call Timer (seconds)**—Enter the time (10–1024) in seconds for a DID call to remain unanswered before it is routed to the attendant. Blank disables this timer.
- **Line Intercept Tone Timer (seconds)**—Enter the time (2–60) in seconds for an analog station user to wait after hearing warning tone without going on hook before it is placed in the lockout state.
- **Auto Start**—Enter ‘‘y’’ to enables the Automatic Start feature. If Auto Start is enabled, the start buttons on all attendant consoles are disabled.
- **Auto Hold**—Enter ‘‘y’’ to enables the Automatic Hold Feature on a system wide basis.
- **Switch Name**—Enter the name of the system switch. Up to twenty alpha-numeric characters can be used.
- **DISTINCTIVE AUDIBLE ALERTING — Internal**—Enter the number of rings (1–3) for internal (station to station or tie trunk) calls.
- **DISTINCTIVE AUDIBLE ALERTING — External**—Enter the number of rings (1–3) for external (attendant or other than a tie trunk) calls.
- **DISTINCTIVE AUDIBLE ALERTING — Priority**—Enter the number of rings (1–3) for priority calls. A priority call is one so designated by the calling party. Only sets with proper permission can make priority calls.

```
                MISCELLANEOUS-RELATED SYSTEM PARAMETERS

                Public Network Trunks on Conference Call: _
           Conference Parties with Public Network Trunks: _
        Conference Parties without Public Network Trunks: _
                     Short Interdigit Timer (seconds): _
                  Unanswered DID Call Timer (seconds): ____
                  Line Intercept Tone Timer (seconds): __
                                          Auto Start? _
                                           Auto Hold? _
DISTINCTIVE AUDIBLE ALERTING
                    Internal: _   External: _   Priority: _
```

Miscellaneous Related System Parameters Form (Page 1 of 1)

Modem Pool Group

There are two types of conversion resources for Modem Pooling. The first type, an *integrated conversion resource*, is a circuit pack that emulates a Trunk Data Module connected to a 212A-type modem. Two conversion resources are on each circuit pack. Up to 2016 conversion resources can be administered.

The second type, a *combined conversion resource*, is a separate Trunk Data Module and modem administered as a unit. The Trunk Data Module component of the conversion resource may be either a Modular Trunk Data Module (MTDM) or 7400A Data Module and connects to a digital port using Digital Communications Protocol (DCP); the modem connects to an analog port.

Administration Commands

The following administration commands can be used to access the Modem Pool Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	modem-pool num	[1–63]
change	modem-pool num	[1–63]
display	modem-pool num	[1–63] [’print’ or ’schedule’]
list	modem-pool num	[’print’ or ’remove’]
remove	modem-pool num	[1–63]

* Brackets [ ] indicate the qualifier is optional.

Form Instructions:

Make assignments as required for the following fields on the form:

- **Group Number**—When completing a paper form, enter a number from 1–63. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- **Group Type**—Enter ''integrated'' or ''combined''.
- **Receiver Responds to Remote Loop**—Displayed when Group Type is ''integrated''. Enter ''y'' to allow far-end modem to put conversion resource into loop back mode; default is ''n''.
- **Hold Time (min)**—Enter the number of minutes (1–99) that a conversion resource in the group may be held while a call waits in a queue or reserved after Data Call Preindication; default is 5.
- **Send Space Disconnect**—Displated when Group Type is ''integrated''. Enter ''y'' (default) to allow the conversion resource to send 4 s of space before disconnecting.
- **Receive Space Disconnect**—Displayed when Group Type is ''integrated''. Enter ''y'' (default) to allow the conversion resource to disconnect after receiving 1.6 s of space.
- **CF-CB Common**—Displayed when Group Type is ''integrated''. Enter ''y'' (default) to indicate that the CF and CB leads on the conversion resource are logically connected.
- **Loss of Carrier Disconnect**—Displayed when Group Type is ''integrated''. Enter ''y'' (default) to permit conversion resource to disconnect if it detects a dropped carrier.
- **Modem Name**—Displayed when Group Type is ''combined''. Enter a 1- to 6-alphanumeric character string to indicate the name of the modem pool.

The following fields (Speed, Duplex, and Synchronization) cannot be filled out for the ''integrated'' pooled modem forms but can be assigned on the ''combined'' pooled modem form. The integrated conversion resource will automatically adjust its speed and synchronization to the endpoint it is connected to. In synchronous mode, the integrated modem pool can operate at 1200 baud. In asynchronous mode, it can operate at 300 or 1200 baud. Full-duplex operation is always used.

- **Speed**—Enter the communication speed in bits per second (LOW—0 to 300 blind sampled, 300, 1200, 2400, 4800, 9600, or 19200) of the conversion resources in the group; default is ''LOW/300/1200''. Enter one to three speeds separated by slashes (for example, 300/1200/2400) to indicate the three running speeds.

- **Duplex**—Enter ‘‘full’’ (default) or ‘‘half’’ to indicate the duplex mode of the conversion resources in the group.
- **Synchronization**—Enter ‘‘sync’’ or ‘‘async’’ (default) to indicate the synchronization mode of the conversion resources in the group.

CIRCUIT PACK ASSIGNMENTS are optional on ‘‘integrated’’ conversion resource forms.

- **Circuit Pack Location**—Enter the port associated with the conversion resource on the integrated modem pool board. Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

PORT PAIR ASSIGNMENTS are optional on ‘‘combined’’ pooled modem forms.

- **Analog Digital**—Enter the port numbers of the modem—TDM pair in a conversion resource. Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

NOTE:
Two port entries are required.

```
                                MODEM POOL GROUP                 Page 1 of 1

                    Group Number: _1                    Group Type: integrated
Receiver Responds to Remote Loop? n                 Hold Time (min): 5
           Send Space Disconnect? y      Receive Space Disconnect? y
                     CF-CB Common? y    Loss of Carrier Disconnect? y
          Speed: LOW/300/1200    Duplex: full     Synchronization: a/sync
       CIRCUIT PACK ASSIGNMENTS
                               Circuit Pack   Circuit Pack
                               Location       Location
                               1: ___         9: ___
                               2: ___        10: ___
                               3: ___        11: ___
                               4: ___        12: ___
                               5: ___        13: ___
                               6: ___        14: ___
                               7: ___        15: ___
                               8: ___        16: ___
```

Integrated Modem Pool Group Form (Page 1 of 1)

Implementation Note:

This is Page 1 of 1 when the Group Type field is ‘‘integrated’’.

```
                              MODEM POOL GROUP                   Page 1 of 1

   Group Number: __                        Group Type: combined
     Modem Name: ______              Hold Time (min): 5_
   Speed: LOW/300/1200___     Duplex: full     Synchronization: async
   PORT PAIR ASSIGNMENTS
     Analog Digital    Analog Digital     Analog Digital      Analog Digital
   1: _____ _____     9: _____ _____    17: _____ ______    25: _____ _____
   2: _____ _____    10: _____ _____    18: _____ ______    26: _____ _____
   3: _____ _____    11: _____ _____    19: _____ ______    27: _____ _____
   4: _____ _____    12: _____ _____    20: _____ ______    28: _____ _____
   5: _____ _____    13: _____ _____    21: _____ ______    29: _____ _____
   6: _____ _____    14: _____ _____    22: _____ ______    30: _____ _____
   7: _____ _____    15: _____ _____    23: _____ ______    31: _____ _____
   8: _____ _____    16: _____ _____    24: _____ ______    32: _____ _____
```

Combined Modem Pool Group Form (Page 1 of 1)

Implementation Note:

This is Page 1 of 1 when the Group Type field is ‘‘combined’’.

Pickup Groups

This form is used to implement up to 5000 call pickup groups with up to 50 extensions per group. A pickup group is a group of users authorized to answer calls to a voice terminal extension within that group of users. A voice terminal extension number can only belong to one pickup group. Up to 10,000 members are allowed in the System.

Administration Commands

The following administration commands can be used to access the Pickup Group form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*	
Without Hospitality	add	pickup-group	1–5000 (or ‘next’)
Parameter Reduction	change	pickup-group	1–5000
Feature	display	pickup-group	1–5000 [’print’ or ’schedule’]
	list	pickup-group	[’print’ or ’schedule’]
	remove	pickup-group	1–5000
With Hospitality	add	pickup-group	1–5 (or ‘next’)
Parameter Reduction	change	pickup-group	1–5
Feature	display	pickup-group	1–5 [’print’ or ’schedule’]
	list	pickup-group	[’print’ or ’schedule’]
	remove	pickup-group	1–5

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Pages 1 and 2 of the Form

- **Group Number**—Enter a number from 1–5000 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.

  NOTE:
  If the Hospitality Parameters Reduction option is enabled on the System-Parameters Customer-Options form, up to five group numbers may be assigned.

- **Ext**—Enter the extension number of each user in the group.

  NOTE:
  A VDN cannot be assigned to a Call Pickup group.

- **Name**—Make no entry. The name is assigned to the above extension number when the the users and their associated extensions were administered.

```
                                PICKUP GROUP                Page 1 of 2

                                Group Number: __
GROUP MEMBER ASSIGNMENTS
       Ext    Name                                  Ext    Name
    1: _____                                  14: _____
    2: _____                                  15: _____
    3: _____                                  16: _____
    4: _____                                  17: _____
    5: _____                                  18: _____
    6: _____                                  19: _____
    7: _____                                  20: _____
    8: _____                                  21: _____
    9: _____                                  22: _____
   10: _____                                  23: _____
   11: _____                                  24: _____
   12: _____                                  25: _____
   13: _____
```

Pickup Group Form (Page 1 of 2)

To reduce repetition, page 2 of the form is not shown.

Recorded Announcements

This form is used to assign up to 256 integrated announcements. Integrated announcements are assigned and recorded on the TN750 Announcement circuit pack. The external announcements are assigned on the TN742, TN746B, or TN769 Analog Line circuit pack that is connected to external recording or play-back equipment.

Each announcement is accessed by dialing an extension number that is assigned to each announcement.

Integrated announcements on the TN750B circuit pack may be recorded at 16-kbps (for 8 minutes and 32 s of announcement time) and 32-kbps (for 4 minutes and 16 s of announcement time), depending on administration. A different recording speed may be used for each integrated announcement. These capacities will be different if a combination of different recording speeds is used.

Administration Commands

The following administration commands can be used to access the Recorded Announcements form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	announcements	—
display	announcements	['print' or 'schedule']
restore	announcements	—
save	announcements	—

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Pages 1–8 of the Form

- **Ext**—Enter a 1- to 5-digit unassigned extension number that agrees with the dial plan. External announcements are digital devices connected to the System via analog ports. Up to 256 extension numbers may be assigned on the form, one extension number for each announcement. References to a particular announcement ''Ext'' may be from the following forms: Hunt Group, Call Coverage Paths, Trunk Group (Incoming Destination), Call Vector, and Feature-Related System Parameters (DID/Tie/ISDN Intercept Treatment, Controlled Restriction fields).
- **Type**—Displayed when Queue is ''y''. Enter the type of announcement you want to assign to this extension number. Valid entries are ''integrated'', ''analog'', or ''aux-trunk''.

  If ''integrated'' is entered, the Protect and Rate fields must be completed. If ''analog'' is entered, the Queue Length and Port fields must be completed.

  Integrated announcement circuit packs have pre-set queue lengths of 50.
- **COR**—Enter the desired class of restriction (COR) number from 0–95; default is 1.
- **Name**—Enter up to 15 alphanumeric characters to describe the announcement message.
- **Queue**—Enter ''y'' to queue calls for the announcement; otherwise, enter ''n'' (default).

Page 1 of the Form

- **Queue Length**—Applicable if the Queue field is ''y'' and the Type field is ''analog''. Enter the number of calls that can be queued for this announcement. Valid entries are 1–150; default is 0. The sum of the queue entries for all external (analog connected) announcements cannot exceed 150. When the Type field entry is ''integrated'', ''N/A'' will be displayed in this field.

- **Protect**—Enter ‘‘y’’ to protect the integrated announcement from being deleted or changed by any user. Enter ‘‘n’’ (default) to allow users with a console permission COS to change or delete an announcement.

  NOTE:
  When the Type field is ‘‘analog’’, the Protect field is ‘‘N/A’’.

- **Rate**—Used to specify the recording speed when recording announcements on the TN750B Integrated circuit pack. Valid entries are ‘‘16’’ or ‘‘32’’ (default).

  NOTE:
  When the Type field is ‘‘analog’’, the Rate field is ‘‘N/A’’.

- **Port**—Enter the seven characters of the external announcement port location. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  When the Type field entry is ‘‘integrated’’, ‘‘N/A’’ will be displayed in this field.

```
                                ANNOUNCEMENTS                          Page 1 of 8

    Ext.   Type       COR   Name            Queue  Q-Len  Protect?  Rate  Port
 1: 1701_  analog____  1_   busy__________   y      10      N/A      N/A   1B0404
 2: 1702_  analog____  1_   out of service   n      N/A     N/A      N/A   1B1701
 3: 1703_  integrated  1_   please dial___   n      N/A     n        32    N/A
 4: _____  __________  1_   _____________    n
 5: _____  __________  1_   _____________    n
 6: _____  __________  1_   _____________    n
 7: _____  __________  1_   _____________    n
 8: _____  __________  1_   _____________    n
 9: _____  __________  1_   _____________    n
10: _____  __________  1_   _____________    n
11: _____  __________  1_   _____________    n
12: _____  __________  1_   _____________    n
13: _____  __________  1_   _____________    n
14: _____  __________  1_   _____________    n
15: _____  __________  1_   _____________    n
16: _____  __________  1_   _____________    n
```

Recorded Announcements Form (Page 1 of 8)

To reduce repetition, pages 2–8 of the form are not shown.

Implementation Note:

Announcements 1 and 3 show the fields that are assigned to the analog and integrated announcement, respectively.

Queue Length is displayed when the Type field is ‘‘analog’’ and Queue is ‘‘y’’.

The Port field is displayed when the Type field is ‘‘analog’’.

The Protect field is displayed when the Type field is ‘‘integrated’’.

Remote Access

This form is used to permit a caller located outside the System to access the System through the public or private network and then use the features and services of the System.

Remote Access users can dial into the System using Central Office, Foreign Exchange, WATS, and ISDN-PRI trunks. In addition, a dedicated Remote Access Direct Inward Dialing number can be provided.

After System dial tone is obtained, the Remote Access user is, for reasons of System security, required to dial a Barrier Code. One of up to ten Barrier Codes, each with a different class of restriction, can be assigned.

Figure 5-12 depicts the sequence of events associated with Remote Access call processing.

Administration Commands

The following administration commands can be used to access the Remote Access form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	remote access	—
display	remote access	[’print’ or ’schedule’]

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on the form:

NOTE:
AT&T has designed the Remote Access feature incorporated in this product that, when properly administered by the customer, will enable the customer to minimize the ability of unauthorized persons to gain access to the network. It is the customer's responsibility to take the appropriate steps to properly implement the features, evaluate and administer the various restriction levels, protect access codes and distribute them to individuals who have been advised of the sensitive nature of the access information. Each authorized user should be instructed concerning the proper use and handling of access codes.

In rare instances, unauthorized individuals make connections to the telecommunications network through use of remote access features. In such event, applicable tariffs require that the customer pay all network charges for traffic. AT&T cannot be responsible for such charges, and will not make any allowance or give any credit for charges that result from unauthorized access.

- **Remote Access Extension**—Enter an extension number (may not be a VDN extension) for Remote Access; default is blank. This extension is associated with each trunk that supports the Remote Access feature. May be blank when no barrier codes are assigned. The extension is used as if it was a DID extension. Only one DID extension may be assigned as the Remote Access Extension. Calls to that number are treated the same as calls on the Remote Access trunk.

  When a trunk group is dedicated to Remote Access, the Remote Access extension number is administered on the trunk group's Incoming Destination field. Typically, Remote Access is used for after business hours to administer the Incoming Destination field on the trunk group as the attendant group access code (usually ''0''), and administer the Remote Access extension as the Night Service extension. Incoming calls route to attendant until the Night Service button is pressed on console.
- **Barrier Code Length**—Enter the desired barrier code length (4 to 7 digits) or leave blank (indicates no barrier code is required); default is blank. All Barrier Codes assigned in the system must be the same length.
- **Authorization Code Required**—Enter ''y'' if an Authorization Code must be dialed by remote access users to access the System's facilities; otherwise, enter ''n'' (default).

- **Remote Access Dial Tone**—Displayed when Authorization Code Required is ‘‘y’’. Enter ‘‘y’’ if recall dial tone is to be returned to a remote access caller after having dialed a barrier code but before dialing an authorization code (if both are required).
- **Barrier Code**—Enter any desired Barrier Codes. All codes must be a 4- to 7-digit number and conform to the desired length selected above. The code can be any combination of the digits 0–9; default is blank. If the Barrier Code Length field is blank, the first Barrier Code field must be specified as ‘‘none’’. The ‘‘none’’ entry specifies the COR and COS used for remote access. Duplicate entries are not allowed.
- **COR**—Enter the class of restriction (COR) number (0–95) associated with the Barrier Code that defines the call restriction features; default is 1.
- **COS**—Enter a class of service (COS) number (0–15) associated with the Barrier Code that defines access permissions for call processing features; default is 1.

```
                          REMOTE ACCESS                    Page 1 of 1

                  Remote Access Extension: ___
                      Barrier Code Length: _
              Authorization Code Required? n
                  Remote Access Dial Tone? _
BARRIER CODE ASSIGNMENTS (Enter up to 10)
    Barrier Code    COR    COS        Barrier Code  COR    COS
 1: ________         __     ___     6: ________       __     ___
 2: ________         __     ___     7: ________       __     ___
 3: ________         __     ___     8: ________       __     ___
 4: ________         __     ___     9: ________       __     ___
 5: ________         __     ___    10: ________       __     ___
```

Remote Access Form (Page 1 of 1)

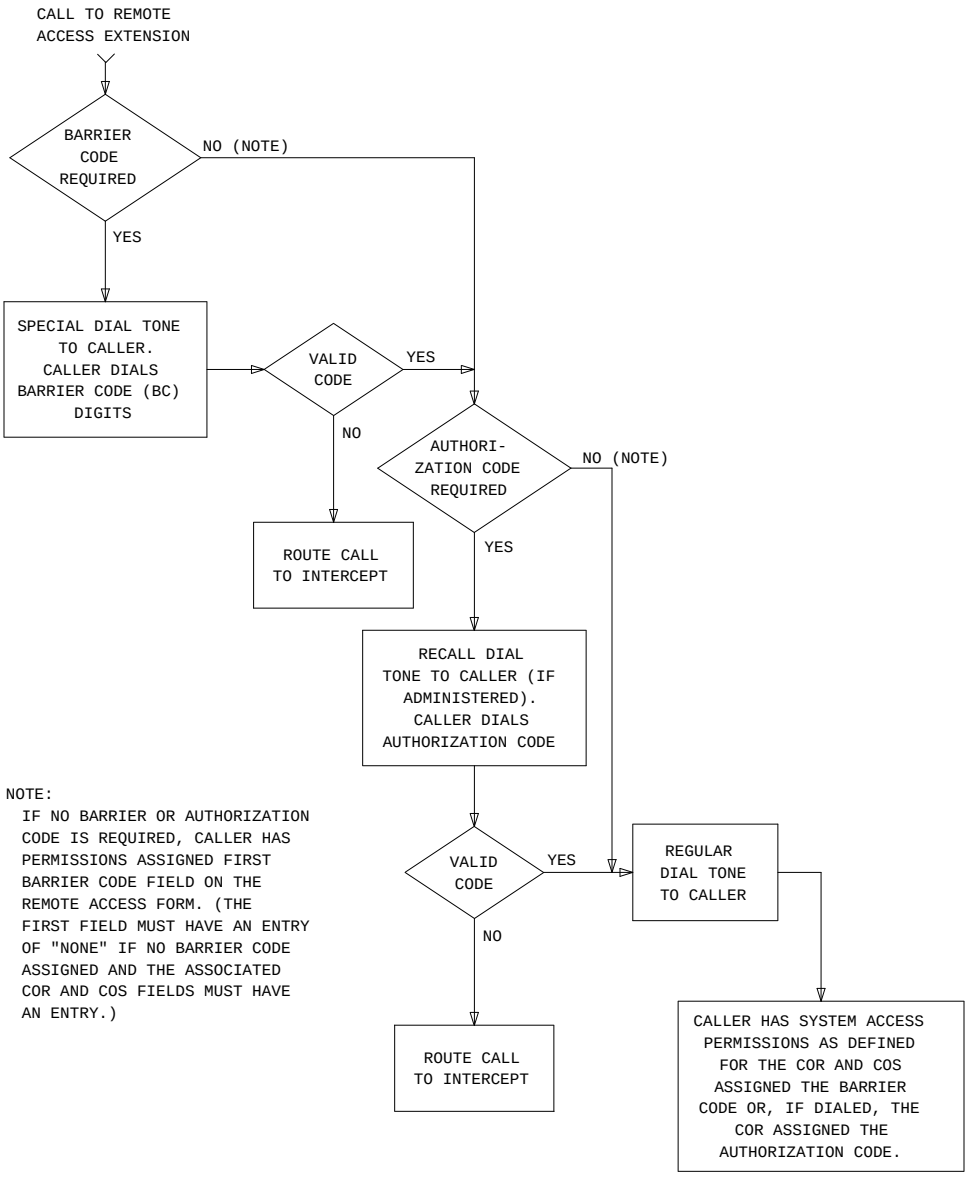


Figure 5-12. Remote Access Flow Chart

Special Information Tones

This form is used to provide the capability of specifying the treatment of Special Information Tones (SITs) used for Outbound Call Management type calls. The TN744 Call Classifier circuit pack ports are used to detect SITs. The TN744 is capable of detecting the following six SITs:

- SIT Ineffective Other
- SIT Intercept
- SIT No Circuit
- SIT Reorder
- SIT Vacant Code
- SIT Unknown

Administration Commands

The following administration commands can be used to access the SIT Treatment For Call Classification form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	sit-treatment	—
display	sit-treatment	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for each field on the form as follows: In the field following each type of SIT, enter ''answered'' to specify that the call is classified as answered, and is therefore sent to an agent; or enter ''dropped'' to specify that the call is classified as not answered, and is therefore not sent to an agent.

- **SIT Ineffective Other**—Sample announcement following this SIT—''You are not required to dial a ''1'' when calling this number''. Valid entries are ''answered'' and ''dropped'' (default).
- **SIT Intercept**—Sample announcement following this SIT—''XXX-XXXX has been changed to YYY-YYYY, please make a note of it''. Valid entries are ''answered''.(default) and ''dropped'';

- **SIT No Circuit**—Sample announcement following this SIT—''All circuits are busy, please try to call again later''. Valid entries are ''answered'' and ''dropped'' (default).
- **SIT Reorder**—Sample announcement following this SIT—''Your call did not go through, please hang up and dial again''. Valid entries are ''answered'' and ''dropped'' (default).
- **SIT Vacant Code**—Sample announcement following this SIT—''Your call cannot be completed as dialed, please check the number and dial again''. Valid entries are ''answered'' and ''dropped'' (default).
- **SIT Unknown**—A situation or condition that is unknown to the network is encountered. Valid entries are ''answered'' and ''dropped'' (default).

```
                SIT TREATMENT FOR CALL CLASSIFICATION

   SIT Ineffective Other:  dropped
           SIT Intercept:  answered
         SIT No Circuit:  dropped
            SIT Reorder:  dropped
       SIT Vacant Code:  dropped
            SIT Unknown:  dropped
```

SIT Treatment For Call Classification Form

Synchronization Plan

This form is used to assign primary and secondary external synchronization sources. This provides synchronization between the switch and digital facilities that the switch is connected to. When the switch is connected to digital facilities, the switch (both Processor Port Network and Expansion Port Networks) must be synchronized to the incoming data rate of 8000 frames per second. This timing information reference may be derived from DS1 facilities or from a Stratum 3 external clock. Loss of the reference signal, excessive phase changes, and variation in timing frequency can cause loss of data or dropped data connections. When no external digital facilities, including Stratum 3 external clocks, are present or when a switch is the ''master'' node of a network providing timing to the rest of the network, the timing can come from an oscillator on the switch's tone/clock circuit pack.

It should be noted that the Synchronization Plan may not be required for some digital connections. The switch's internal clock may suffice.

Administration Commands

The following administration commands can be used to access the Synchronization Plan form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	synchronization	—
display	synchronization	['print' or 'schedule']

* Brackets [ ] indicate the qualifier is optional.

Form Instructions

Make assignments as required for the following fields on each page of the form:

Page 1 of the Form

- **Stratum**—Enter the stratum level to be used for synchronization. Valid entries are ''3'' or ''4''; default is 4.

  NOTE:
  Stratum 3 capability is possible when using a TN780 Tone Clock circuit pack.

- **Port Network**—A display-only field that is shown when the Stratum field entry is ''3''.
- **Primary**—Displayed when Stratum is ''4''.

  NOTE:
  The Primary and Secondary synchronization sources (DS1 facilities) must be on the same Port Network (PPN or an EPN).

  Enter a 5-character DS1 circuit pack location number for the DS1 circuit pack that will function as the primary synchronization source. The first two characters identify the cabinet (01–22); the third character identifies the carrier (A–E); the fourth and fifth characters identify the slot number in the carrier (01–20 for medium cabinets, 01–18 for XE cabinets, and 01–20 for the x.25 board).

NOTE:
When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

A TN722 or TN767 may be used for DS1; a TN464C may be used for UDS1.

A blank entry means no external source. The clock circuit pack’s internal source is the implicit last choice. Only one switch in the network can function as the ‘‘master node’’.

- **Secondary**—Displayed when Stratum is ‘‘4’’.

  NOTE:
  The Primary and Secondary synchronization sources (DS1 facilities) must be on the same Port Network (PPN or EPN).

  Enter a 5-character DS1 circuit pack location number for the DS1 circuit pack that will function as a secondary synchronization source. The first two characters identify the cabinet (01–22); the third character identifies the carrier (A–E); the fourth and fifth characters identify the slot number in the carrier (01–20 for medium cabinets, 01–18 for XE cabinets, and 01–20 for the x.25 board).

  NOTE:
  When using the Administration Without Hardware feature, place an ‘‘X’’ in this field to indicate that there is no hardware associated with this port assignment.

  A TN722 or TN767 may be used for DS1; a TN464C may be used for UDS1.

  The system will automatically select the secondary circuit pack if the primary circuit has a failure.

Instructions for administering a DS1/DMI interface are provided in *AT&T System 75 and System 85 DS1/DMI/ISDN-PRI Interface Service Manual*, 555-025-101.

```
                    SYNCHRONIZATION PLAN

                  SYNCHRONIZATION SOURCE
                    Stratum: 3
               Port Network: 1
```

Synchronization Plan Form

Implementation Notes:

This form is displayed when Stratum is ‘‘3’’.

Available synchronization sources can be displayed with the *list timing-sources* command.

```
                    SYNCHRONIZATION PLAN

                  SYNCHRONIZATION SOURCE
                    Stratum: 4    Primary: ___
                                Secondary: ___
```

Synchronization Plan Form

Implementation Notes:

This form is displayed when Stratum is ‘‘4’’.

Available synchronization sources can be displayed with the *list timing-sources* command.

System-Parameters Customer-Options

This form is implemented in the system during the installation process. The form is not available for use after installation except when option changes are required by the customer. Procedures covering the use of the System-Parameters Customer-Options form are provided in *Generic 1 and Generic 3—Installation and Test*, 555-230-104. Refer to Chapter 3 for a brief description of each optional feature or to *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of each feature.

The optional features that supplement the standard system voice/data feature package capabilities are as follows.

- Abbreviated Dialing—Enhanced List
- ASAI (Adjunct/Switch Applications Interface)

  In addition, the following ASAI capability groups may be optioned separately if the ASAI Interface is enabled:

  — Adjunct Call Control Group—Allows the associated adjunct (such as, ICM) to invoke third party capabilities.

  — Adjunct Routing Group—Allows the associated adjunct to provide adjunct routing information to the switch for incoming calls.

  — Domain Control Group—Allows the associated adjunct to: (1) control and receive event reports for station sets and (2) receive logout event reports for a given ACD split.

  — Event Notification Group—Allows the associated adjunct to request incoming call notification and enables the switch to send event reports about such calls.

  — Request Feature Group—Allows the associated adjunct to request features such as ‘‘change work modes’’, ‘‘login’’, and ‘‘logout’’.

  — Set Value Group—Allows the adjunct to request status changes for Message Waiting lamps (control the on/off state of the lamps).
- Authorization Codes
- Automatic Call Distribution (ACD)
- Automatic Route Selection (ARS)
- ARS/AAR Partitioning
- Basic CMS Measurements
- Call Work Codes (CWC) (requires ACD to be enabled)
- Centralized Attendant Service (CAS) Branch
- Centralized Attendant Service (CAS) Main
- CPN/BN Adjunct
- Distributed Communications System (DCS)
- Emergency Access to the Attendant
- Forced Entry of Account Codes
- Hospitality
- Hospitality Parameter Reduction (requires Hospitality to be enabled)

- Integrated Systems Digital Network—Primary Rate Interface (ISDN-PRI)
- Lookahead Interflow [requires ISDN-PRI and Vectoring (Basic) to be enabled]
- Port Network Connectivity (PNC)
- Port Network Connectivity Duplication
- Private Networking
- Service Observing
- Terminal Translation Initialization (TTI)
- Time of Day Routing (requires Automatic Route Selection Partitioning and either Automatic Route Selection or Private Networking features to be enabled)
- Uniform Dial Plan
- Vectoring (Basic)
- Vectoring (Prompting).

After activation of an optional feature, the associated form(s) and fields on forms require completion to define the feature parameters and service criteria. The implementation procedures for all features are provided in this manual. However, if an optional feature is not provided, the associated implementation procedures are blocked.

System-Parameters Duplication

To be provided.

Terminating Extension Group

This form is used to define Terminating Extension Groups (TEGs). Any voice terminal can be assigned as a TEG member; however, only a multi-appearance voice terminal can be assigned a TEG button with associated status lamp. The TEG button allows the terminal user to select a TEG call appearance for answering or for bridging onto an existing call.

The TEG members are assigned on an extension number basis. Call reception restrictions applicable to the group are specified by the group class of restriction (COR). The group COR takes precedence over an individual member's COR. The members could all be termination restricted but still receive calls if the group is not restricted.

The system allows for as many as 32 TEGs with up to 4 members each. An extension number can be assigned to more than one TEG but can have only one appearance of each group.

Administration Commands

The following administration commands can be used to access the Terminating Extension Group form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	term-ext-group	1–32 (or 'next')
change	term-ext-group	1–32
display	term-ext-group	1–32 ['print' or 'schedule']
list	term-ext-group	['print' or 'schedule']
remove	term-ext-group	1–32

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form:

- **Group Number**—Enter a group number from 1–32 when completing a paper form. This is a display-only field when the form is accessed using an administration command such as *add* or *change*.
- **Group Extension**—Enter an unused extension number (may not be a VDN extension) consisting of two to five digits (do not leave blank).
- **Group Name**—Enter up to 15 characters to identify the group.
- **Coverage Path**—Enter a number from 1–600 for the call coverage path for this group. (A TEG cannot serve as a coverage point; however, calls to a TEG can redirect to coverage.) Valid entries are 1–600, or leave blank.
- **Security Code**—Enter a 4-digit security code or leave blank. This code is used for the Demand Print feature.
- **COR**—Enter the desired class of restriction (COR) number (0–95) that reflects the desired restrictions; default is 1.

- **ISDN Caller Display**—Enter ‘‘grp-name’’ or ‘‘mbr-name’’ to specify whether the TEG group name or member name (member of TEG where call terminated) will be sent to the originating user. This field is required if the ISDN-PRI option is enabled on the System-Parameters Customer-Options form. If ISDN-PRI is not enabled, leave blank.
- **LWC Reception**—Defines the source for Leave Word Calling (LWC) messages. Valid entries are ‘‘audix’’, ‘‘msa’’, ‘‘spe’’, or ‘‘none’’.
- **AUDIX Name**—Name of AUDIX machine as it appears in the Adjunct Names form.
- **Message Server Name**—Name of the server as it appears in the Adjunct Names form.
- **GROUP MEMBER ASSIGNMENTS — Ext**—Enter the extension number (may not be a VDN extension) for the members of this group.
- **GROUP MEMBER ASSIGNMENTS — Name**—Make no entry. The name is assigned to the preceding extension number when the TEG member’s voice terminal is administered.

```
                          TERMINATING EXTENSION GROUP           Page 1 of 1

        Group Number: __                          Group Extension: ____
          Group Name: _______________               Coverage Path: ___
       Security Code: ______                                 COR: 1_
ISDN Caller Display: ______                        LWC Reception: none
          AUDIX Name: _____                 Messaging Server Name: _____
       GROUP MEMBER ASSIGNMENTS
                 Ext     Name                          Ext     Name
               1: ____                               3: ____
               2: ____                               4: ____
```

Terminating Extension Group Form (Page 1 of 1)

Toll Analysis

This form is used to associate dialed strings to the System’s Restricted Call List (RCL), Unrestricted Call List (UCL), and Toll List. In addition, dialed strings can be associated with the CDR Forced Entry of Account Codes feature (Calls from facilities whose COR is administered to include Forced Entry of Account Codes will be required to include an account code if the dialed string matches a dialed string field associated with ‘‘CDR Feac’’).

NOTE:
The Toll List associated with this form has neither relationship to nor interaction with the ARS Toll Table described in Chapter 4.

Administration Commands

The following administration commands can be used to access the Toll Analysis form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
change	toll	Enter digits between 0–9, 'x', or 'X' ['min' 1–23]
display	toll	Enter digits between 0–9, 'x', or 'X' ['min' 1–23] ['print' or 'schedule']
list	toll	['start' dialed-string] ['count' (1–1000)] [print]
list	toll restricted-call	['start' dialed-string] ['count' (1–1000)] [print]
list	toll unrestricted-call	['start' dialed-string] ['count' (1–1000)] [print]

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignments as required for the following fields on the form:

- **Percent Full**—This is a 3-character display-only field. The field displays the percentage of the system memory resources that are being used. A common pool of memory resources is shared between the ARS/AAR Digit Conversion, ARS/AAR Digit Analysis, and Toll Analysis Tables. If the Percent Full display indicates that the common pool of memory resources is in jeopardy of becoming full (100%), perform any of the following to ''free-up'' resources:
  - — Delete unnecessary entries from any of the shared resources tables.
  - — Utilize the RHNPA table for 6-digit ARS routing.
  - — Reduce dialed string field entries to the shortest possible length that accomplishes the desired function.

- **Dialed String**—Enter up to an 18-character dialed digit string. Valid entries include the digits 0–9 and the wild card character ''x'' or ''X''. The wild card letter ''x'' or ''X'' may be used to substitute for any digit in the string. A Dialed String, when entered, must be associated with at least one RCL, UCL, CDR Forced Entry Account Code (CDR FEAC), or Toll List.
- **Min**—Enter the minimum number of digits to collect (1–18). The user can actually dial up to 23 digits (match is on first 18). Valid entries are 1–18; default is blank.
- **Max**—Enter the maximum digits to collect. The value must be greater than or equal to the Min value. Valid entries are 1–23; default is blank.
- **RCL**—Enter ''x'' to assign the Dialed String to the Restricted Call List (RCL); default is blank. All entries of ''x'' and their associated dialed strings are referred to as the System's Restricted Call List. The RCL can be assigned to any COR. A call attempt from a facility whose COR is marked as being associated with the RCL and whose dialed string matches a RCL dialed string field will be denied. The caller will receive intercept treatment.
- **Toll List**—Enter ''x'' to assign the Dialed String to the Toll List; default is blank. All entries of ''x'' and their associated dialed strings are referred to as the System's Toll List. The Toll List is a list of dialed strings used for toll restriction analysis.

  When a user calls from a facility whose COR has a Calling Party Restriction of ''all-toll'' or ''tac-toll'', the System checks the Toll Analysis form for the user's dialed string. If a match occurs and the Toll List field is ''x'', the call will be denied unless the string is also associated with an Unrestricted Call List that is also assigned the facility's COR. Refer to the ''COR'' instructions in this chapter for definitions of the Calling Party Restrictions. Also refer to the ''Unrestricted Call List'' field description for additional information about UCLs.

  NOTE:
  This Toll List has no relationship to the ARS Toll Table described in Chapter 4.

  Table 5-10 shows the System's default toll list assignments.

Table 5-10. Default Toll List Assignments

Dialed String	Min	Max	Toll List
0	1	23	x
1	4	23	x
20	10	10	x
21	10	10	x
30	10	10	x
31	10	10	x
40	10	10	x
41	10	10	x
50	10	10	x
51	10	10	x
60	10	10	x
61	10	10	x
70	10	10	x
71	10	10	x
80	10	10	x
81	10	10	x
90	10	10	x
91	10	10	x

- **CDR FEAC**—Enter ''x'' to assign the dialed string to the CDR Forced Entry of Account Code feature; default is blank. Users who place calls from facilities whose COR is marked as being associated with Forced Entry of Account Codes and whose dialed string matches an CDR FEAC dialed string field will be required to enter an account code before the call will complete.
- **Unrestricted Call List**—Enter ''x'' in the appropriate field (1–10) to assign the dialed string to one of the System's Unrestricted Call Lists (UCL); default is blank for all fields. A UCL (up to 10 in the System) is a list of dialed strings that can be dialed from a facility whose COR assignment includes the UCL List number. The UCL number or numbers (1–10) are assigned on appropriate COR forms and associate the COR with the UCL List(s). A toll call from a facility that is ''all-toll'' restricted, for example, will complete if the facilities COR is associated with a UCL whose dialed string field matches the dialed number.

NOTE:
The call *will not* complete if the COR is also associated with the System's RCL and whose dialed string also matches the dialed number. The RCL takes precedence over the UCL.

The following Authorization Check Flow Chart depicts the order of call processing functions that occur as a result of user dialed numbers and associated entries on the Toll Analysis form and the user's COR form.

As shown on the flow chart, RCLs have priority over UCLs. Checks are made as follows:

1. The first check determines if the dialed string is associated with the Restricted Call List (RCL) on the Toll Analysis form. If it is, the RCL field on the COR form associated with the calling party's station is checked. If the field is ''y'', the call is denied, otherwise, checking continues.
2. The next check determines if the Calling Party Restriction field on the COR form is ''all-toll'' or ''tac-toll''. If it is, checking continues, otherwise the call is allowed.
3. The next check determines if the dialed string is associated with the Toll List on the Toll Analysis form. If it is, checking continues, otherwise, the call is allowed.
4. The next check determines if the dialed string is associated with a Unrestricted Call List number (1–10) on the Toll Analysis form. If it is, the COR form is checked to determine if the UCL number is entered on the UCL field on the form. If it is, the call is allowed, otherwise, the call is denied.

In summary, calls from facilities are processed based on the COR assigned the facility, the COR's association with the System's RCL, UCL, and Toll List, and the specific digits dialed.

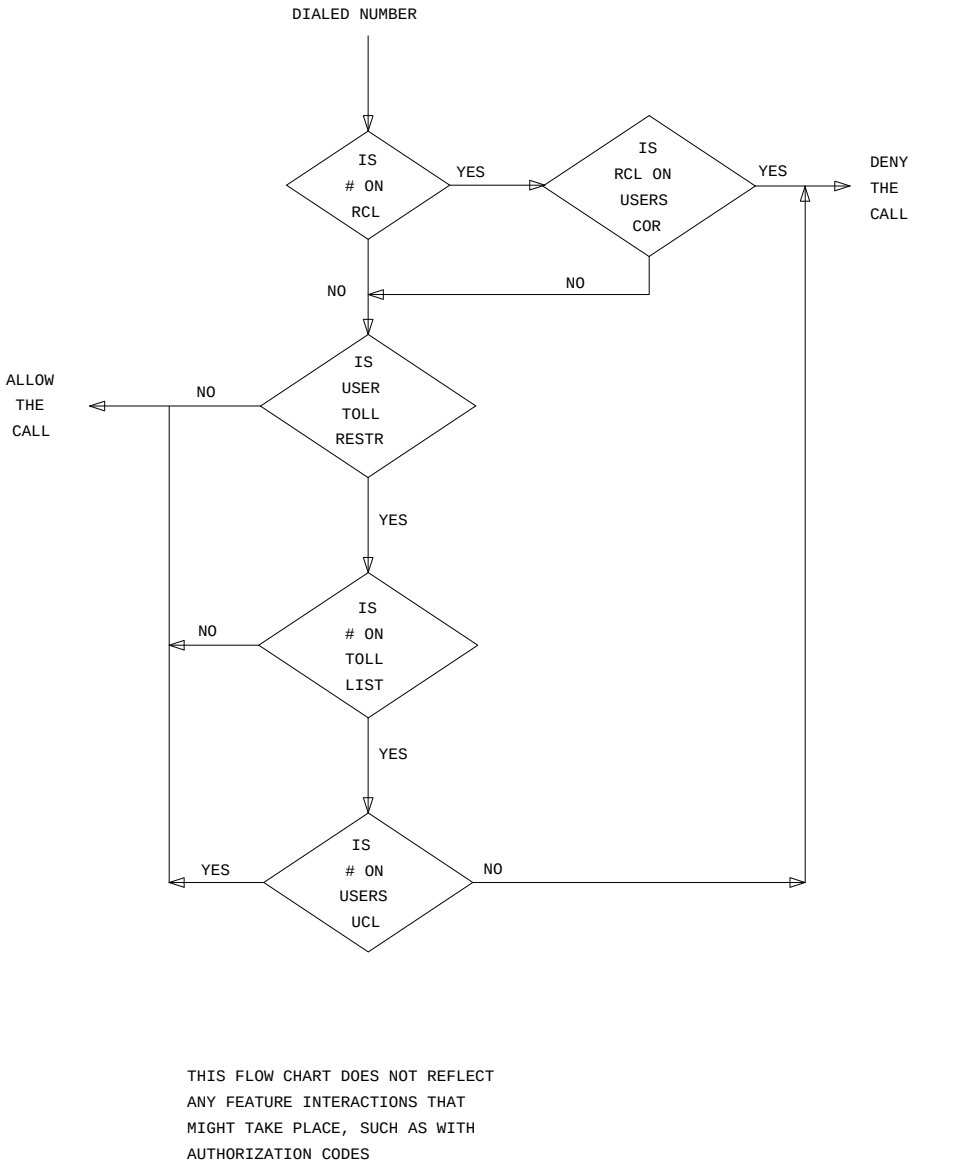


Figure 5-13. Authorization Check Flow Chart

TOLL ANALYSIS Percent Full:_

Dialed String	Min	Max	RCL	Toll List	CDR FEAC	<--Unrestricted Call List--> 1	2	3	4	5	6	7	8	9	10

Toll Analysis Form

Implementation Note:

Entries on the form do not have to be input in a sorted order. Subsequent displays of the form will show all entries in a sorted increasing order.

Vector Directory Number (VDN)

This form is used to define Vector Directory Numbers (VDNs) for the Call Vector feature. A VDN is an extension number used to access a call vector. Each VDN is mapped to one call vector.

VDNs are software extension numbers (not assigned to physical equipment). A VDN is accessed via an automatic-in (CO, Tie, FX, etc.) trunk mapped to the VDN (incoming destination or night service extension), a Direct Inward Dial (DID) Dialed Number Identification Service (DNIS) trunk, a Listed Directory Number (LDN) call.

NOTE:
The VDN may be Night Destination for LDN. A call vector consists of a set of commands that instruct the System on how to process calls to the VDN.

For additional information, refer to ‘‘Call Vectoring’’ in *Generic 1 and Generic 3—Feature Description*, 555-230-201.

NOTE:
The Vectoring (Basic) or Vectoring (Prompting) options must be enabled on the System-Parameters Customer-Options form before the VDN Form can be administered (requires ACD).

Administration Commands

The following administration commands can be used to access the Vector Directory Number form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	vdn	xxxxx (extension number of VDN to be added)
change	vdn	xxxxx (extension number of VDN to be changed)
display	vdn	xxxxx (extension number of VDN to be displayed) ['print' or 'schedule']
list	vdn	xxxxx (extension number of VDN to be listed) ('count' 1–3,000) ['print' or 'schedule']
remove	vdn	xxxxx (extension number of VDN to be removed)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Make assignment as required for the following fields on the form:

- **Extension**—Enter the extension associated with the VDN when completing a paper form. The extension is a 1- to 5-digit number which starts with a valid first digit and length as defined by the System's dial plan. This is a display-only field when using an administration command such as ''add vdn xxxx'' to access the form.
- **Name**—Enter up to a 15-character alphanumeric name that is used to identify the VDN. This is an optional field that need not contain any data.
- **Allow VDN Override**—This entry affects the operation of an agent's display and which AUDIX mailbox is accessed when a call is routed through several VDNs. If it is ''n'' (default), the name of this VDN appears on the agent's display and the Agent's AUDIX mailbox is accessed. If any subsequent VDNs are used to process this call, their names will not appear on the terminating display and the AUDIX mailbox for this VDN is accessed. If it is ''y'', the name of the VDN appearing on the terminating display will depend on the administration and chaining of the subsequent VDNs and the AUDIX mailbox for the last VDN is accessed.

- **Class of Restriction**—Enter a 1- to 2-digit number which specifies the class of restriction (COR) to be assigned the VDN; default is 1. The field cannot be blank and must have an entry in the range from 0–95.
- **Vector Number**—Enter a 1- to 3-digit vector number that specifies a particular call vector that is accessed through the VDN. Valid entries are 1–512; this field can be blank to create VDNs for subsequent asignments to vectors.
- **AUDIX Name**—If this VDN is associated with the AUDIX vector, enter the name of AUDIX machine as it appears in the Adjunct Names form.
- **Message Server Name**—If this VDN is associated with MSA, enter the name of the server as it appears in the Adjunct Names form.
- **Measured**—Used to collect measurement data for this VDN. Valid entries are ''internal'', ''external'', ''both'', or ''none'' (default). Data may be collected for reporting by BCMS or CMS.

```
                VECTOR DIRECTORY NUMBER

           Extension:  XXXXX
                Name:  ________________________
 Allow VDN Override?  n
               COR:  1_
      Vector Number:  1__
         AUDIX Name:  _______
Message Server Name:  _____
           Measured:  none
```

Vector Directory Number Form

Implementation Note:

The BCMS feature must have been optioned if this field is ''internal''. In addition, the appropriate CMS release must be administered on the Feature-Related System Parameters form if the field is being changed to ''external'' or ''both''. CMS must be busied out to change this field (command is ''busyout mis'').

Figure 5-14 shows three typical examples of how VDNs are used. An outside call to a VDN is processed based on the various elements that are entered on the VDN form. Handling of the call is based on the commands associated with the vector. Displayed information and the AUDIX mailbox reached is dependent on the setting of the Display Override field entry. As shown in the third example, the Display Override field is ''N'' for VDN 4501 determines the name displayed on the terminating extension 7000.

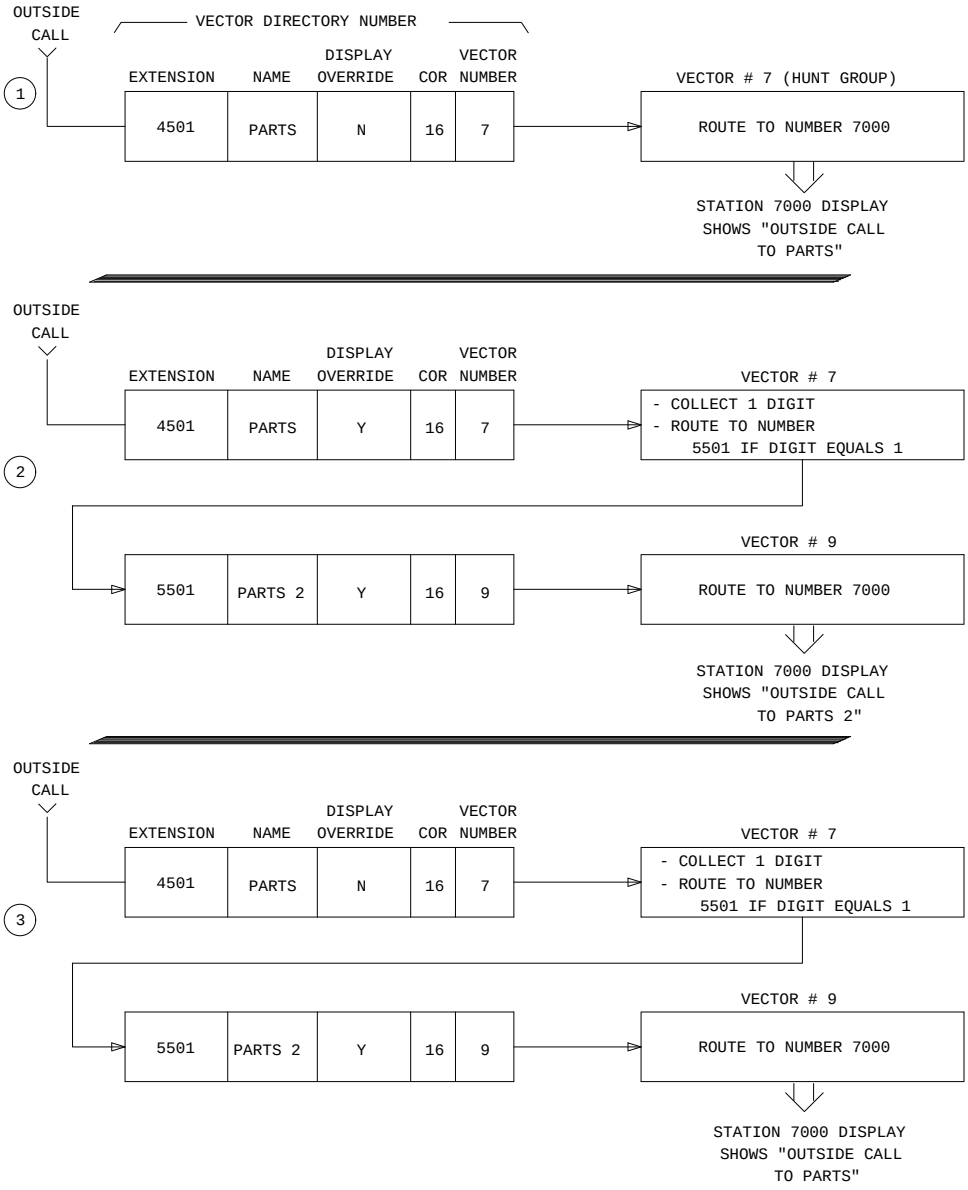


Figure 5-14. Typical VDN Call Processing Examples

Voice Terminals—General

Voice terminals combine the capabilities of both a telephone and computer and have a variety of controlling and monitoring capabilities. While providing basic telephone service (placing and answering calls), voice terminals can also be used to activate or deactivate the advanced features of the System. Both single-line and multi-appearance voice terminals are supported. A single-line voice terminal can have only one incoming call appearing at the terminal at a time. Multi-appearance voice terminals can have up to ten calls appearing at the terminal at the same time. Several of the terminals have associated alphanumeric display capabilities for display of call progress and related status information.

Each voice terminal to be assigned in the System must be administered using System forms. Unique forms are provided for the terminals which are administered by their voice terminal type. Certain terminals that do not have their own forms can be administered using an existing form. Terminals not accounted for may be administered using the Enhanced Terminal Administration (ETA) feature and its associated Alias Station form. Refer to ''Enhanced Terminal Administration'' in Chapter 3 for additional information. Refer to the voice terminal information provided later in this chapter for specific implementation instructions for each terminal type.

System Voice Terminals

The ''System Voice Terminals'' table that follows lists that are administrable in the system. In addition, administration is supported for Personal Computer—6300 and 7300 PBX Connections.

Voice Terminal Feature Button Descriptions

The ''Voice Terminal Feature Button Descriptions'' table in this section provides descriptions of the feature buttons that can be administered on multi-appearance voice terminals. The administrable software names and recommended button label names are shown.

Voice Terminal Feature Button Characteristics

Table 5-13 provides a listing of voice terminal feature button characteristics. The features or functions that have associated feature buttons are listed alphabetically on the table. Recommended button labels and administration names that must be entered on System forms are listed for each button type. Certain buttons are administered so that their associated status lamps can be used to provide visual status indications of a related feature or function. In some cases, the button itself is not functional. These buttons are noted as ''[status lamp]'' in the Feature or Function column on the table.

NOTE:
When assigning one of these buttons that the button must have an associated status lamp.

Buttons noted as ''[display button]'' are used to support voice terminals equipped with alphanumeric displays. These buttons are functional if the terminal has a display.

NOTE:
Depending on the voice terminal type (such as, MET, analog, digital), certain feature buttons may or may not be administrable on the voice terminal. Coverage for each voice terminal type (where appropriate) includes a listing of the feature buttons that can be administered on the terminal.

Table 5-11. System Voice Terminals

Terminal Type	Model **	Administered As
Single-Line Analog	500	500
	2500	2500
	2500 With Message Waiting Adjunct	2500
	7101A	7101A
	7102A	7101A
	7103A Programmable	7103A
	7104A	7104A
Multi-Appearance Hybrid	7302H	7303S
	7303H	7303S
	7303S	7303S
	7305H01B or 7305H02B	7305S
	7305H03B	7305S
	7305H04B	7305S
	7305S	7305S
	7309H	7309H
Multi-Appearance Digital	7401D	7401D
	7403D	7403D
	7404D	7404D
	7405D	7405D
	7406D	7406D
	7407D	7407D
	7410D	7403D
	7434D	7434D
	''CALLMASTER'' Terminal (602A1)	602A1
Multi-Button Electronic Telephone (MET) Sets	10 Button	10MET
	10 Button With Built-In Speakerphone	10MET
	20 Button	20MET
	30 Button	30MET
Terminals	510D	510
	515BCT	515
ISDN-BRI Station	—	asai *
ISDN-BRI Station	7505D	7505D
	7506D	7506D
	7507D	7507D
	8503D	8503D
	8510D	8510D
	8520D	8520D
PC/PBX	6300/7300	PC
Test Line	ATMS	105TL**

* ''asai'' is administered as the ISDN-BRI set type in support of an Adjunct Switch Applications Interface (ASAI) link. This interface

supports use of ASAI and an associated adjunct such as CONVERSANT® speech processor used with Inbound Call Management feature. Refer to the ''ASAI Link'' form elsewhere in this chapter and to ''Adjunct/Switch Applications Interface'' in Chapter 3 for additional information.

** Available without the Automatic Transmission and Measurement System (ATMS) feature package. Refer to **Generic 3r—Maintenance** (555-230-105) and **Generic 3r—System Reports** (555-230-510) for more information on ATMS.

NOTE:
When administering a system that will be comprised of a large number of digital voice terminals, 20- and 30-MET sets, or hybrid sets equipped with feature buttons, administer the voice terminals in the following order:

1. Digital voice terminals
2. 20-, 30-MET sets
3. Hybrid sets equipped with feature buttons
4. All others (analog, hybrids, 10-MET, etc.).

Table 5-12. Voice Terminal Feature Button Descriptions

Administration Name	Button Label	Description
abr-prog	AbrvDial Program	Abbreviated Dialing Program Mode: allows the user to program or reprogram abbreviated dialing buttons or to store or change a number in a personal list associated with the station (1 per-station).
abr-spchar	AbrvDial (char)	Abbreviated Dialing Special Character: allows the user to enter an associated special character [˜m (mark), ˜p (pause), ˜s (suppress), or ˜w (wait)] when programming an abbreviated dialing list entry [one each (˜m, ˜p, ˜s, ˜w) per station.]
abrdg-appr	(extension)	Bridged Call Appearance of an Analog Station: allows the user to have an appearance of a single-line voice terminal's extension number. (Can only be assigned to a 2-lamp button. Refer to specific terminal information for maximums.)
abrv-dial	AD	Abbreviated Dialing: used to access an associated abbreviated dialing list entry and causes the associated stored number it to be dialed (one per AD list per dial code; otherwise, no per-station maximum).
ac-alarm	AC Alarm	Administered Connection Alarm Notification: associated status lamp lights when the number of failures for at least one administered connection has equaled the specified threshold (1 per-station).
aca-call	Auto-Ckt Assure	Automatic Circuit Assurance (display button): allows users of display-equipped voice terminals to identify trunk malfunctions. The System automatically initiates a referral call to the terminal when a possible failure occurs. The button is used to activate/deactivate referral calls (1 per-station).
after-call	After Call Work	After Call Work Mode: used to remove an agent from ACD call distribution in order for the agent to complete ACD-related activities such as forms completion (1 per-split group; otherwise, no per-station maximum).
assist	Assist	Supervisory Assistance: used by an ACD agent to place a call to a split supervisor (1 per-split group; otherwise, no per-station maximum).
atd-qcalls ‡	AQC	Attendant Queue Calls (*display button*): used to track the number of calls in the attendant group's queue and obtain a display of the queue status (1 per-station).
atd-qtime ‡	AQT	Attendant Queue Time (*display button*): used to track the calls in the attendant group's queue with regards to the oldest time a call has been queued, and obtain a display of the queue status (1 per-station).

* The Automatic Call Distribution feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

‡ The voice terminal must be equipped with a display before the feature button can be administered.

Table 5-12. Voice Terminal Feature Button Descriptions (continued)

Administration Name	Button Label	Description
aut-msg-wt	Message (name or ext #)	Automatic Message Waiting: associated status lamp automatically lights when an LWC message has been stored in the System for the associated extension (can be a VDN) (1 per aut-msg-ext; otherwise, no per-station maximum).
auto-cback	Auto Call-Back	Automatic Call Back: when activated, allows inside user who placed a call to a busy or unanswered voice terminal to be called back automatically when the called voice terminal becomes available to receive a call (1 per-station).
auto-icom	Auto (name or ext #)	Automatic Intercom: used to place a call to the station associated with the button. The called user receives a unique alerting signal, and a status lamp associated with a Dial or Automatic Intercom button, if provided, flashes (1 per-group per-dial-code; otherwise, no per-station maximum).
auto-in	Auto In	Auto-In Mode: allows the user to become automatically available for new ACD calls upon completion of an ACD call (1 per-split group; otherwise, no per-station maximum).
auto-wkup ** ‡	Auto Wakeup	Automatic Wakeup (*display button*): allows attendants, front-desk users, and guests to request a wakeup call to be placed automatically to a certain extension number (may not be a VDN extension)at a later time (1 per-station).
aux-work	Auxiliary Work	Auxiliary Work Mode: removes agent from ACD call distribution in order to complete non-ACD-related activities (1 per-split group; otherwise, no per-station maximum).
brdg-appr	(extension)	Bridged Call Appearance of a Multi-Appearance Station: provides an appearance of a voice terminal's primary extension number at the terminal assigned the brdg-appr button. The button tracks and may be used like a call appearance on the tracked station. (Can only be assigned to a 2-lamp button. Refer to specific terminal information for maximums.) A VDN cannot be assigned to a bridged appearance button.
busy-ind	Busy (trunk or ext #)	Station Busy Indication: (see Facility Busy Indication feature) provides user with a visual indication of the busy or idle status of an extension (can be a VDN extension), trunk group, hunt group (DDC or UCD), or paging zone. User can use button for direct access to associated facility (1 per-TAC/Ext; otherwise, no per-station maximum).

* The Automatic Call Distribution feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

** The Hospitality feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

‡ The voice terminal must be equipped with a display before the feature button can be administered.

Table 5-12. Voice Terminal Feature Button Descriptions (continued)

Administration Name	Button Label	Description
call-appr	(extension)	Call Appearance: used to originate or receive calls. (Refer to specific voice terminal information for maximums allowed.)
call-disp ‡	Return Call	Call Displayed Number (*display button*): automatically initiates a call to the currently displayed number, which may be a part of a leave word calling message or a number retrieved using the integrated directory feature (1 per-station).
call-fwd	Call Forwarding	Call Forwarding: used to activate/deactivate the Call Forwarding All Calls feature. Calls that would normally terminate at the station are redirected (forwarded) to another extension (may not be a VDN extension) (1 per-station).
call-park	Call Park	Call Park: used to place a current call in the call park state and later used to retrieve the call. A call *cannot* be parked on a VDN extension (1 per-station).
call-pkup	Call Pickup	Call Pickup: used to pickup a call that is ringing in the users pickup group (1 per-station).
callr-info	Caller Info	Caller Information (display button): used with the Call Prompting feature to allow the user to display information (digits) collected from the caller (1 per-station).
cas-backup	CAS Backup	Centralized Attendant Service Backup Mode: used to redirect all CAS calls to a backup extension in the local branch if all RLTs are out-of-service or maintenance busy. The associated status lamp indicates if CAS is in the backup mode (1 per-station).
crd1-alarm	CDR 1 Failure	CDR Alarm: associated status lamp is used to indicate that a failure in the interface to the primary CDR output device has occurred (1 per-station).
cdr2-alarm	CDR 2 Failure	CDR Alarm: associated status lamp is used to indicate that a failure in the interface to the secondary CDR output device has occurred (1 per-station).
check-in ** ‡	Check In	Check In (*display button*): used to change the state of the associated guest room to ‘‘occupied’’ and turn off the outward calling restriction for the guest room’s station (1 per-station).

** The Hospitality feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

‡ The voice terminal must be equipped with a display before the feature button can be administered.

Table 5-12. Voice Terminal Feature Button Descriptions (continued)

Administration Name	Button Label	Description
check-out ** ‡	Check Out	Check Out (*display button*): used to change the state of the associated guest room to ''vacant'' and turn on the outward calling restriction for the guest room's station. Also clears (removes) any wake-up request for the station (1 per-station).
clk-overid ‡	Clocked Override	Clocked Manual Override (*display button*): used in association with the Time of Day Routing feature to override the routing plan in effect for the activating user's partitioned group number. The routing plan is overridden for a specified period of time (1 per-station).
consult	Consult	Consult: used by a covering party, after answering a coverage call, to call the principal (called party) for private consultation. This places the calling party on hold (1 per-station).
cov-cback	Coverage Callback	Coverage Callback: used by a covering party to leave a message for the principal (called Party) to call the calling party (1 per-station).
cov-msg-rt ‡	Covr Msg Retrieve	Coverage Message Retrieval (*display button*): used to place a covering station into the message retrieval mode for the purposes of retrieving messages for the group (1 per-station).
data-ext	Data (data ext #)	Data Extension; used to setup a data call. May be used to pre-indicate a data call or to disconnect a data call (1 per-data-extension-group; otherwise, no per-station maximum). May not be a VDN or ISDN-BRI extension. Not allowed on a ISDN-BRI station.
date-time ‡	Date Time	Date Time Display (*display button*): used to display the current date and time (1 per-station).
delete-msg ‡	Delete Message	Delete Message (*display button*): used to delete a stored message that is currently on the station's display (1 per-station).
dial-icom	Dial Icom	Dial Intercom: used to access the intercom group assigned to the button (1 per-group; otherwise, no per-station maximum).
directory ‡	Integrtd Directory	Directory (*display button*): used to place the station's display in the integrated directory mode allowing the user to search for any system user (1 per-station).

** The Hospitality feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

‡ The voice terminal must be equipped with a display before the feature button can be administered.

Table 5-12. Voice Terminal Feature Button Descriptions (continued)

Administration Name	Button Label	Description
dn-dst **	Do Not Disturb	Do Not Disturb: used to place the user in the do not disturb mode (1 per-station).
exclusion	Exclusion	Exclusion: used to prevent any other user from bridging onto the current call (1 per-station).
ext-dn-dst ** ‡	Do Not Disturb Ext	Extinguish Do Not Disturb (*display button*): used to remove the user from the do not disturb mode (1 per-station).
flash	Flash	Flash; used for two types of calls: 1) allows a station on a trunk call with Trunk Flash enabled to send a Trunk Flash signal to the far end (such as, Central Office); 2) allows a station on a CAS main call to send a Trunk Flash signal over the connected RLT trunk back to the branch to conference/transfer the call on the branch (1 per-station).
goto-cover	Go To Cover	Go To Coverage: used to send a call directly to coverage instead of waiting for the called inside user to answer (1 per-station).
grp-dn-dst ** ‡	Do Not Disturb Grp	Group Do Not Disturb (*display button*): used to remove a group of users from the do not disturb mode (1 per-station).
hunt-ns	Hunt Group	Hunt-Group Night Service: used to place a hunt-group into night service (1 per hunt group).
in-call-id	Coverage (group #, type, name, or ext #)	Incoming Call Identification: used to identify the hunt or coverage answer group associated with the current incoming call (1 per-group-type per-group; otherwise, no per-station maximum).
inspect ‡	Inspect Mode	Inspect (*display button*): used to display the extension number of the current ringing call, or the extension behind a subsequently pressed call appearance button (1 per-station).

* The Automatic Call Distribution feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

** The Hospitality feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

‡ The voice terminal must be equipped with a display before the feature button can be administered.

Table 5-12. Voice Terminal Feature Button Descriptions (continued)

Administration Name	Button Label	Description
last-numb	LastNumb Dialed	Last Number Dialed: used to originate a call to the number last dialed by the station user (1 per-station).
link-alarm	Link Failure (link #)	Link Alarm: associated status lamp is used to indicate that a failure has occurred on one of the Processor Interface circuit pack data links (up to 8 per-station).
lwc-cancel	Cancel LWC	Leave Word Calling Cancel: used to cancel the last leave word calling message originated by the user (1 per-station).
lwc-lock	Lock LWC	Leave Word Calling Lock: used to lock the message retrieval capability of the display module on the station (1 per-station).
lwc-store	LWC	Leave Word Calling Store: used to leave a message for the user associated with the last number dialed to return the call to the originator (1 per-station).
major-alrm	Major Hdwe Failure	Major Alarm: associated status lamp is used to indicate that a vital system hardware component(s) has failed. This type of alarm represents a disruption of overall System performance (1 per-station).
man-msg-wt	Msg Wait (name or ext #)	Manual Message Waiting: used to turn on a message waiting lamp on the station associated with the button. The Manual Message Waiting button may not point to a VDN (1 per-station).
man-overid ‡	Immediate Override	Immediate Manual Override (*display button*): used in association with the Time of Day Routing feature to temporarily override the routing plan in effect for the activating user's partitioned group number. The routing plan is overridden upon activation (1 per-station).
manual-in	Manual In	Manual-In Mode: used to make the user available for an ACD call; upon completion of the ACD call, the agent is automatically placed in the After Call Work mode (1 per-split-group; otherwise, no per-station maximum).
mct-act	MCT Activation	Malicious Call Trace Activation: used to send a message to MCT controller consoles to indicate that someone wants to trace a malicious call.
mct-contr	MCT Control	Malicious Call Trace Control: used to allow the console to take control of malicious call trace requests. (This button must be administered with the change-mct-group-extensions command.)
mj/mn-alrm	Major/Minor Hdwe Failure	Minor Alarm: associated status lamp is used to indicate that a System hardware component has failed that will disrupt service on a limited scale (1 per-station).

* The Automatic Call Distribution feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

‡ The voice terminal must be equipped with a display before the feature button can be administered.

Table 5-12. Voice Terminal Feature Button Descriptions (continued)

Administration Name	Button Label	Description
msg-retr ‡	Message Retrieve	Message Retrieval (*display button*): used to place the station's display into the message retrieval mode (1 per-station).
mwn-act **	Message Waiting Act.	Message Waiting Activation (supports PMS feature): used to turn on a message waiting lamp on an associated station (1 per-station).
mwn-deact **	Message Waiting Deact	Message Waiting Deactivation (supports PMS feature): used to turn off a message waiting lamp on an associated station (1 per-station).
next ‡	Next	Next Message (*display button*): used to step to the next message when the station's display is in message retrieval mode (1 per-station).
night-serv	Night Serv	Night Service Activation: used to place the System into or out of the night service mode (1 per-station).
normal ‡	Normal Mode	Normal (*display button*): used to place the station's display into the normal call identification mode (1 per-station).
per-COline	CO Line (line #)	Personal CO Line: allows the user to receive calls directly via a specific trunk (1 per-group; otherwise, no per-station maximum).
pms-alarm	PMS Failure	PMS Alarm: associated status lamp is used to indicate that a failure in the PMS has occurred. A major or minor alarm condition will raise the alarm (1 per-station).
pr-awu-alm	Auto Wakeup Alm	Automatic Wakeup Printer Alarm: associated status lamp is used to indicate that an automatic wakeup printer interface failure has occurred (1 per-station).
pr-pms-alm	PMS Ptr Alarm	PMS Printer Alarm: associated status lamp is used to indicate that a PMS printer interface failure has occurred (1 per-station).
print-msgs	Print Msgs	Print Messages: allows the user to print messages for any extension by pressing the button and then entering the extension number and a security code (if one assigned) (1 per-station).

* The Automatic Call Distribution feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

** The Hospitality feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

‡ The voice terminal must be equipped with a display before the feature button can be administered.

Table 5-12. Voice Terminal Feature Button Descriptions (continued)

Administration Name	Button Label	Description
priority	Priority Call	Priority Calling: allows the user to place a priority call by pressing the button and then dialing an extension, or change an existing call to a priority call by pressing the button after the extension has been dialed (1 per-station).
q-calls	NQC	Queue Calls: associated status lamp flashes if a call warning threshold has been reached (1 per hunt group).
q-time	OQT	Queue Time: associated status lamp flashes if a time warning threshold has been reached (1 per hunt group).
release	Release	Release: used to release an agent from an ACD call (one per station).
ringer-off	Ringer Cutoff	Ringer-Off: used to silence the alerting ringer on the station (1 per-station).
rs-alert	System Reset Alert	System Reset Alert: the associated status lamp will light if the System has a problem that escalates beyond a warm start (1 per-station).
sd-stroke	ACD SD Stroke Count	Automatic Call Distribution Single Digit Stroke Count: used to send a message to CMS to increment a stroke count number. The auxiliary field contains the stroke count number (0–9) to be incremented (1 per-station).
send-calls	Send All Calls	Send All Calls: used to send all calls to coverage as soon as they terminate at the station (1 per-station).
send-term	Send All Calls-TEG	Send All Calls For Terminating Extension Group: allows the user to forward all calls directed to a terminating extension group (1 per-group; otherwise, no per-station maximum).

* The Automatic Call Distribution feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

Table 5-12. Voice Terminal Feature Button Descriptions (continued)

Administration Name	Button Label	Description
serv-obsrv	Service Observing	Service Observing: activates the Service Observing feature. Used to toggle between a listen-only and a listen-talk mode. Deactivate by hanging up or pressing another call-appearance button (1 per-station).
signal	Signal (name or ext #)	Signal: allows the user to manually signal (via ringing) a station associated with the button. The button cannot point to a VDN (1 per-signal-extension; otherwise, no per-station maximum).
stored-num ‡	Stored Number	Stored Number (*display button*): used to place the station's display into the stored number mode. This allows the user to query button translations and display associated stored numbers (1 per-station).
term-x-gr	Term Grp (name or ext #)	Terminating Extension Group: used to provide one or more extensions (may not be a VDN extension) for a station. Calls may be received but not originated with this button (1 per-group; otherwise, no per-station maximum).

* The Automatic Call Distribution feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.

‡ The voice terminal must be equipped with a display before the feature button can be administered.

Table 5-12. Voice Terminal Feature Button Descriptions (continued)

Administration Name	Button Label	Description
timer ‡	Timer	Timer (*display button*): used to start a clock on the station to display elapsed time (1 per-station).
trk-id ‡	Trunk ID	Trunk Identification (*display button*): used to identify the tac (trunk access code) and trunk member number associated with a call (1 per-station).
trunk-name ‡	Trunk Name	Trunk Name (*display button*): used to display the name of the trunk as administered on the CAS Main or on a switch without CAS (1 per-station).
trunk-ns	Trunk Grp	Trunk-Group Night Service: used to place a trunk-group into night service (1 per trunk-group).
verify	Verify	Busy Verification: allows the user to make test calls and check the condition of a station, stations in a hunt group, or a trunk and quickly identify faulty equipment (1 per-station).
work-code *	Work Code	Call Work Code: allows an ACD agent after pressing ‘‘work-code’’ to send up to 16 digits (using the dial pad) to CMS. The data is associated with a current ACD call, and may represent account codes, social security numbers, or telephone numbers (1 per-station).

* The Automatic Call Distribution feature must be enabled on the System-Parameters Customer-Options form before the feature button can be administered.
Call Work Code software is required.

‡ The voice terminal must be equipped with a display before the feature button can be administered.

Table 5-13. Voice Terminal Feature Button Characteristics

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Per Terminal*	Notes **
Abbreviated Dialing	AD	abrv-dial (list:___ DC:___)	1 per list/DC	1
	AbrvDial Mark	abr-spchar (Char:~m)	1	
	AbrvDial Pause	abr-spchar (Char:~p)	1	
	AbrvDial Program	abr-prog	1	
	AbrvDial Suppress	abr-spchar (Char:~s)	1	
	AbrvDial Wait	abr-spchar (Char:~w)	1	
Abbreviated Dialing [display button]	Stored Number	stored-num	1	2
Administered Connection [status lamp]	AC Alarm	ac-alarm	1	
Automatic Call Distribution	After Call Work	after-call (Grp. __)	1 per split group per station	3
	Assist	assist (Grp. __)	1 per split group per station	3
	Auto In	auto-in (Grp. __)	1 per split group per station	3
	Auxiliary Work	aux-work (Grp. __)	1 per split group per station	3
	Manual-In	manual-in (Grp. __)	1 per split group per station	3
	Release	release	1 per station	

* Refer to Table 5-12 for feature button descriptions and notes.

** See Notes at end of table.

Table 5-13. Voice Terminal Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Per Terminal*	Notes **
Automatic Call Distribution (Continued)	Work Code	work-code	1	
	Stroke _	stroke-cnt (Code:_)	10	17
Automatic Callback	Auto Callback	auto-cback	1	
Automatic Circuit Assurance	Auto-ckt Assure	aca-call	1	
Auto Wakeup [display button]	Auto Wakeup	auto-wkup	1 per split group	2
Bridged Call Appearance	*Extension*	brdg-appr	N	
	Extension	abrdg-appr	N	
Busy Verification	Verify	verify	1	
Call Appearance	*Extension*	call-appr	‡	
Call Coverage	Consult	consult	1	
	Coverage Callback	cov-cback	1	
	Send All Calls-TEG	send-term (Grp:___)	1 per Grp.	
	Go to Cover	goto-cover	1	
	Send All Calls	send-calls	1	
Call Coverage [display button]	Covr Msg Retrieve	cov-msg-rt	1	2
Call Forwarding	Call Forward-ing	call-fwd	1	

* N = any number of buttons on the voice terminal can be assigned to this feature.
Refer to Table 5-12 for feature button descriptions and notes.

** See Notes at end of table.

‡ Refer to specific voice terminal information elsewhere in this chapter for maximum allowed.

Table 5-13. Voice Terminal Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Per Terminal*	Notes **
Call Park	Call Park	call-park	1	
Call Pickup	Call Pickup	call-pkup	1	
Call Prompting [display button]	Caller Info	callr-info	1	
Centralized Attendant Service	CAS-Backup	cas-backup	1	
	Flash	flash	1	18
Data Call Setup	Data (data extension #)	data-ext (Ext:___)	1 per Ext.	
Date and Time [display button]	Date Time	date-time	1	2
Demand Print	Print Msgs	print-msgs	1	
Do Not Disturb	Do Not Dis-turb	dn-dst	1	
Do Not Disturb [display buttons]	Do Not Dis-turb Ext	ext-dn-dst	1	2
	Do Not Dis-turb Grp	grp-dn-dst	1	2
Elapsed Time [display button]	Timer	timer	1	2
Facility Busy Indication [status lamp]	Busy (trunk or extension #)	busy-ind (TAC/ Ext:___)	1 per TAC/Ext.	4

* N = any number of buttons on the voice terminal can be assigned to this feature.
Refer to Table 5-12 for feature button descriptions and notes.

** See Notes at end of table.

Table 5-13. Voice Terminal Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Per Terminal*	Notes **
Facility Test Calls [status lamp]	FTC Alarm	trk-ac-alm	10 per system	
Hardware Failure [status lamps]	Major Hdwe Failure	major-alrm	10 per system	
	Major/Minor Hdwe Failure	mj/mn-alrm	10 per system	
	DS1 (facility)	ds1-alarm	10 per system	
	PMS Failure	pms-alarm	1	
	PMS Ptr Alm	pr-pms-alm	1	
	CDR 1 Failure	cdr1-alrm	1	
	CDR 2 Failure	cdr2-alrm	1	
	Auto Wakeup Alm	pr-awu-alm	1	
	Sys Ptr Alm	pr-sys-alrm	1	
Inspect [display button]	Inspect Mode	inspect	1	2
Integrated Directory [display button]	Integrtd Directory	directory	1	2
Intercom- Automatic	AutoIcom (name or extension #)	auto-icom Grp:___ DC:___)	1 per Grp/DC	5
Intercom-Dial	DialIcom	dial-icom (Grp:___)	1 per Grp.	6
Last Number Dialed	LastNumb Dialed	last-numb	1	

* Refer to Table 5-12 for feature button descriptions and notes.

** See Notes at end of table.

Table 5-13. Voice Terminal Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Per Terminal*	Notes **
Leave Word Calling	LWC	lwc-store	1	
	Cancel LWC	lwc-cancel	1	
	Lock LWC	lwc-lock	1	
Leave Word Calling (Remote Message Waiting) [status lamp]	Message (name or extension #)	aut-msg-wt (Ext:___)	1 per Ext.	7
Leave Word Calling [display buttons]	Return Call	call-disp	1	2
	Message Retrieve	msg-retr	1	2
	Next	next	1	2
	Delete Message	delete-msg	1	2
Link Failure [status lamp]	Link Failure (Link No.__)	link-alarm (Link #__)	1 per Link #	8
Manual Signaling	Signal (name or extension #)	signal (Ext:___)	1 per Ext.	16
Manual Message Waiting	Msg Wait (name or extension #)	man-msg-wt (Ext:___)	1 per Ext.	9
Night Service	Night Serv	night-serv	1	
	Hunt Group	hunt-ns (Grp. __)	1 per Grp.	10
	Trunk Grp.	trunk-ns (Grp.__)	1 per Grp.	11
Normal Mode [display button]	Normal Mode	normal	1	2

* N = any number of buttons on the voice terminal can be assigned to this feature.
Refer to Table 5-12 for feature button descriptions and notes.

** See Notes at end of table.

Table 5-13. Voice Terminal Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Per Terminal*	Notes **
Personal Central Office Line	CO Line (telephone #)	per-COline (Grp:___)	1 per Grp.	12
PMS Interface [display button]	Check-In	check-in	1	2
	Check-Out	check-out	1	2
	Message Waiting Act.	mwn-act	1	2
	Message Waiting Deact.	mwn-deact	1	2
Priority Calling	Priority Call	priority	1	
Privacy— Manual Exclusion	Exclusn	exclusion	1	
Queue Status Indications [status lamps]	NQC	q-calls (Grp:_)	1 per hunt group	13
	OQT	q-time (Grp:_)	1 per hunt group	13
Queue Status Indications [display buttons]	AQC	atd-qcalls	1	
	AQT	atd-qtime	1	
Ringer Cutoff	Ringer Cutoff	ringer-off	1	
Service Observing ‡	Service Observing	serv-obsrv	1	
System Reset Alert	System Reset Alert [status lamp]	rs-alert	1	
Terminating Extension Group	Term Grp (name or extension #)	term-x-gr (Grp:___)	1 per Grp.	14

* Refer to Table 5-12 for feature button descriptions and notes.

** See Notes at end of table.

‡ The use of service observing features may be subject to federal, state, or local laws, rules or regulations or require the consent of one or both of the parties to the conversation.
Customers should familiarize themselves with and comply with all applicable laws, rules and regulations before using these features.

Table 5-13. Voice Terminal Feature Button Characteristics (continued)

Feature Or Function	Recommended Button Label	Name Entered On Station Form	Maximum Per Terminal*	Notes **
Time of Day Routing [display buttons]	Immediate Override	man-overid	1	2
	Clocked Override	clk-overid	1	2
Trunk Identification [display button]	Trunk-ID	trk-id	1	2
Trunk Group Name [display button]	Trunk-Name	trunk-name	1	2
UCD/DDC	Auxiliary Work	aux-work (Grp:___)	1 per Grp.	
UCD/DDC/Intraflow Call Coverage (Answer Group)	Coverage (group number, type or name or ext #)	in-call-id (Type:___ Grp:___)	1 per Type/Grp.	15

* Refer to Table 5-12 for feature button descriptions and notes.

** See the following Notes.

Notes:

1. **List**—List number 1 to 3 where the destination number is stored.

   DC—Dial codes of destination number.
2. — (dash)—Display-type buttons may be administered if the voice terminal is equipped with the optional Digital Display or alphanumeric display.
3. **Grp**—The split group number for ACD (1–255).
4. **TAC/Ext**—Trunk or extension number of voice terminal to be monitored. Valid entries are TACs that are compatible with the System Dial Plan (1–4 digits; 1–3 digits for DCS or to remotely control it).
5. **Grp**—Dial Icom group number (1 to 32). This extension and destination extension number must be in the same group.
6. **Grp**—Dial Icom group number (1 to 32).
7. **Ext**—Extension number of principal. (May be a VDN extension.)
8. **Link**—Link number 1–8.
9. **Ext**—The destination extension. (May be a VDN extension.)
10. **Grp**—Hunt group number (1–255).
11. **Grp**—Trunk group number (1–666).
12. **Grp**—Central Office line group number (1–100).

13. **Grp**—Group number of hunt group.
14. **Grp**—Terminating Extension Group Number (1–32).
15. **Type**—A ''c'' for coverage answer group, ''h'' for a uniform call distribution, or direct department calling group.

    Grp—The number of the group (1–100 for ''c'', 1–255 for ''h'').
16. **— (dash)—The extension may not be a VDN extension.**
17. **Code**—Stroke count number (0–9).
18. **Flash**—Not administrable on Attendant Consoles.

Station Forms—Field Descriptions

The following provides descriptions of the fields that are displayed on the various pages of the station forms. Some of the fields are used for specific voice terminal types; others are used for all terminals. Fields and/or pages of the form that require unique consideration are covered where appropriate with the respective voice terminal coverage. The descriptions are organized by form page number and listed alphabetically within each grouping for easy access.

Page 1 of the Form

- **Att. Call Waiting Indication**—Enter ''y'' (default) to assign the Attendant Call Waiting feature to the voice terminal. This allows attendant originated and extended calls to a busy single-line voice terminal to wait and sends a distinctive two-burst call waiting tone to the single-line user. Use of the feature is denied if the Data Restriction field is ''y'' or the Switchhook Flash field is ''n'', or if via the voice terminal's COS assignment, the Data Privacy feature is active. Valid entries are ''y'' (default) or ''n''.
- **AUDIX Name**—Name of AUDIX machine as it appears in the User-Defined Adjunct Names form.
- **Message Server Name**—Name of the server as it appears in the User-Defined Adjunct Names form.
- **Auto Answer**—Enter ''y'' if this terminal has Auto Answer; otherwise, enter ''n'' (default). Auto Answer indicates if an incoming call will be automatically answered and a tone provided without any action by the user (by an Automatic Call Distribution agent).
- **BCC**—Display-only field set to ''0'' (default) for stations (voice or voice-grade data). Displayed when ISDN-PRI is enabled on the System-Parameters Customer-Options form.

  NOTE:
  Refer to ''Generalized Route Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls. The BCC

value is used to determine compatibility when non-ISDN-PRI facilities are connected to ISDN facilities (ISDN-PRI Interworking feature).

- **Bridged Call Alerting**—Enter ''y'' to allow incoming calls on bridged appearances of another terminal's primary extension number, TEG calls, or PCOL calls, otherwise, enter ''n'' (default).
- **Call Waiting Indication**—Enter ''y'' to activate the Call Waiting Termination feature for the voice terminal. This allows other voice terminal, attendant-originated, and outside calls to busy single-line voice terminals to wait and sends a distinctive call waiting tone to the single-line user. Use of the feature is denied if the Data Restriction field is ''y'' or the Switchhook Flash field is ''n'', or if via the voice terminal's COS assignment, the Data Privacy feature is active. Valid entries are ''y'' (default) or ''n''.
- **CDR Privacy**—An administrable option which allows digits in the called number field of an outgoing call to be blanked, on a per-station basis. The number of blocked digits is administered system-wide in the ''Privacy—Digits to Hide'' field on the Feature-Related System Parameters form. Enter ''y'' to enable the call privacy feature for each station; default is ''n''.
- **COR**—Enter a class of restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- **COS**—Enter the desired class of service (COS) number from 0–15 to designate allowed features; default is 1. See ''Class of Service'' in Chapter 5 for additional information.
- **Coverage Msg Retrieval**—Applies when the voice terminal is marked for LWC Reception. Enter a ''y'' (default) to allow a user in the voice terminal's Coverage Path to retrieve Leave Word Calling (LWC) messages for this voice terminal.
- **Coverage Module**—Enter ''y'' to indicate the presence of a coverage module connected to the station; default is ''n''. It adds an additional page containing the button assignment configuration for the module.
- **Coverage Path**—Enter a coverage path number (1–5000) from a previously administered Call Coverage Path form. Leave blank if no coverage is desired.
- **CRV Length**—Displayed for ASAI stations. Enter ''1'' (default) or ''2'' to indicate the length of CRV for each interface.
- **Data Module**—Indicates if a data module is to be administered with the voice terminal. Enter ''y'' or ''n'' (default). If a ''y'' is entered, then Page x of the Form is displayed (see below).
- **Data Restriction**—Enter ''y'' to prevent tones, such as Call Waiting Tones, from interrupting this user's calls; default is ''n''. Data restriction provides permanent protection and cannot be changed by the voice terminal user. This field shold not be assigned if Auto Answer is ''y''.

- **Display Cartridge**—An entry of ‘‘y’’ indicates there is a display cartridge associated with the station (voice terminal 7406D only); default is ‘‘n’’. It generates an additional page containing button assignment configurations for display buttons.
- **Display Module**—Enter ‘‘y’’ or ‘‘n’’ (default). When ‘‘y’’ is specified for certain terminal types, an additional page is added containing the button assignment configuration for dedicated display buttons. With terminals 7406D and 602A1, an additional page is not added, but the display is activated. For BRI 7506D, 7507D, 8510D, and 8520D voice terminals, the display will always be active even though the display field will not appear on the form and no additional form will be added. For BRI and DCP terminals with display but without the additional display page, the display capability buttons can be administered on any administrable button.
- **Distinctive Audible Alert**—Enter ‘‘y’’ (default) so the voice terminal can receive the three different types of ringing patterns that identify the type of incoming calls. Features that provide distinctive ringing might function improperly toward an off-premises voice terminal.
- **Endpt Init**—Displayed when MIM Support is ‘‘y’’. Indicates terminal’s endpoint initialization capability. The endpoint initialization procedure, required for multipoint operation, associates the User Service Order Profile (USOP) translation belonging to the extension with the physical endpoint on the ISDN-BRI interface. This association is made via the Service Profile Identifier (SPID) that has been administered on the System and entered into the ISDN-BRI terminal. This implies that in order for a ISDN-BRI terminal to become operational in the multipoint configuration, both the administered SPID and the SPID programmed into the ISDN-BRI terminal must be the same. Therefore, the SPID of a new or re-used terminal must be programmed to match the administered SPID value. Valid entries are ‘‘y’’ (default) or ‘‘n’’.
- **Extension**—When completing a blank paper form, enter a valid extension number (1–5 digits) that agrees with the dial plan. When implementing the form, ‘‘Extension’’ is part of the input command used to access the form and is a display-only field.
- **Feature Module**—Enter ‘‘y’’ to indicate the station has a feature module connected; default is ‘‘n’’. It adds an additional page containing the button assignment configuration for the module.
- **Fixed TEI**—Appears for ISDN-BRI data modules. Indicates if the endpoint has a fixed Terminal Endpoint Identifier (TEI). The TEI identifies a unique access point within a service. For terminals with the automatic TEI capability, the system dynamically assigns the TEI. Therefore, for the fixed TEI terminals, TEIs must be administered. Valid entries are ‘‘y’’ or ‘‘n’’ (default). If a ‘‘y’’ is entered, then the TEI field is displayed.
- **Idle Appearance Preference**—Enter ‘‘y’’ or ‘‘n’’ (default) to indicate which call appearance is selected when the user lifts the handset and there is an incoming call. If ‘‘y’’ is entered, the Idle Appearance Preference is set and the user is connected to an idle call appearance instead of the ringing call.

If ''n'' is entered, Alerting Appearance Preference is set and the user is connected to the ringing call appearance.

- **LWC Activation**—Enter ''y'' (default) to allow internal voice terminal users to leave short LWC messages for this terminal. If the system has the hospitality features, enter ''y'' for voice terminals in the guest rooms if the terminal designated to receive failed wakeup messages is to receive LWC messages indicating incomplete wakeup calls. Enter ''y'' if ''audix'' was entered for LWC Reception.
- **LWC Reception**—Enter ''msa-spe'' (default) if LWC messages are stored in the system or on the Messaging Server Adjunct—Switch Processor or enter ''audix'' if the messages are stored on the Audio Information Exchange System; otherwise, enter ''none''.
- **Lock Messages**—Enter ''y'' to restrict other users from reading or canceling the voice terminal messages or retrieving messages via Voice Message Retrieval; otherwise, enter ''n'' (default).
- **Message Server Name**—Enter a message server name previously administered in the User-Defined Adjunct Names Administration Form.
- **Message Waiting Indicator**—(Applies to 500, 2500, and 7104A voice terminals.) Enter ''led'' if the message waiting indicator is a light-emitting diode (LED) or ''neon'' if the indicator is a neon light waiting indicator.
- **MIM Mtce/Mgt**—Appears for ISDN-BRI data modules when MIM Support is ''y''. Used to indicate if the terminal supports MIM Maintenance and Management capabilities other then endpoint initialization. Valid entries are ''y'' (default) or ''n''.
- **MIM Support**—(Management Information Message Support) Appears for ISDN-BRI data modules. Used to support two types of capabilities: (1) MIM endpoint initialization capability (SPID support) and (2) other Maintenance/Management capability. Valid entries are ''y'' (default) or ''n''. If ''y'' is entered, the following dependent fields appear: Endpt Init and MIM Mtce/Mgt.
- **Name**—Enter the name of person associated with this voice terminal. Up to 15 characters can be used. This field can be shared with a Room #. The name assigned to a voice terminal remains with that voice terminal until it is changed.

  The Integrated Directory feature lists the names as they should be entered on the forms. Names can be entered in all uppercase letters, all lowercase letters, or a mixture of uppercase and lowercase letters. Also, the first or last name can be entered first and a middle name or initial can be used. Spaces or commas can be used between names. For systems using a 3B2 Messaging Server Adjunct, the last name must be the first entry.

Periods, hyphens, apostrophes, or other special characters, if used, are discarded by the system when the name is entered into the database. The following examples show formats that are required in order for the name to be retrieved by the Integrated Directory feature.

NOTE:
This field can be any printable character string or can be left blank.

— Bill J Doe

— Doe,Bill J

— supervisor

- **Off Premise Station**—Enter ‘‘y’’ if this voice terminal is not located in the same building with the system. Enter ‘‘n’’ (default) if the voice terminal is located in the same building with the system. If ‘‘y’’ is entered, the R Balance Network field must be completed.
- **PCOL/TEG Call Alerting**—Enter ‘‘y’’ to alert the station for Personal CO Line/Terminating Extension Group calls; default is ‘‘n’’.
- **Personalized Ringing Pattern**—Enter a Personalized Ringing Pattern, 1–8, as follows (default is 1):

Ring Pattern	Tone Sequence
1	MMM (standard ringing)
2	HHH
3	LLL
4	LHH
5	HHL
6	HLL
7	HLH
8	LHL

L = 530 Hz, M = 750 Hz, and H = 1060 Hz

- **Port**—Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

NOTE:
A 1-character entry of ‘‘X’’ in the Port field can be used to indicate that there is no hardware associated with the port assignment (Administration Without Hardware feature). These stations are referred to as ‘‘phantom stations’’.

For DCP sets, the port may only be assigned once. ISDN-BRI provides multipoint configuration capability which allows a previously assigned port to be specified more than once as follows: 2 stand-alone voice endpoints, 2 stand-alone data endpoints, or 1 integrated voice and data endpoint.

- **R Balance Network**—Enter ''y'' to select the R Balance Capacitor network, or ''n'' to select the standard resistor capacitor network. This field must be completed if ''y'' was entered in the Off Premise Station field. Enter ''n'' (default) when the station port circuit is connected to terminal equipment (for example, SLC carriers or impedance compensators) optioned for 600 ohm input impedance and the distance to the terminal equipment from the system is less than 3000 feet.
- **Redirect Notification**—Enter ''y'' (default) to give a half ring at this voice terminal when calls to this terminal are redirected (via Call Forwarding or Call Coverage). Enter ''y'' if audix was entered for LWC Reception.
- **Restrict Last Appearance**—Enter ''y'' (default) to restrict the last idle call appearance for incoming priority calls and outgoing call originations.
- **Security Code**—Enter a 4-digit security code required by users to retrieve messages via the Demand Print or Voice Message Retrieval feature.
- **SPID**—(Service Profile Identifier) Displayed when MIM Support is ''y''. Enter a variable length parameter (up to 10 digits). SPID is a numeric string, which means that the value of ''00'' is different from ''000''. The SPID must be different for all terminals on the BRI and from the Service SPID. The SPID should always be assigned. If the SPID is not assigned for the first BRI on a port, any other BRI assignment to that port will be blocked. Default is the station extension.

  NOTE:
  If using the Administration Without Hardware feature for an ISDN-BRI extension (an ''X'' in the Port field) and Terminal Translation Initialization (TTI) is intended to be used to assign the port, then the SPID number must equal the station number.

- **Switchhook Flash**—Enter ''y'' (default) to allow users to use the switchhook flash function to activate the Conference/Transfer/Hold and Call Waiting features. An ''n'' disables the flash function, and when the switchhook is pressed while active on a call, the call will be dropped. If this field is ''n'', the Call Waiting Indication field must be ''n''.
- **TEI**—Displayed when Fixed TEI is ''y''. Enter a 1- or 2-digit number in the range of 0–63; default is blank.
- **Tests**—Enter ''y'' (default) to enable port maintenance tests. If terminal equipment (dictaphone) connected to the port does not support these tests, ''n'' must be entered in the field.

- **Type**—Enter the voice terminal type.
- **XID**—Appears for ISDN-BRI data modules. Used to identify layer 2 XID testing capability. Valid entries are ‘‘y’’ (default) or ‘‘n’’.

Page 2 of the Form

- **ABBREVIATED DIALING List1:, List2:, List3:**—Enter ‘‘personal’’, ‘‘system’’, ‘‘group’’, or ‘‘enhanced’’. Up to three AD lists can be accessed by the voice terminal. If ‘‘personal’’ or ‘‘group’’ is entered, a personal list number or a group number, respectively, is also required.
- **Building**—Enter up to seven characters to identify the voice terminal’s building location.
- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to voice terminals are listed with each terminal’s coverage. Depending on the button type, additional auxiliary information may be required when administering buttons.
- **Cable**—Enter up to five characters to identify the cable number that connects the voice terminal jack to the system. This field may be left blank. This information can also be entered in the Blank column on the Port Assignment Record.
- **Cord Length**—Enter a number from 0–99 to specify the length (in feet) of the cord attached to the receiver; default is 0.
- **Floor**—Enter up to seven characters to identify the voice terminal’s floor location.
- **Headset**—Enter ‘‘y’’ if this terminal has a headset; otherwise, enter ‘‘n’’ (default).
- **HOT LINE DESTINATION—Abbreviated Dialing List Number (From above)**—Enter ‘‘1’’, ‘‘2’’, ‘‘3’’, or blank; default is blank. This field identifies the abbreviated dialing list to access when originating a call. It refers to the abbreviated dialing lists associated with the station.
- **HOT LINE DESTINATION—Dial Code**—Enter a number from 0–999 or blank; default is blank. This field is the index for the Abbreviated Dialing List which contains the digits to be dialed during origination.
- **Jack**—Enter up to five characters that are used to identify the jack location the where the voice terminal is connected. This field may be left blank. See the Port Assignment Record.

- **Room**—Enter up to seven characters to identify the voice terminal's location. This field may be blank. If this station is one of several to be assigned a guest room and the Hospitality-Related System Parameters form has ''y'' entered in the ''Display Room Information in Call Display'' field, enter up to five characters in the Room field to identify the guest room number.
- **Set Color**—Enter up to 6 characters to describe the set color.
- **Speaker Phone**—Enter ''y'' to indicate a speakerphone will be attached to the voice terminal; default is ''n''.

Page x of the Form—Data Module

- **ITC (Information Transfer Capability)**—Used to administer the Information Transfer Capability of non-ISDN endpoints. The field is not available for voice-only stations or BRI stations. Default is ''restricted''.
- **ABBREVIATED DIALING List1:**—Enter ''personal'', ''system'', ''group'', or ''enhanced''. If ''group'' or ''personal'' is entered, a group number or personal list number respectively is also required. The entry in this field and the HOT LINE DESTINATION field support the Data Hot Line feature.
- **ASSIGNED MEMBER—Ext**—Make no entry. The extension number is automatically assigned when the system is administered. This is the extension number of the user who has an associated Data Extension button and will share the module.
- **ASSIGNED MEMBER—Name**—Display-only field. Contains the name assigned to the Assigned Member—Ext number.
- **BCC**—Display-only field. Displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

  NOTE:
  Refer to ''Generalized Route Selection'' in *Generic 1 and Generic 3—Feature Description*, 555-230-201, for a detailed description of Bearer Capability Classes (BCCs) and their use to provide specialized routing for various types of voice and data calls. The BCC value is used to determine compatibility when non-ISDN-PRI facilities are connected to ISDN facilities (ISDN-PRI Interworking feature).

- **COR**—Enter the desired Class of Restriction (COR) number from 0–95 that reflects the desired restriction; default is 1.
- **COS**—Enter the desired Class of Service (COS) number (0–15) to designate allowed features; default is 1. Refer to ''Class of Service'' form elsewhere in this chapter for additional information on the allowed features.
- **Data Extension**—Enter the extension number assigned to the data module. A data extension can be a 1- to 5-digit number and must agree with the System's Dial Plan.

- **DEFAULT DIALING Abbreviated Dialing Dial Code (From above list)**—Displayed when Special Dialing Option is ‘‘default’’. Enter a list number (associated with the above AD List) from 0–999. The associated AD number will be dialed when the user goes off-hook and enters a return following the ‘‘DIAL’’ prompt. The data call originator can also perform data terminal dialing by specifying a dial string that may or may not contain alphanumeric names.
- **HOT LINE DESTINATION—Abbreviated Dialing Dial Code (From above list)**—Displayed when Special Dialing Option is ‘‘hot-line’’. Enter a list number (associated with the above AD List) from 0–999. The associated AD number will be dialed when the user goes off-hook on a Data Hot Line call.
- **Name**—Enter the name of the user associated with the data module. The name is optional, it can be left blank.
- **SPECIAL DIALING OPTION**—Enter one of three dialing options that are available. This identifies the type of dialing for calls when this data module originates calls. Valid entries are ‘‘hot-line’’, ‘‘default’’, or leave blank for regular (normal) keyboard dialing.
- **CIRCUIT SWITCHED DATA ATTRIBUTES**—The following fields appear on the ISDN-BRI Data Module Form:
  - **Default Duplex**—Used to identify the duplex mode. Valid entries are ‘‘full’’ (default) or ‘‘half’’.
  - **Default Mode**—Used to identify the data mode. Valid entries are ‘‘sync’’ (default) or ‘‘async’’.
  - **Default Speed**—Used to identify the data rate. Valid entries are 1200 (default), 2400, 4800, 9600, and 19200.
- **DATA MODULE CAPABILITIES**

  The following field appears on the ISDN-BRI Data Module Form:
  - **Origination Default Data Applications**—Used to identify mode to be used for originating data calls when the mode is not specified with the calling parameters. This mode will also be used for terminating trunk calls which do not have bearer capability specified or administered connections. Possible mode values are M0 (mode 0), M1 (mode 1), M2 (mode 2), and M3/2 (mode 3/2 adaptable), or blank. Valid entries are ‘‘M0’’, ‘‘M1’’, ‘‘M2_A’’ (default), ‘‘M2_S’’, or ‘‘M3/2’’.

10-, 20-, and 30-MET Voice Terminals

This form is used to implement 10-, 20-, and 30-MET voice terminals.

Administration Commands

The following administration commands can be used to access the Voice Terminal form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or ('next')
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	xxxxx (extension number)
list	station	[xxxxx]('count' 1–10000) ['print' or 'schedule']
list	station	[xxxxx]('count' 1–10000) type ASAI ['print' or 'schedule']
list	station	[xxxxx]('count' 1–10000) port ['print' or 'schedule']
list	station	[extension] [type (station type)] [port 1–3 (port number)] ['count'(n)] ['print' or 'schedule']
remove	station	[xxxxx] (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Please review the ''Voice Terminals—General'' information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided in the ''Voice Terminals—General'' section. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Type**—Enter ''10MET'', ''20MET'', or ''30MET'' as appropriate.

Page 2 of the Form

- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the 10/20/30 MET sets are listed below. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on the button type, additional auxiliary information may be required when administering buttons.

- abr-prog
- abr-spchar
- abrdg-appr
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls
- atd-qtime
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- aux-work
- brdg-appr
- busy-ind
- call-appr
- call-fwd
- call-park
- call-pkup
- cas-backup
- cdr1-alarm
- cdr2-alarm
- consult
- cov-cback
- data-ext
- dial-icom
- dn-dst
- exclusion
- flash
- goto-cover
- hunt-ns
- in-call-id
- last-numb
- link-alarm
- lwc-cancel
- lwc-store
- major-alrm
- man-msg-wt
- manual-in
- mct-act
- mct-contr
- mj/mn alrm
- night-serv
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- term-x-gr
- trunk-ns
- verify

Figures 5-15 through 5-17 show the voice terminal button number assignments in relation to the button numbers on the associated Voice Terminal Forms. The first three buttons are defaulted as call appearance.

Page 3 of the Form (20- and 30-MET)

- **FEATURE BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the 20/30 MET sets Page 3 of 3 are the same as those listed for BUTTON ASSIGNMENTS above.

```
                                    STATION                  Page 1 of x
Extension: 300              BCC: 0
     Type: _____                      Lock Messages? n           COR: 1_
     Port: _______                    Security Code: ____        COS: 1_
     Name: _______________            Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                     Auto Answer? n
           CDR Privacy? n                                Data Restriction? n
 Redirect Notification? y                       Idle Appearance Preference? n
 Bridged Call Alerting? n
                                                 Restrict Last Appearance? y
            AUDIX Name: _______
   Message Server Name: _______
```

10 MET, 20 MET, and 30 MET Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                    STATION                  Page 2 of x
 SITE DATA
       Room: _______                                    Headset? n
       Jack: _____                                      Speaker? n
      Cable: _____                                     Mounting? d
   Building: _______                                 Cord Length: 0_
      Floor: _______                                   Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_
  2: call-appr_
  3: call-appr_
  4: __________
  5: __________
```

10 MET, 20 MET, and 30 MET Form (Page 2 of x)

Implementation Note:

The first three button assignments are defaulted as call-appr (call appearance).

```
                                    STATION                 Page  3 of  x
FEATURE BUTTON ASSIGNMENTS
  1: ___________
  2: ___________
  3: ___________
  4: ___________
  5: ___________
  6: ___________
  7: ___________
  8: ___________
  9: ___________
 10: ___________
```

20-MET Feature Button Form (Page 3 of 3)

Implementation Note:

The above button assignments correspond to the second column of ten buttons on the 20-MET Voice Terminal.

Buttons 1–5 may only be assigned ‘‘call-appr’’ or ‘‘brdg-appr’’.

```
                                    STATION                 Page  3 of  x
FEATURE BUTTON ASSIGNMENTS
  1: ___________                      11: ___________
  2: ___________                      12: ___________
  3: ___________                      13: ___________
  4: ___________                      14: ___________
  5: ___________                      15: ___________
  6: ___________                      16: ___________
  7: ___________                      17: ___________
  8: ___________                      18: ___________
  9: ___________                      19: ___________
 10: ___________                      20: ___________
```

30-MET Feature Button Form (Page 3 of 3)

Implementation Note:

The above button assignments correspond to the second and third columns of 10 buttons on the 30-MET Voice Terminal.

Buttons 1–5 may only be assigned ‘‘call-appr’’ or ‘‘brdg-appr’’.

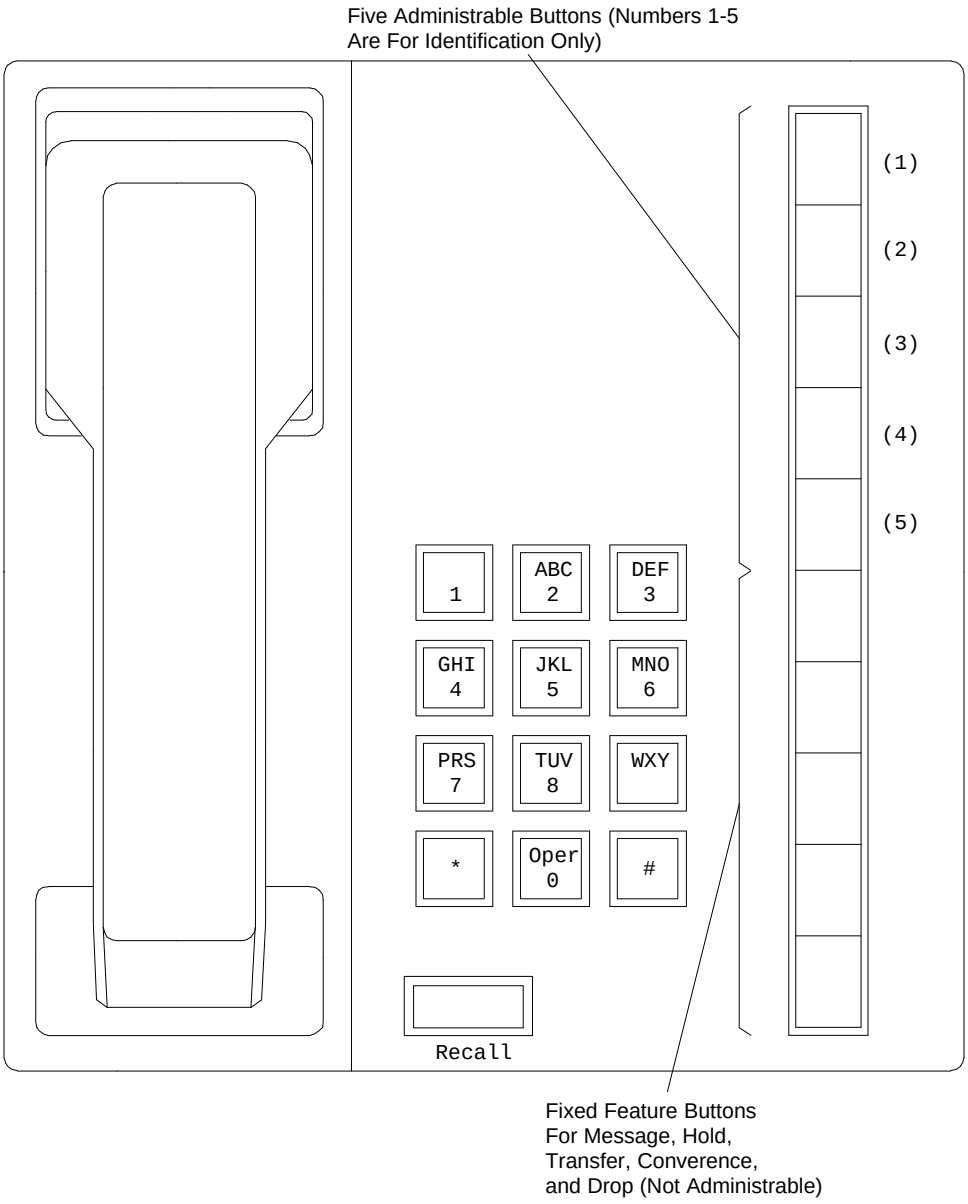


Figure 5-15. 10-MET Voice Terminal

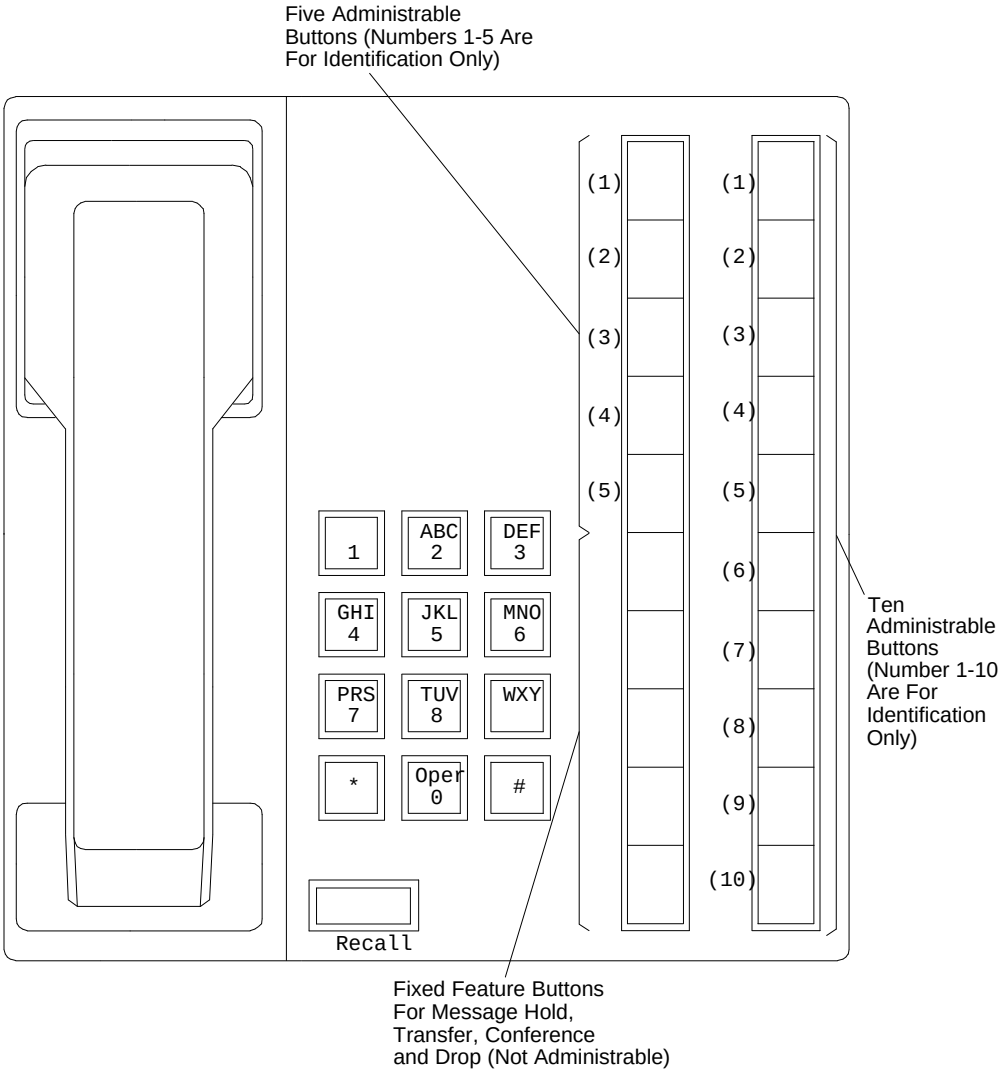


Figure 5-16. 20-MET Voice Terminal

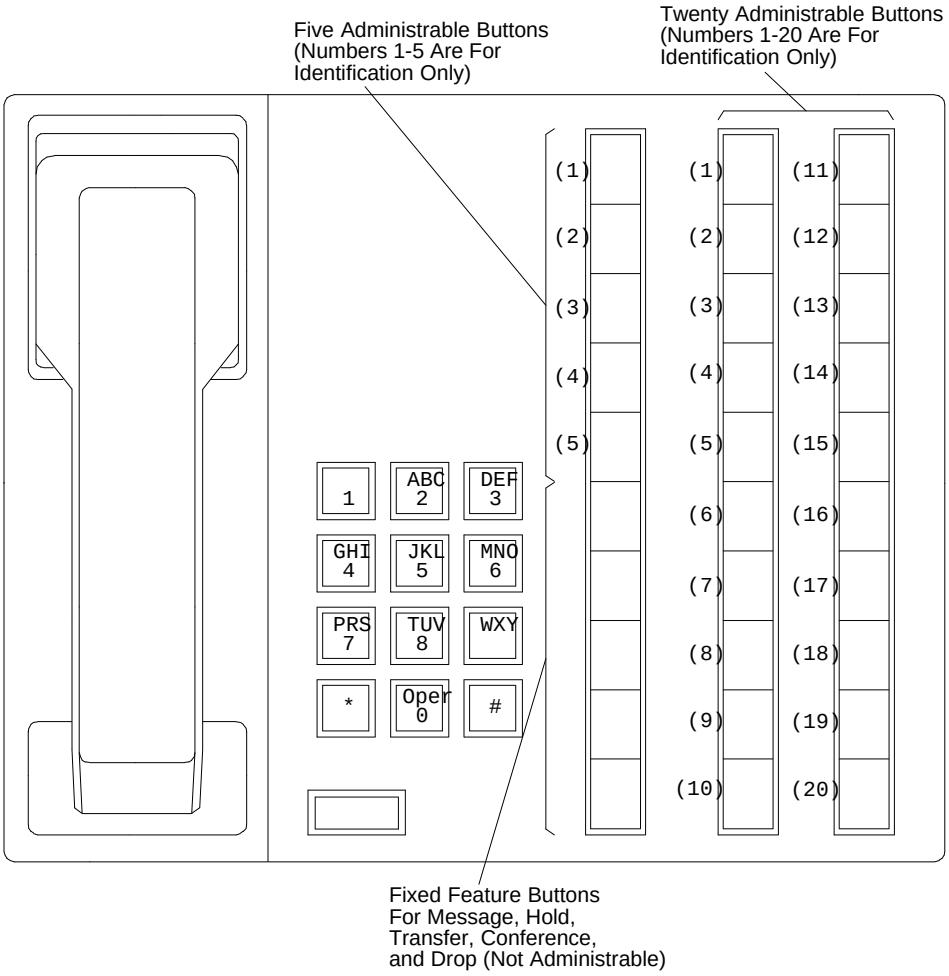


Figure 5-17. 30-MET Voice Terminal

500, 2500, 7101A, 7102A, 7103A, and 7104A Voice Terminals

This form is used to implement a 500, 2500, 7101A, 7102A, 7103A, or 7104A single-line voice terminal. These terminals are shown in Figures 5-18 through 5-23.

Administration Commands

The following administration commands can be used to access the Voice Terminal form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a

complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	xxxxx (extension number)
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Review the ‘‘Voice Terminals—General’’ information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided in the ‘‘Voice Terminals—General’’ section. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Type**—Enter ‘‘500’’, ‘‘2500’’ (see note), ‘‘7101A’’, ‘‘7102A’’ (see note), ‘‘7103A’’, or ‘‘7104A’’, as appropriate.

  NOTE:
  For a 7102A Voice Terminal, enter ‘‘7101A’’ in the Type field.

  For a 2500 DMGC Voice Terminal, enter ‘‘7101A’’ in the Type field. This enables the Recall button and switchhook flash functions.

- **Tests**—Enter ‘‘y’’ (default) to enable port maintenance tests. Enter ‘‘n’’ when the voice terminal is connected through a peripheral unit, such as a dictating machine, that will cause the tests to fail.

Page 2 of the Form

- **ABBREVIATED DIALING List1:, List2:, List3:**—Up to three AD lists may be accessed by the voice terminal. Enter ‘‘personal’’, ‘‘system’’, ‘‘group’’, or ‘‘enhanced’’. If ‘‘personal’’ or ‘‘group’’ is entered, a personal list number (1–3) or a group number (1–1000), respectively, is also required. If the set type is a 7103A, then enter ‘‘7103A’’ as a List type.

```
                                   STATION                  Page 1 of x
Extension: 300              BCC: 0
     Type: 500__                      Lock Messages? n           COR: 1_
     Port: _______                    Security Code: ____        COS: 1_
     Name: _________________          Coverage Path: ___       Tests? y

FEATURE OPTIONS
         LWC Reception: spe____                  Coverage Msg Retrieval? y
        LWC Activation? y                                  Auto Answer? n
           CDR Privacy? y                               Data Restriction? n
 Redirect Notification? y                          Call Waiting Indication? y
   Off Premise Station? y                     Att. Call Waiting Indication? y
     R Balance Network? _                        Distinctive Audible Alert? y
      Switchhook Flash? y                        Message Waiting Indicator: ____

            AUDIX Name: _______
   Message Server Name: _______
```

Single-Line Station Form (Page 1 of 2)

Implementation Notes:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

R Balance Network is displayed when Off Premise Station is ‘‘y’’.

Message Waiting Indicator is displayed when Type is ‘‘500’’, ‘‘2500’’, or ‘‘7104A’’.

```
                                   STATION                  Page 2 of x
 SITE DATA
       Room: _______                                  Headset? n
       Jack: _____                                    Speaker? n
      Cable: _____                                   Mounting? d
   Building: _______                              Cord Length: 0_
      Floor: _______                                Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

HOT LINE DESTINATION
         Abbreviated Dialing List Number (From above 1, 2 or 3): _
                                                    Dial Code: ___
```

Single-Line Station Form (Page 2 of 2)

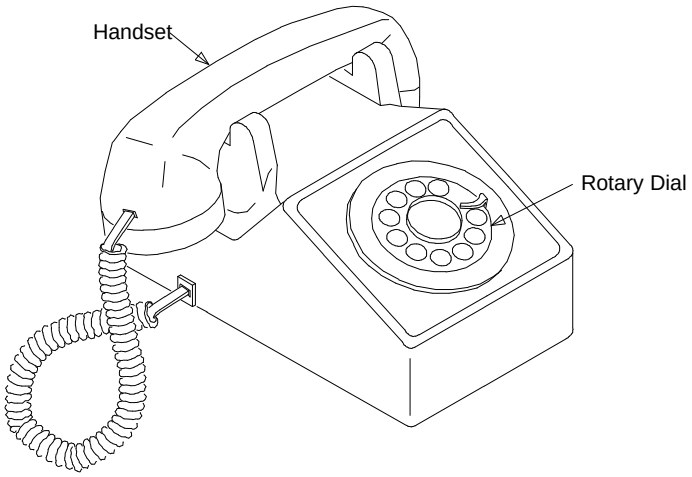


Figure 5-18. 500 Voice Terminal

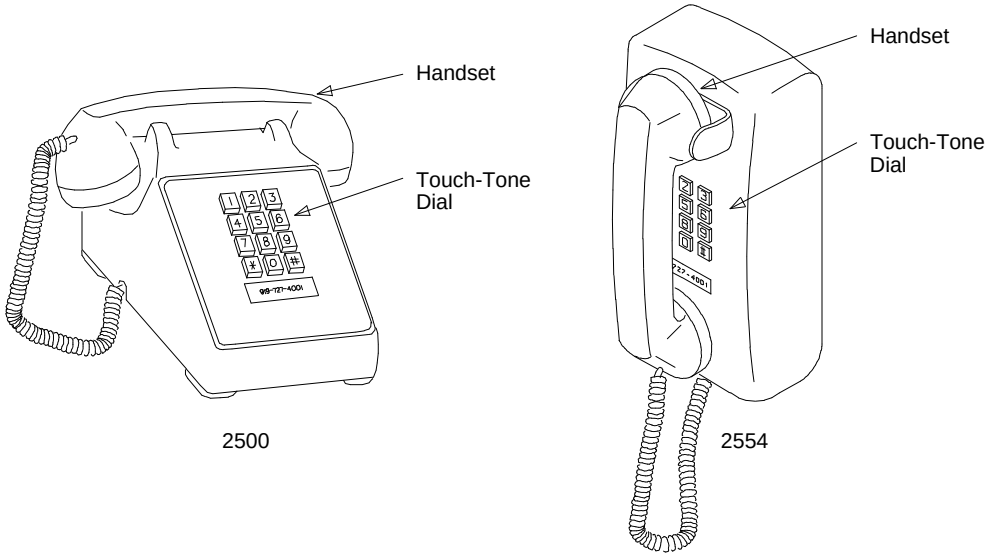


Figure 5-19. 2500 and 2554 Voice Terminals

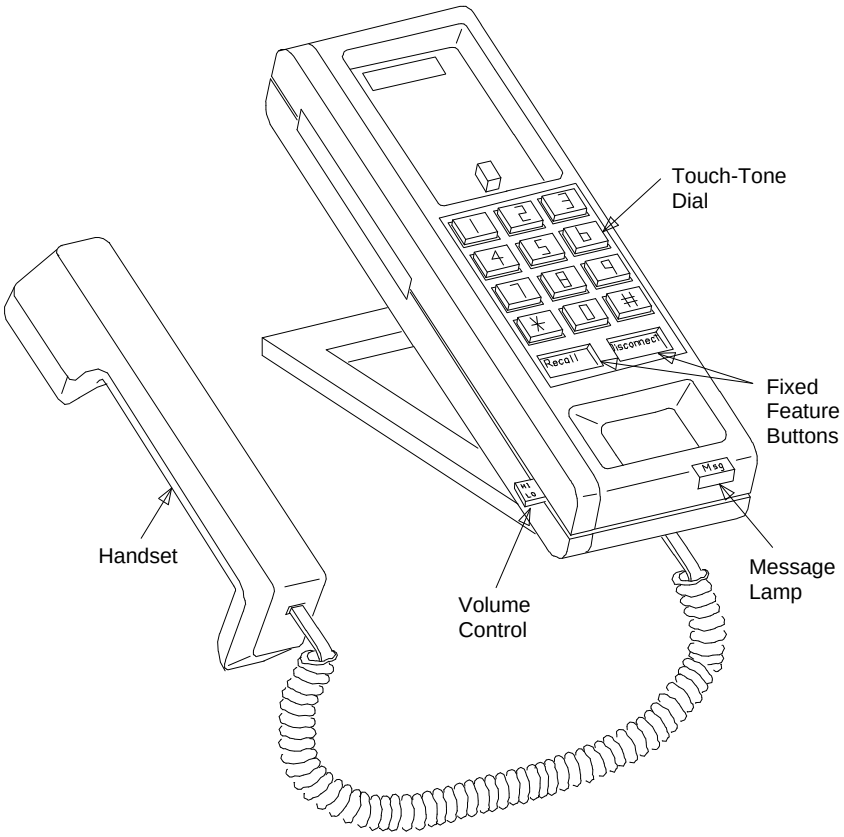


Figure 5-20. 7101A Voice Terminal

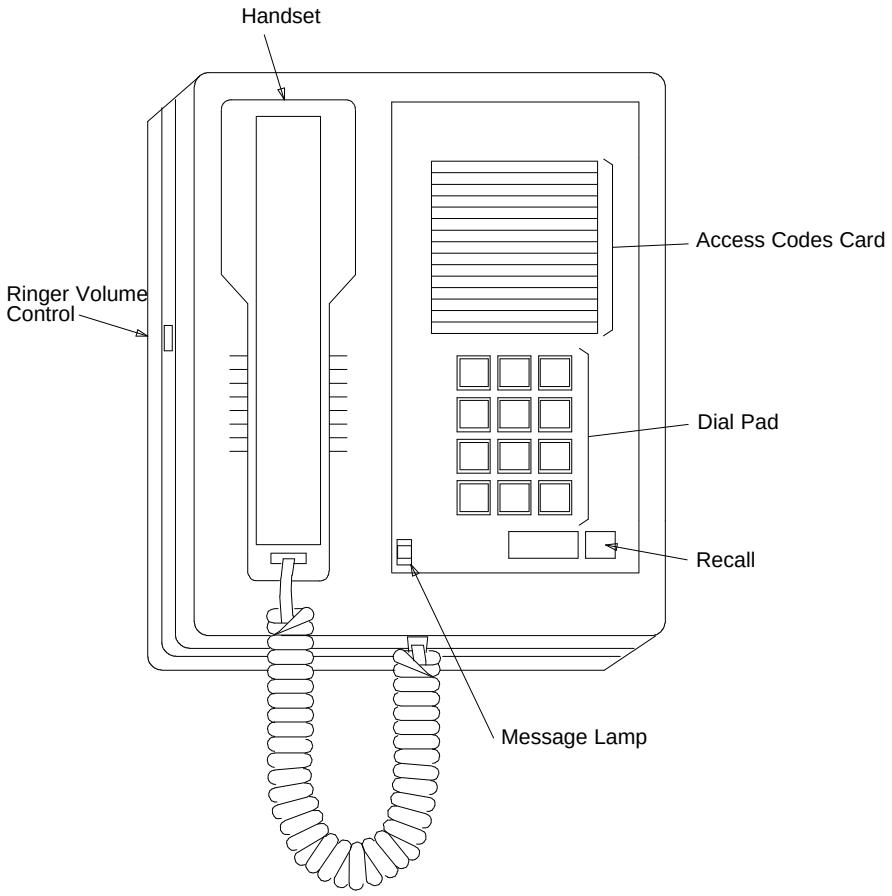


Figure 5-21. 7102A Voice Terminal

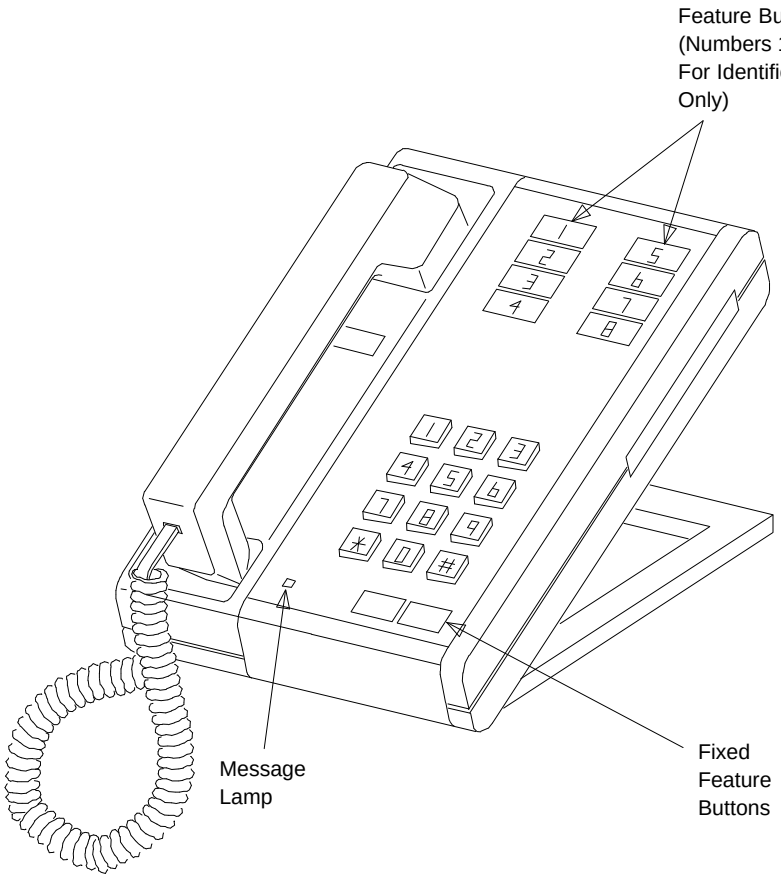


Figure 5-22. 7103A Voice Terminal

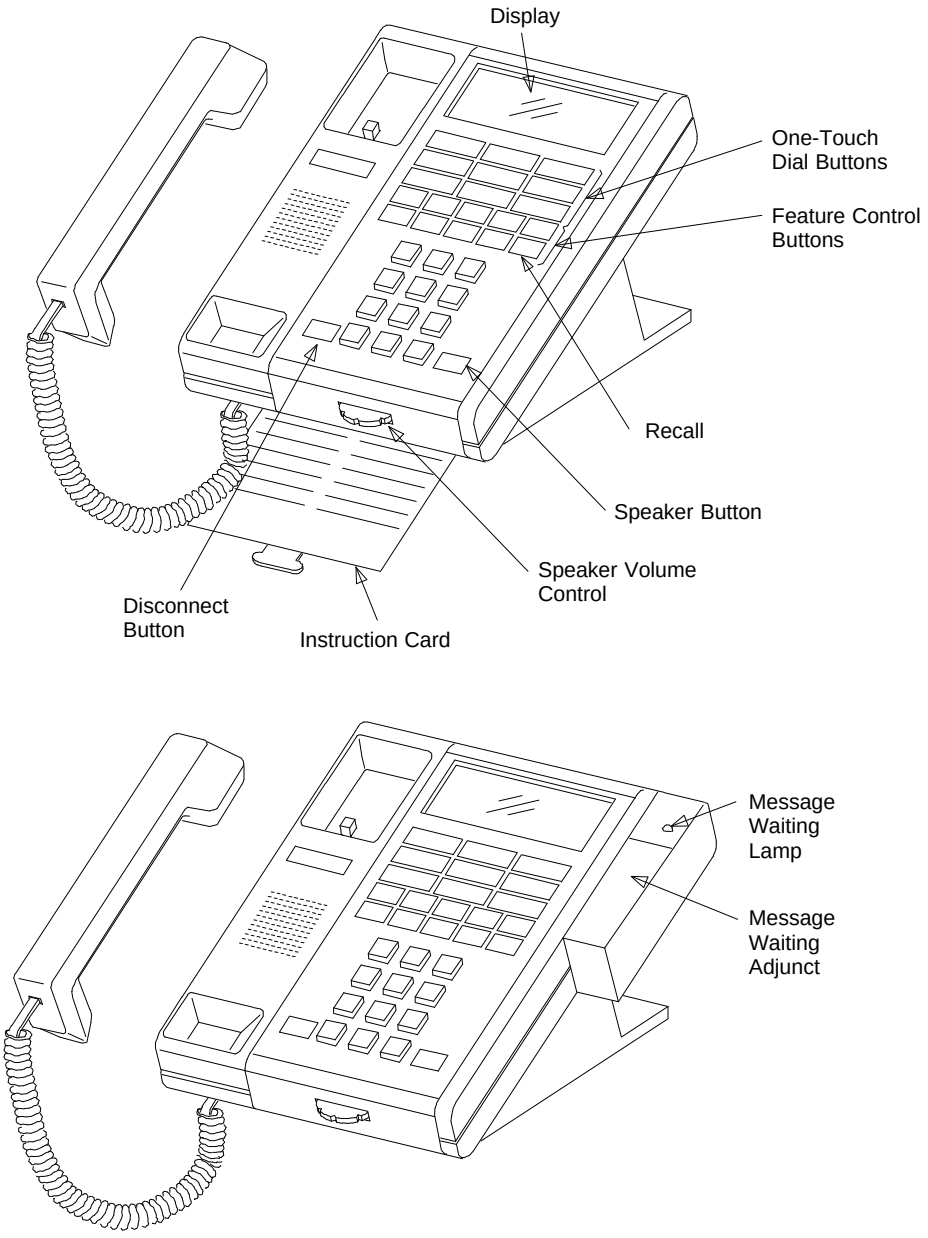


Figure 5-23. 7104A Voice Terminal

510D Personal Terminal and 515 Business Communications Terminal

The following forms are used to implement an AT&T 510D Personal Terminal or an AT&T 515 Business Communications Terminal (BCT).

Administration Commands

The following administration commands can be used to access the form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	xxxxx (extension number)
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Please review the ''Voice Terminals—General'' information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided in the ''Voice Terminals—General'' section. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Port**—Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  When using the Administration Without Hardware feature, place an ''X'' in this field to indicate that there is no hardware associated with this port assignment.

- **PCOL/TEG Call Alerting**—(510D only) Enter ''y'' if the user will be alerted of a PCOL/TEG call; default is ''n''.
- **Bridged Call Alerting**—(515 BCT only) Enter ''y'' to allow incoming calls on bridged appearances of another terminals primary extension number or TEG or PCOL calls to alert at this terminal; default is ''n''.
- **Data Module**—Display-only field. Restricted to ''y''.
- **Display Module**—Display-only field. Restricted to ''y''.

Page 2 of the Form

- **BUTTON ASSIGNMENTS**—The feature buttons that can be assigned to the 510 Personal Terminal (PT) and 515 BCT are listed below. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on the button type, additional auxiliary information may be required when administering buttons.

- abr-prog
- abr-spchar
- abrdg-appr
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls
- atd-qtime
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- auto-wkup
- aux-work
- brdg-appr
- busy-ind
- call-appr
- call-disp
- call-fwd
- call-park
- call-pkup
- callr-info*
- cas-backup
- cdr1-alarm
- cdr2-alarm
- check-in
- check-out
- clk-overid
- consult
- cov-cback
- cov-msg-rt
- data-ext
- date-time
- delete-msg
- dial-icom
- directory
- dn-dst
- exclusion
- ext-dn-dst
- flash
- goto-cover
- grp-dn-dst
- hunt-ns
- in-call-id
- inspect
- last-numb
- link-alarm
- lwc-cancel
- lwc-lock
- lwc-store
- major-alrm
- man-msg-wt
- man-overid
- manual-in
- mct-act
- mj/mn alrm
- msg-retr
- mwn-act
- mwn-deact
- next
- night-serv
- normal
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- stored-num
- term-x-gr
- timer
- trk-id
- trunk-name
- trunk-ns
- verify

* Display-type button

The 510D and 515 button number assignments in relation to the button numbers on the form are shown in Figures 5-24 and 5-25.

Page 3 of the Form (510D)

- **FEATURE BUTTON ASSIGNMENTS**

  The features and functions that can be assigned to the 510 Personal Terminal (PT) Page 3 of x are the same as those listed for BUTTON ASSIGNMENTS above.

Page x of the Form

- **(DISPLAY BUTTON ASSIGNMENTS)**

  The administrable display-type buttons that can be assigned are shown on the above list (see BUTTON ASSIGNMENTS) and are noted as [display buttons].

Page x of the Form

- **Data Module**

  Refer to ‘‘Station Forms—Field Descriptions’’ elsewhere in this chapter for associated field descriptions.

```
                                    STATION                  Page 1 of x
Extension: 300              BCC: 0
     Type: ___                      Lock Messages? n           COR: 1_
     Port: _______                  Security Code: ____        COS: 1_
     Name: _______________          Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                       Auto Answer? n
           CDR Privacy? n                                 Data Restriction? n
 Redirect Notification? y                       Idle Appearance Preference? n
PCOL/TEG Call Alerting? n
 Bridged Call Alerting? n
                                                 Restrict Last Appearance? y
           Data Module? y
        Display Module? y

            AUDIX Name: _______
   Message Server Name: _______
```

510D and 515 BCT Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

PCOL/TEG Call Alerting appears on the 510 form.

Bridged Call Alerting appears on the 515 form.

```
                                   STATION                  Page 2 of x
 SITE DATA
       Room: _______                                    Headset? n
       Jack: _____                                      Speaker? n
      Cable: _____                                     Mounting? d
   Building: _______                                Cord Length: 0_
      Floor: _______                                  Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                        6: __________
  2: call-appr_                        7: __________
  3: call-appr_                        8: __________
  4: __________                        9: __________
  5: __________                       10: __________
```

510D and 515 BCT Form (Page 2 of x)

Implementation Note:

Button Assignments 5–10 are displayed on the 515 BCT form.

The first three button assignments default to call-appr (call appearance) for the 510D and 515 BCT. The first four button assignments must be assigned to call-appr (call appearance).

```
                                    STATION                    Page 3 of x
FEATURE BUTTON ASSIGNMENTS
                              Column 1:  1:  _____________
                                         2:  _____________
                                         3:  _____________
                              Column 2:  4:  _____________
                                         5:  _____________
                                         6:  _____________
                              Column 3:  7:  _____________
                                         8:  _____________
                                         9:  _____________
```

510D Personal Terminal Form (Page 3 of x)

```
                                    STATION                    Page x of x
DISPLAY BUTTON ASSIGNMENTS
  1: _____________
  2: _____________
  3: _____________
  4: _____________
  5: _____________
  6: _____________
  7: _____________
```

510D and 515 BCT Display Button Assignments Form

```
                                  STATION                      Page x of x
DATA MODULE
     Data Extension: ____                BCC: 2
               Name: _________________     COR: 1_        COS: 1_
ABBREVIATED DIALING
 List1: ________
SPECIAL DIALING OPTION: _____
   HOT LINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (From above list): _
ASSIGNED MEMBER ( Station with a data extension button for this data module )
        Ext      Name
     1: _____    ___________
```

510D and 515 BCT Data Module Form

Implementation Note:

This page is displayed when Data Module on Page 1 is ‘‘y’’.

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

Hot Line Destination is displayed when Special Dialing Option is ‘‘hot-line’’.

Default Dialing is displayed when SPECIAL DIALING OPTION is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’ or ‘‘default’’.

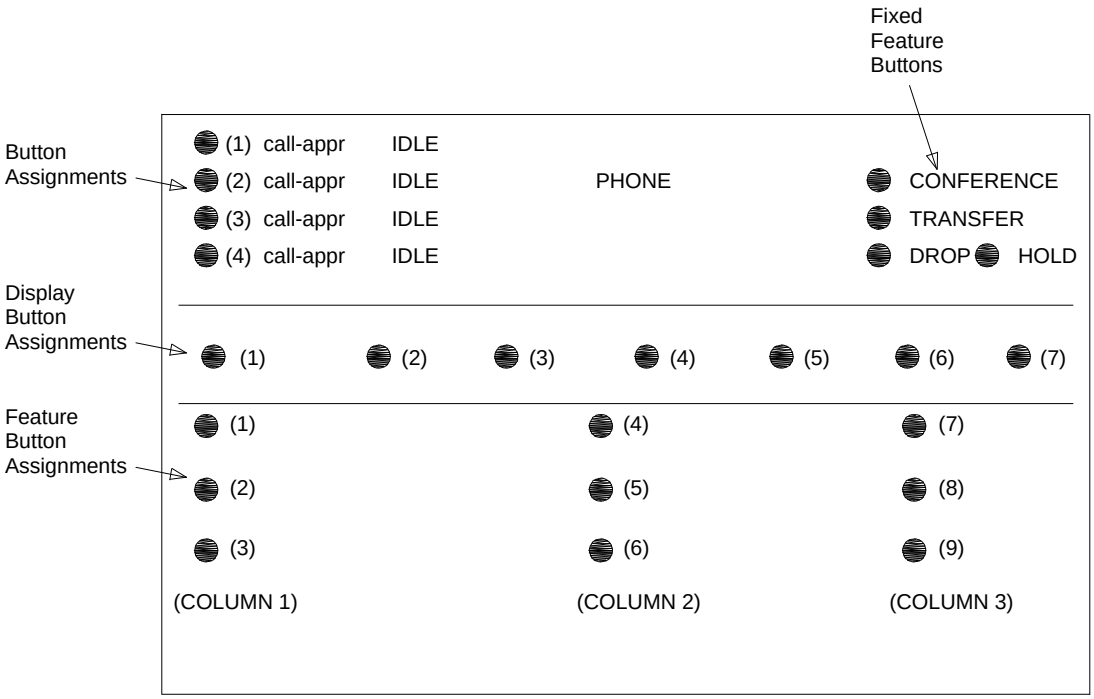


Figure 5-24. 510D Personal Terminal Administrable Screen Button Assignments

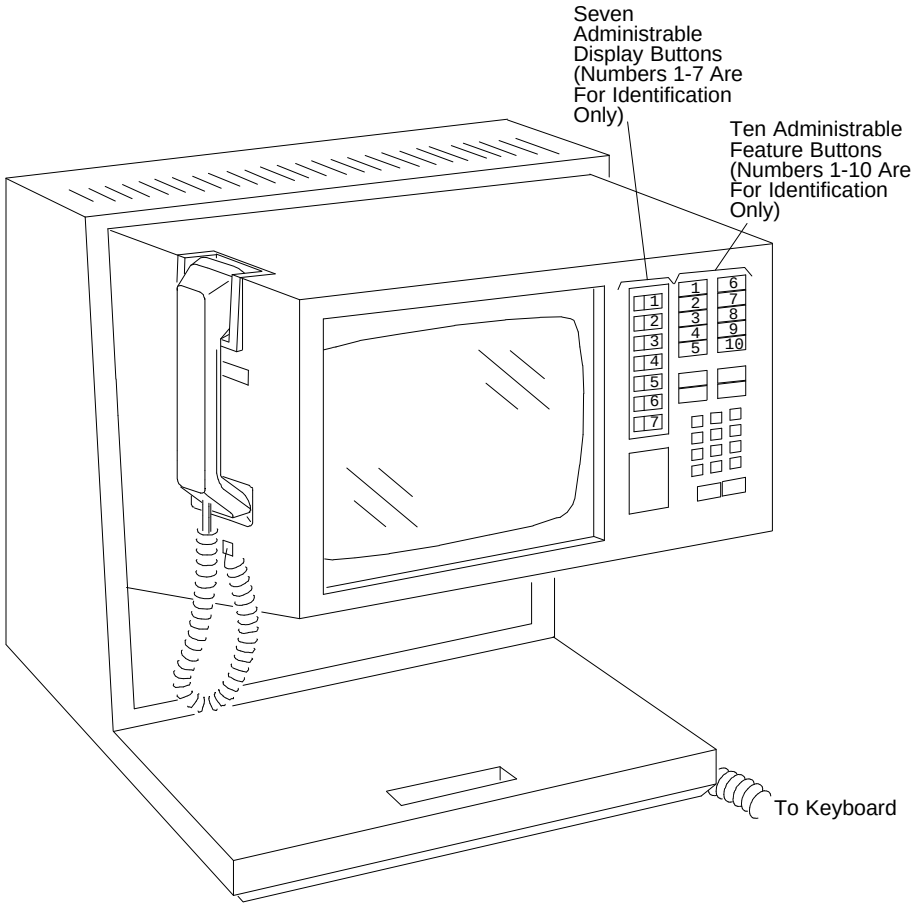


Figure 5-25. 515 Business Communications Terminal (BCT)

7302H, 7303H, and 7305H Voice Terminals

The following provides instructions associated with the implementation of 7302H (small), 7303H (medium), and 7305H (large) MERLIN® communications system voice terminals.

Administration Commands

The following administration commands can be used to access the Voice Terminal form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	xxxxx (extension number)
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

- **7302H Voice Terminal (5-Button)**

  Administer using a 7303S Voice Terminal form.

- **7303H Voice Terminal (10-Button)**

  Administer using a 7305S Voice Terminal form.

  NOTE:
  Only the first 12 feature function buttons on Page 2 of the form apply. Of these 12 buttons, 8 have 2 lamps and 4 have no lamps. However, the System will treat the eight double lamp buttons as though they have a single (green) lamp. Administer the four buttons with no lamps with features not requiring status indications, such as Abbreviated Dialing and Last Number Redial.

- **7305H Voice Terminal (34-Button)**

  Administer using a 7305S Voice Terminal form. The system will treat the set’s 24 feature function buttons (2 lamps each) as single (green) lamp function buttons.

7303S, 7305S, and 7309H Voice Terminals

This form is used to implement a 7303S, 7305S, and a 7309H multi-appearance voice terminal.

Administration Commands

The following administration commands can be used to access the Voice Terminal form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or ('next')
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	
list	station	[xxxxx]('count' 1–10000) ['print' or 'schedule']
list	station	[xxxxx]('count' 1–10000) type ASAI ['print' or 'schedule']
list	station	[xxxxx]('count' 1–10000) port ['print' or 'schedule']
list	station	[extension] [type (station type)] [port 1–3 (port number)] ['count'(n)] ['print' or 'schedule']
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (' ') indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Please review the ''Voice Terminals—General'' information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Type**—Enter ''7303S'', ''7305S'', or ''7309H'' as appropriate.

Page 2 of the Form

- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the 7303S, 7305S, and 7309H voice terminals are listed below. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on the button type, additional auxiliary information may be required when administering buttons. This information is provided in the ''Voice Terminals—General'' section.

Administrable feature buttons:

- abr-prog
- abr-spchar
- abrdg-appr
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls
- atd-qtime
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- aux-work
- brdg-appr
- busy-ind
- call-appr
- call-fwd
- call-park
- call-pkup
- cas-backup
- cdr1.alarm
- cdr2.alarm
- consult
- cov-cback
- data-ext
- dial-icom
- dn-dst
- exclusion
- flash
- goto-cover
- hunt-ns
- in-call-id
- last-numb
- link-alarm
- lwc-cancel
- lwc-store
- major-alrm
- man-msg-wt
- manual-in
- mct-act
- mct-contr
- mj/mn alrm
- night-serv
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- pr-sys-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- term-x-gr
- trunk-ns
- verify

Figures 5-26 through 5-28 show the 7303S, 7305S, and 7309H voice terminal button number assignments in relation to the button numbers on the Voice Terminal Form. The first three buttons are defaulted as call appearance.

Page 3 of the Form (7305S only)

- **FEATURE BUTTON ASSIGNMENTS**—The features and functions that can be assigned to the 7305S on Page 3 of 3 are the same as those listed for BUTTON ASSIGNMENTS above. The first three buttons are defaulted as call appearance.

```
                                    STATION                    Page 1 of x
Extension: 300              BCC: 0
     Type: _____                    Lock Messages? n_            COR: 1_
     Port: _______                  Security Code: ____          COS: 1_
     Name: _______________          Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                   Auto Answer? n
           CDR Privacy? n                                Data Restriction? n
 Redirect Notification? y                      Idle Appearance Preference? n
 Bridged Call Alerting? n                    Personalized Ringing Pattern: 1
                                                 Restrict Last Appearance? y
            AUDIX Name: _______
   Message Server Name: _______
```

7303S, 7305S, and 7309H Station Form—(Page 1 of x)

Implementation Notes:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

For 7303S and 7309H voice terminals, this is Page 1 of a 2-page form.

For 7305S voice terminal, this is Page 1 of a 3-page form.

```
                                   STATION                  Page 2 of x
 SITE DATA
       Room: ________                                  Headset? n
       Jack: ______                                    Speaker? n
      Cable: ______                                   Mounting? d
   Building: ________                              Cord Length: 0_
      Floor: ________                                Set Color: _______

ABBREVIATED DIALING
     List1: _________          List2: _________          List3: _________

BUTTON ASSIGNMENTS
  1: call-appr_                          6: ___________
  2: call-appr_                          7: ___________
  3: call-appr_                          8: ___________
  4: ___________                         9: ___________
  5: ___________                        10: ___________
```

7303S, 7305S, and 7309H Station Form—(Page 2 of x)

```
                                   STATION                  Page 3 of 3

          FEATURE BUTTON ASSIGNMENTS
            1: ___________                        13: ___________
            2: ___________                        14: ___________
            3: ___________                        15: ___________
            4: ___________                        16: ___________
            5: ___________                        17: ___________
            6: ___________                        18: ___________
            7: ___________                        19: ___________
            8: ___________                        20: ___________
            9: ___________                        21: ___________
           10: ___________                        22: ___________
           11: ___________                        23: ___________
           12: ___________                        24: ___________
```

7305S Voice Terminal Form—(Page 3 of 3)

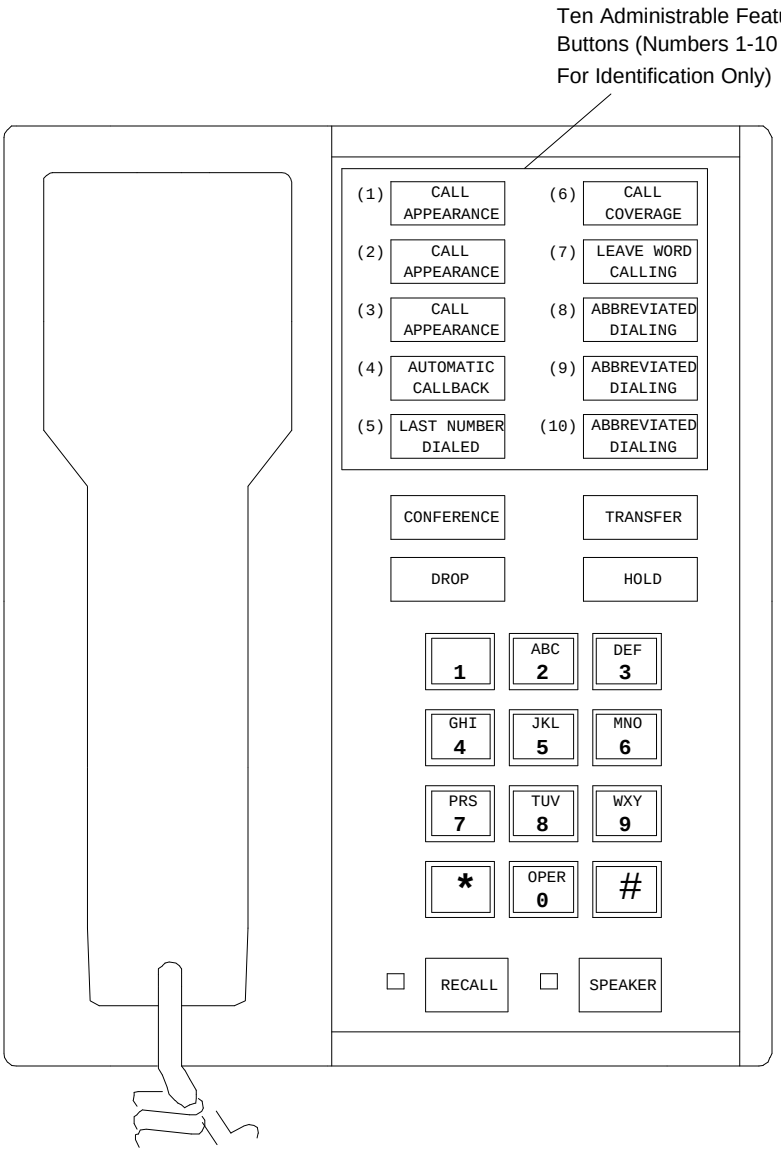


Figure 5-26. 7303S Voice Terminal

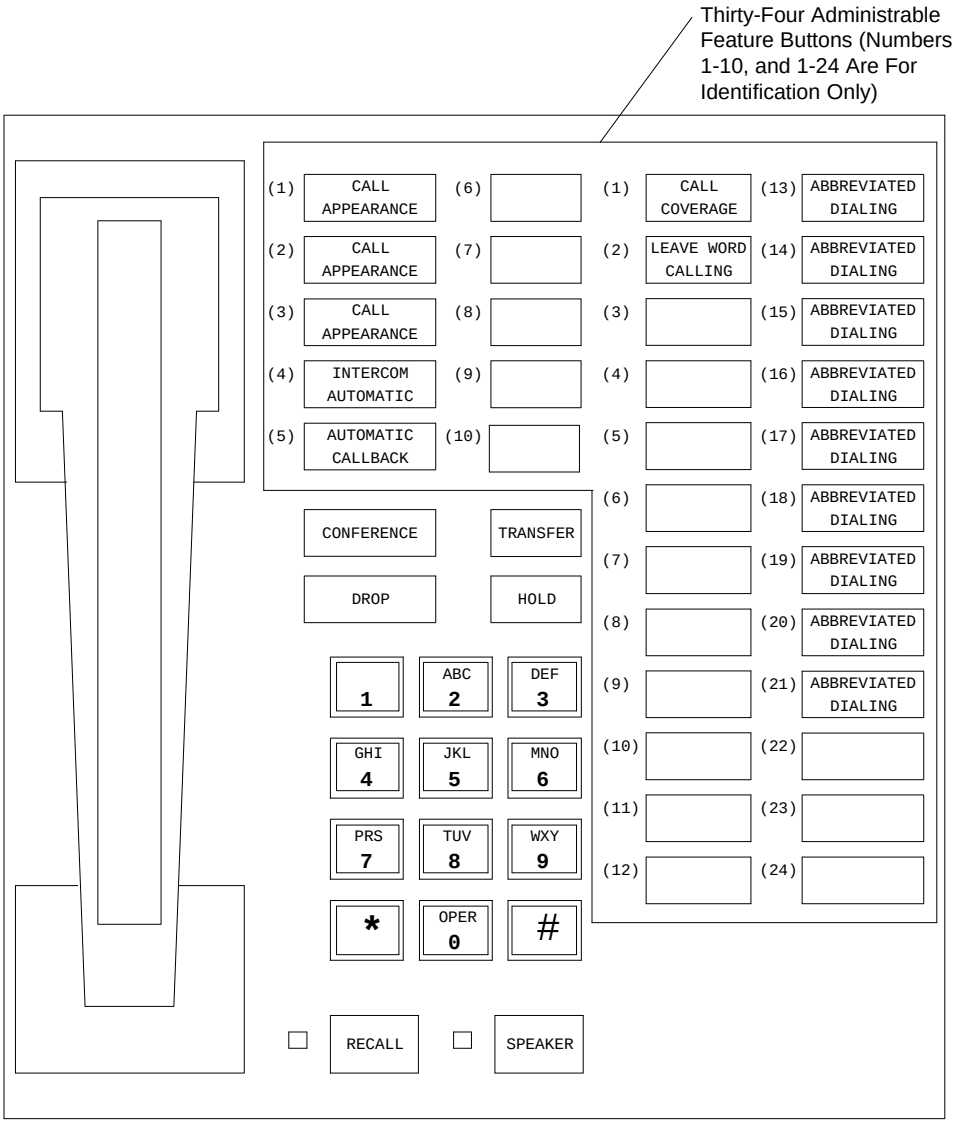


Figure 5-27. 7305S Voice Terminal

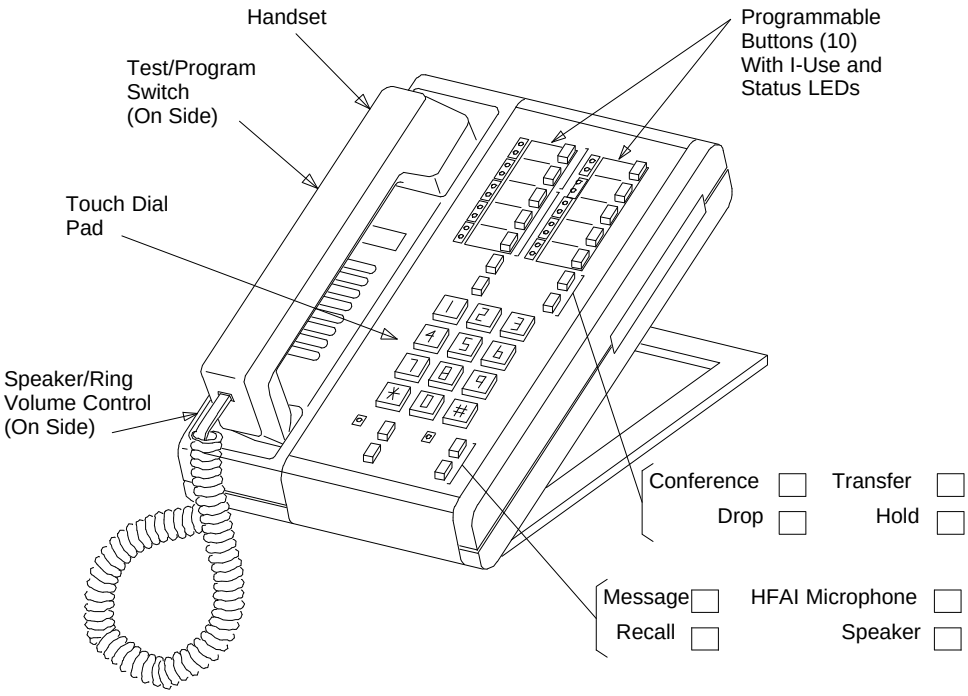


Figure 5-28. 7309H Voice Terminal

7401D, 7403D, 7404D and 7410D Voice Terminals

This form is used to implement a 7401D, 7403D, 7404D, and 7410D voice terminal.

Administration Commands

The following administration commands can be used to access the Voice Terminal forms. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Please review the ‘‘Voice Terminals—General’’ information at least once before completing the form. General information including feature button descriptions and characteristics are covered. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Type**—Enter 7401D, 7403D, 7404D or 7410D as appropriate.
- **PCOL/TEG Call Alerting**—(For 7401D Voice Terminals)—Enter ‘‘y’’ to allow incoming calls on PCOLs/TEGs to audibly alert at this voice terminal; default is ‘‘n’’.
- **Bridged Call Alerting**—(For 7403D, 7404D, and 7410D Voice Terminals)—Enter ‘‘y’’ to allow incoming calls on bridged appearances at another voice terminal’s primary extension, TEG, or PCOL calls to alert at this voice terminal; default is ‘‘n’’.
- **Personalized Ringing Pattern**—(For 7401D and 7404D Voice Terminals)—Enter a Personalized Ringing Pattern, 1–8, as follows:

Ring Pattern	Tone Sequence
1	MMM (standard ringing)
2	HHH
3	LLL
4	LHH
5	HHL
6	HLL
7	HLH
8	LHL

L = 530 Hz, M = 750 Hz, and H = 1060 Hz

- **Data Module**—For the 7401D and 7410D, enter ‘‘y’’ if this terminal is to be connected to a data terminal via a 7400B Data Module. For the 7403D, enter ‘‘y’’ if this terminal is to be connected to a data terminal via optional Digital Terminal Data Module (DTDM) or 7400B Data Module; otherwise, enter ‘‘n’’ (default). For the 7404D—this is a display-only field set to ‘‘y’’. If ‘‘y’’ is entered, the Data Module form must be completed.
- **Display Module**—Enter ‘‘y’’ if the voice terminal is to have a display via a 7400B Data Module and associated data terminal or an optional Messaging Cartridge (7404D only) and an associated data terminal; otherwise, enter ‘‘n’’ (default). If ‘‘y’’ is entered, the Display Button Assignments form must be completed.

Page 2 of the Form

- **Headset**—For a 7401D or 7404D, enter ‘‘n’’, these sets cannot have a headset. For a 7403D, enter ‘‘y’’ if the terminal is to have a headset; otherwise, enter ‘‘n’’ (default).
- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the 7401D, 7403D, 7404D, or 7410D voice terminals are listed below. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on the button type, additional auxiliary information may be required when administering buttons. This information is provided in the ‘‘Voice Terminals—General’’ section.

- abr-prog
- abr-spchar
- abrdg-appr **
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls *
- atd-qtime *
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- auto-wkup *
- aux-work
- brdg-appr **
- busy-ind
- call-appr **
- call-disp *
- call-fwd
- call-park
- call-pkup
- callr-info*
- cas-backup
- cdr1-alarm
- cdr2-alarm
- check-in *
- check-out *
- clk-overid *
- consult
- cov-cback
- cov-msg-rt *
- data-ext
- date-time *
- delete-msg *
- dial-icom
- directory *
- dn-dst
- exclusion
- ext-dn-dst *
- flash
- goto-cover
- grp-dn-dst *
- hunt-ns
- in-call-id
- inspect *
- last-numb
- link-alarm
- lwc-cancel
- lwc-lock *
- lwc-store
- major-alrm
- man-msg-wt
- man-overid *
- manual-in
- mct-act
- mct-contr
- mj/mn alrm
- msg-retr *
- mwn-act *
- mwn-deact *
- next *
- night-serv
- normal *
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- stored-num *
- term-x-gr
- timer *
- trk-id *
- trunk-name *
- trunk-ns
- verify
- work code

* Display-type button (not administrable on 7401D or 7403D voice terminal) ** Not administrable on 7501D

For the 7401D voice terminal, BUTTON ASSIGNMENTS 3–9 are used to assign features to dialpad keys 1–7 (BUTTON ASSIGNMENT 3 corresponds to dialpad key 1, BUTTON ASSIGNMENT 4 to dialpad key 2, etc.). The call-appr buttons defaulted in BUTTON ASSIGNMENTS 1 and 2 are display-only.

On the 7403D and 7410D voice terminals, the first three buttons are defaulted as call appearance buttons.

On the 7404D voice terminal, buttons 1–6 are display-only; buttons 1–3 must be assigned as ‘‘call-appr’’.

Page x of the Form (DISPLAY BUTTON ASSIGNMENTS)

- Displayed when Display on Page 1 is ‘‘y’’. Administer display buttons per the Implementation Note associated with the screen form. The display function is obtained via an optional Messaging Cartridge and an associated data terminal (also requires administering the following Data Module form).

Page x of the Form (DATA MODULE)

- Displayed when Data Module on Page 1 is ‘‘y’’. Refer to ‘‘Station Forms—Field Descriptions’’ elsewhere in this chapter for associated field descriptions.

```
                                                          Page  1 of  x
                                  STATION
Extension: 300              BCC: 0
     Type: 7401D                     Lock Messages? n           COR: 1_
     Port: _______                   Security Code: ____        COS: 1_
     Name: _______________           Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                   Auto Answer? n
           CDR Privacy? n                                Data Restriction? n
 Redirect Notification? y                        Idle Appearance Preference? n
PCOL/TEG Call Alerting? n                      Personalized Ringing Pattern: 1
                                                   Restrict Last Appearance? y
            AUDIX Name: _______
   Message Server Name: _______
```

7401D Station Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                                          Page  1 of  x
                                  STATION
Extension: 300              BCC: 0
     Type: _____                      Lock Messages? n           COR: 1
     Port: _______                    Security Code: ____        COS: 1_
     Name: ________________           Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                    Auto Answer? n
           CDR Privacy? n                                Data Restriction? n
 Redirect Notification? y                        Idle Appearance Preference? n
 Bridged Call Alerting? n
                                                 Restrict Last Appearance? y
            AUDIX Name: _______
   Message Server Name: _______
```

7403D and 7410D Station Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                                          Page  1 of  x
                                  STATION
Extension: 300              BCC: 0
     Type: 7404D                      Lock Messages? n           COR: 1_
     Port: _______                    Security Code: ____        COS: 1_
     Name: ________________           Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                    Auto Answer? n
           CDR Privacy? n                                Data Restriction? n
 Redirect Notification? y                      Idle Appearance Preference? n
 Bridged Call Alerting? n                    Personalized Ringing Pattern: 1
                                                 Restrict Last Appearance? y
           Data Module? n
        Display Module? n

            AUDIX Name: _______
   Message Server Name: _______
```

7404D Station Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                                          Page  2 of  x
                                    STATION
 SITE DATA
       Room: _______                                  Headset? n
       Jack: _____                                    Speaker? n
      Cable: _____                                   Mounting? d
   Building: _______                              Cord Length: 0_
      Floor: _______                                Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                        6: __________
  2: call-appr_                        7: __________
  3: __________                        8: __________
  4: __________                        9: __________
  5: __________
```

7401D Station Form (Page 2 of x)

Implementation Note:

Button Assignments for 7401D:

- 1–9 only displayed. Buttons 1 and 2 not administrable (assigned as ‘‘call-appr’’). Button 3 may be assigned as required.

```
                                                          Page  2 of  x
                                  STATION
 SITE DATA
       Room: _______                                  Headset? n
       Jack: _____                                    Speaker? n
      Cable: _____                                   Mounting? d
   Building: _______                               Cord Length: 0_
      Floor: _______                                 Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                      6: __________
  2: call-appr_                      7: __________
  3: call-appr_                      8: __________
  4: __________                      9: __________
  5: __________                     10: __________
```

7403D, 7410D Station Form (Page 2 of x)

Implementation Note:

The first three buttons are defaulted as call appearance buttons.

```
                                                          Page  2 of  x
                                  STATION
 SITE DATA
       Room: _______                                  Headset? n
       Jack: _____                                    Speaker? n
      Cable: _____                                   Mounting? d
   Building: _______                               Cord Length: 0_
      Floor: _______                                 Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                      4: __________
  2: call-appr_                      5: __________
  3: call-appr_                      6: __________
```

7404D Station Form (Page 2 of x)

Implementation Notes:

Buttons 1–6 are display-only.

Buttons 1–3 must be assigned as ‘‘call-appr’’.

```
DISPLAY BUTTON ASSIGNMENTS                                Page x of x

1: _____________
2: _____________
3: _____________
4: _____________
5: _____________
6: _____________
7: _____________
```

7404D Station Form (Page x of x)

Implementation Notes:

Displayed when Display on Page 1 is ‘‘y’’. Buttons 1–7, when administered, relate to function buttons (F1-F7) on the associated data terminal.

For a 7404D equipped with an optional Messaging Cartridge without Integrated Directory, display buttons must be administered as shown on the form.

For a 7404D equipped with an optional Messaging Cartridge with Integrated Directory, display buttons must be administered as shown on the form with the exception of the date/time (button 7) which must be administered as ‘‘directory’’.

```
                                   STATION                        Page x of x
DATA MODULE
     Data Extension: ____                  BCC: 2
               Name: _________________     COR: 1_        COS: 1_

ABBREVIATED DIALING
 List1: _________

SPECIAL DIALING OPTION: _____
   HOT LINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (From above list): _

ASSIGNED MEMBER ( Station with a data extension button for this data module )
        Ext      Name
     1: _____    ___________
```

7401D, 7403D, 7404D Data Module Form (Page x of x)

Implementation Notes:

This page is displayed when Data Module on Page 1 is ‘‘y’’.

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

HOT LINE DESTINATION is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’.

DEFAULT DIALING is displayed when SPECIAL DIALING OPTION is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’ or ‘‘default’’.

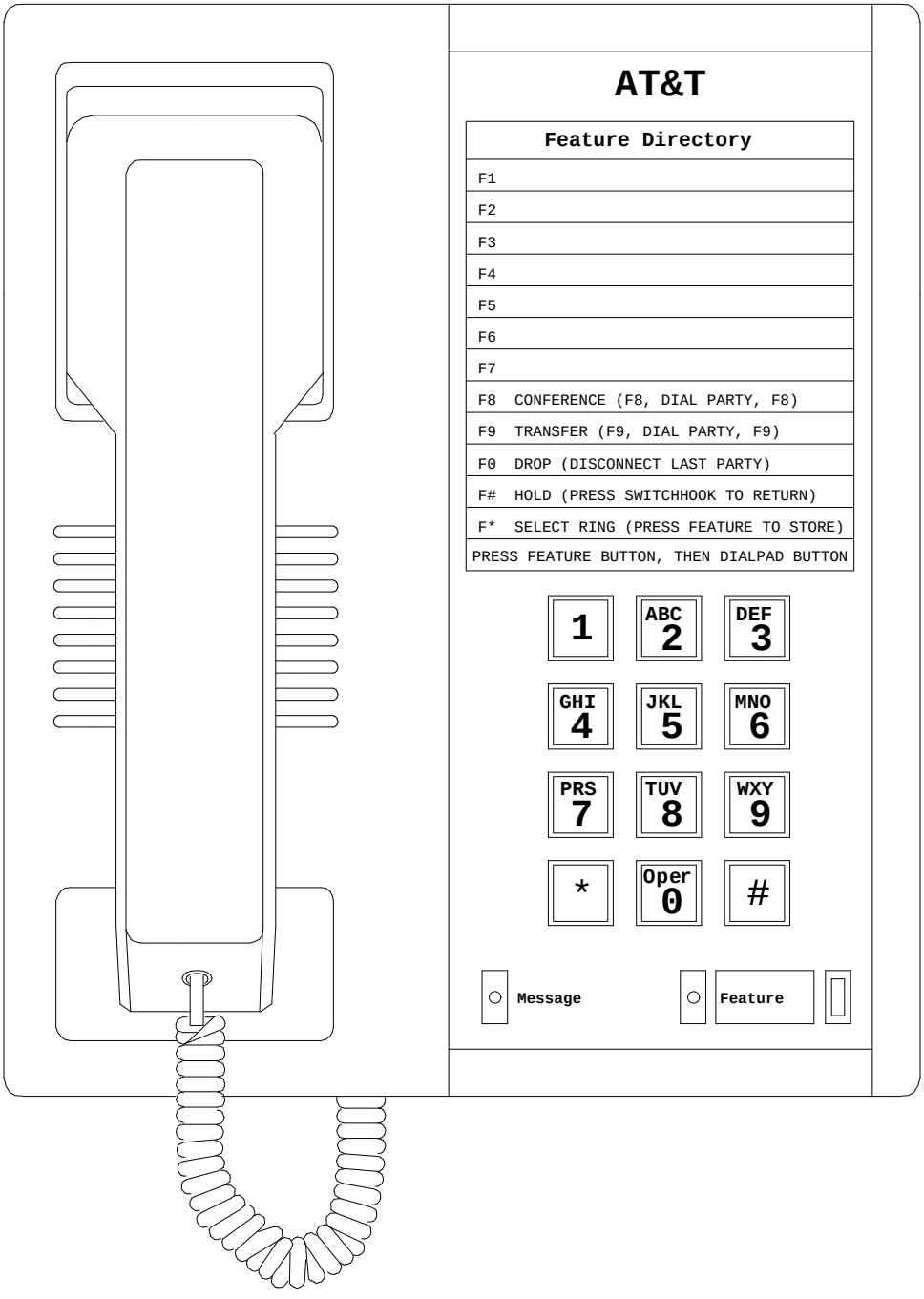


Figure 5-29. 7401D Voice Terminal

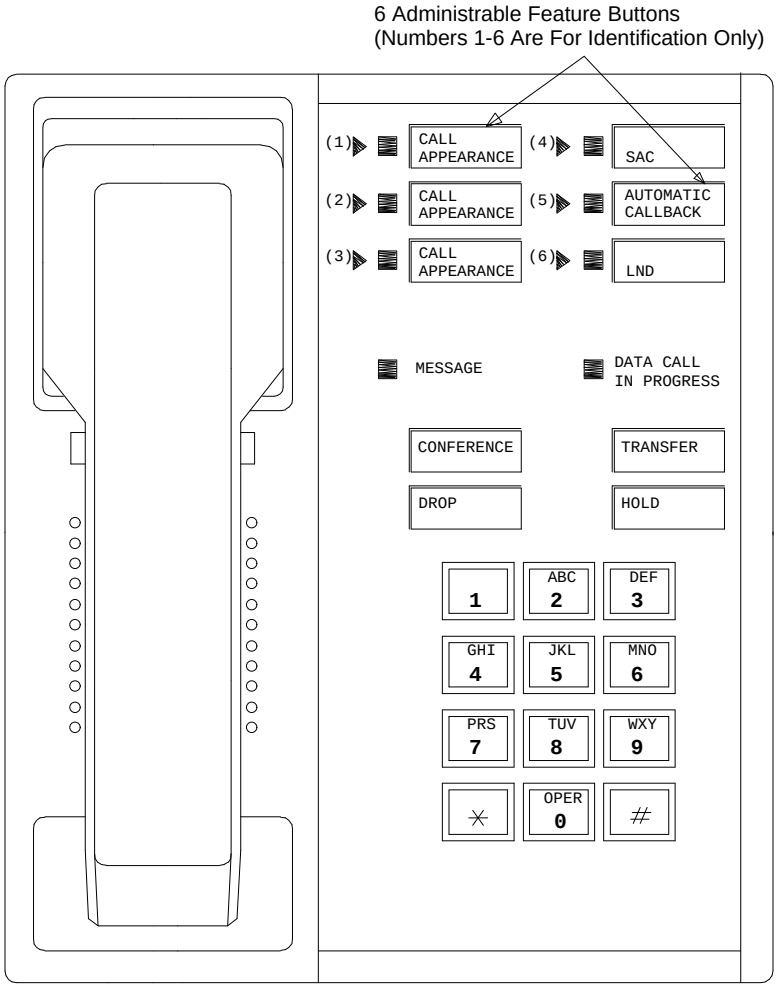


Figure 5-30. 7404D Voice Terminal

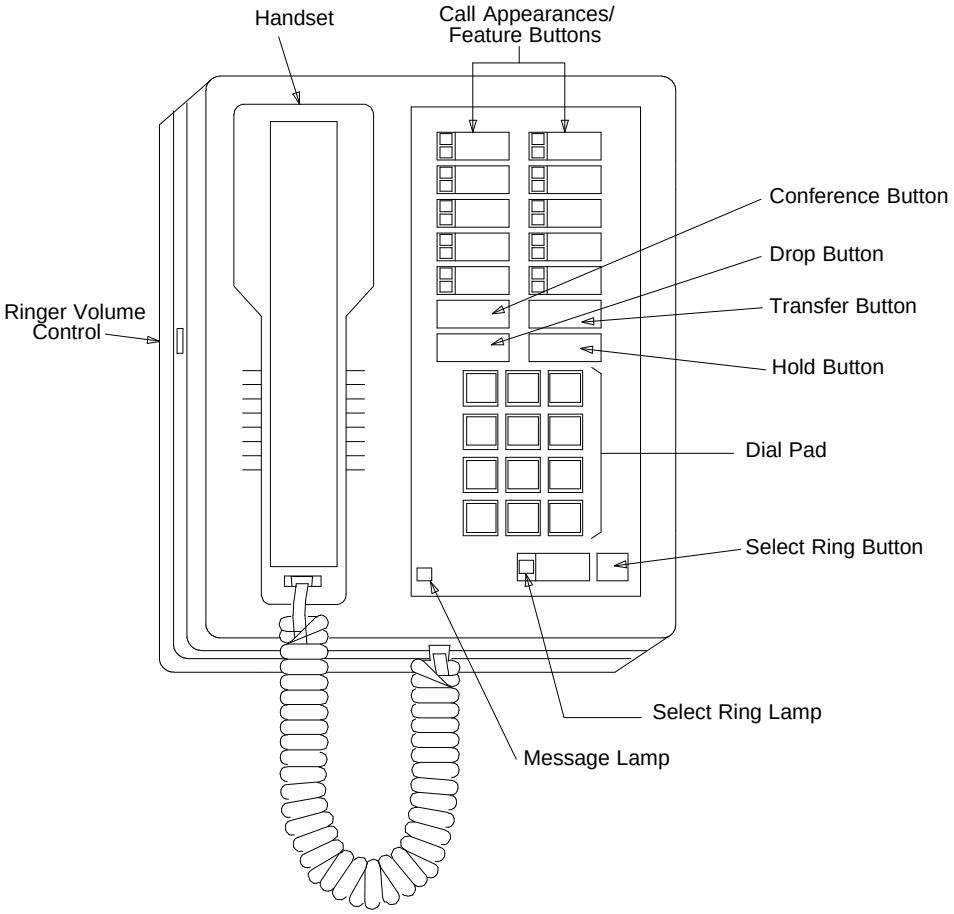


Figure 5-31. 7410D Voice Terminal

7405D Voice Terminal

This form is used to implement a 7405D multi-appearance voice terminal.

Administration Commands

The following administration commands can be used to access the Voice Terminal form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Please review the ‘‘Voice Terminals—General’’ information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Type**—Enter ‘‘7405D’’.
- **Data Module**—Enter ‘‘y’’ if this terminal is connected to an optional Digital Terminal Data Module (DTDM); otherwise, enter ‘‘n’’ (default). If a ‘‘y’’ is entered, the Data Module form (Page 2) must be completed.
- **Feature Module**—Enter ‘‘y’’ if the voice terminal is to be connected to an optional Feature Module. If ‘‘y’’ is entered, the Feature Module form must also be completed. Enter ‘‘n’’ (default) if a Feature Module is not desired.
- **Display Module**—Enter ‘‘y’’ if the voice terminal is to have a display by an optional Digital Display Module; otherwise, enter ‘‘n’’ (default). If ‘‘y’’ is entered, the Display Button assignments form must be completed.
- **Coverage Module**—Enter ‘‘y’’ if the voice terminal is to be connected to an optional Call Coverage Module; otherwise, enter ‘‘n’’ (default). If ‘‘y’’ is entered, the Coverage Module form must be completed. The voice terminal cannot have an optional Coverage Module and optional Digital Display Module at the same time.

Page 2 of the Form

- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the 7405D voice terminal are listed below. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on the button type, additional auxiliary information may be required when administering buttons. This information is provided in the ''Voice Terminals—General'' section.

- abr-prog
- abr-spchar
- abrdg-appr
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls
- atd-qtime
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- auto-wkup
- aux-work
- brdg-appr **
- busy-ind
- call-appr **
- call-disp
- call-fwd
- call-park
- call-pkup
- callr-info *
- cas-backup
- cdr1.alarm
- cdr2.alarm
- check-in
- check-out
- clk-overid
- consult
- cov-cback
- cov-msg-rt
- data-ext
- date-time
- delete-msg
- dial-icom
- directory
- dn-dst
- exclusion
- ext-dn-dst
- flash
- goto-cover
- grp-dn-dst
- hunt-ns
- in-call-id
- inspect
- last-numb
- link-alarm
- lwc-cancel
- lwc-lock
- lwc-store
- major-alrm
- man-msg-wt
- man-overid
- manual-in
- mct-act
- mct-contr
- mj/mn alrm
- msg-retr
- mwn-act
- mwn-deact
- next
- night-serv
- normal
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- stored-num
- term-x-gr
- timer
- trk-id
- trunk-name
- trunk-ns
- verify
- work-code

* Display-type button (not administrable on Coverage Module form) ** Not administrable on Feature Module form

On the the 7405D voice terminal button number assignments, the first three buttons are defaulted as call appearances. As shown in Figure 5-32, the 7405D Voice Terminal can have an optional Function Key Module (administered as a Feature Module), Digital Display Module, and Coverage Module, respectively.

Page 3 of the Form

- **FEATURE BUTTON ASSIGNMENTS**—The features buttons that can be assigned to the 7405D Page 3 form are the same as those listed for the preceding BUTTON ASSIGNMENTS. Display-type feature buttons may only be assigned if the Display field on Page 1 is ‘‘y’’.

  Figure 5-32 depicts the 7405D voice terminal button number assignments in relation to the button numbers on the Voice Terminal form.

Page x of the Form (FEATURE MODULE BUTTON ASSIGNMENTS)

- Displayed when Feature Module on Page 1 is ‘‘y’’. The features buttons that can be assigned are the same as those listed for BUTTON ASSIGNMENTS above (Call appearance and bridged call appearance buttons cannot be administered on this form.) Refer to Figure 5-32 for button assignments locations (1–24) on the Function Key Module.

Page x of the Form (COVERAGE MODULE BUTTON ASSIGNMENTS)

- Displayed when Coverage Module on Page 1 is ‘‘y’’.

  The features buttons that can be assigned are the same as those listed for the preceding BUTTON ASSIGNMENTS (display-type buttons cannot be administered on this form). Refer to Figure 5-32 for Coverage Module button locations.

  Up to ten call appearance, ten abrdg-appr, and ten brdg-appr buttons can be distributed between a Coverage Module and the associated administrable buttons on the 7405D Voice Terminal.

Page x of the Form (DISPLAY BUTTON ASSIGNMENTS)

- Displayed when Display on Page 1 is ‘‘y’’. The display-type buttons that can be assigned are noted with an asterisk on the above list.

Page x of the Form (DATA MODULE)

- Displayed when Data Module on Page 1 is ‘‘y’’. Refer to ‘‘Station Forms—Field Descriptions’’ elsewhere in this chapter for associated field descriptions.

```
                                   STATION                  Page 1 of x
Extension: 300              BCC: 0
     Type: 7405D                      Lock Messages? n           COR: 1_
     Port: _______                    Security Code: ____        COS: 1_
     Name: _________________          Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                    Auto Answer? n
           CDR Privacy? n                                Data Restriction? n
 Redirect Notification? y                       Idle Appearance Preference? n
 Bridged Call Alerting? n
                                                 Restrict Last Appearance? y
           Data Module? n                                 Feature Module? n
        Display Module? n                                 Coverage Module? n

            AUDIX Name: _______
   Message Server Name: _______
```

7405D Station Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                   STATION                  Page 2 of x
 SITE DATA
       Room: _______                                  Headset? n
       Jack: _____                                    Speaker? n
      Cable: _____                                   Mounting? d
   Building: _______                              Cord Length: 0_
      Floor: _______                                Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                        6: __________
  2: call-appr_                        7: __________
  3: call-appr_                        8: __________
  4: __________                        9: __________
  5: __________                       10: __________
```

7405D Station Form (Page 2 of x)

```
                              STATION                    Page 3 of x

FEATURE BUTTON ASSIGNMENTS
  1: _____________                          13: _____________
  2: _____________                          14: _____________
  3: _____________                          15: _____________
  4: _____________                          16: _____________
  5: _____________                          17: _____________
  6: _____________                          18: _____________
  7: _____________                          19: _____________
  8: _____________                          20: _____________
  9: _____________                          21: _____________
 10: _____________                          22: _____________
 11: _____________                          23: _____________
 12: _____________                          24: _____________
```

7405D Station Form (Page 3 of x)

Implementation Note:

Buttons for Bridged Call Appearance, Function Key Module (administered as Feature Module), and Coverage Module must be assigned on their respective forms (covered later in this chapter).

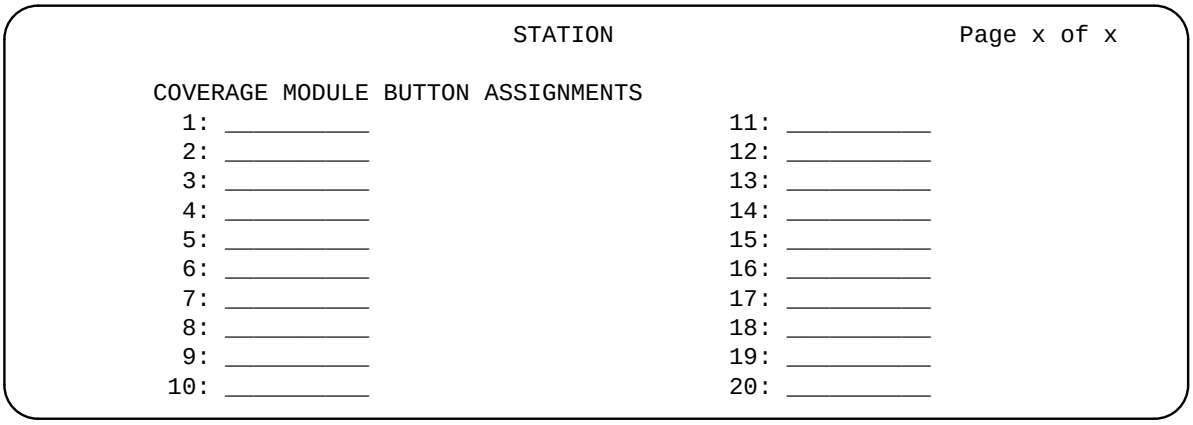
```
                              STATION                    Page x of x

FEATURE MODULE BUTTON ASSIGNMENTS
  1: _____________                          13: _____________
  2: _____________                          14: _____________
  3: _____________                          15: _____________
  4: _____________                          16: _____________
  5: _____________                          17: _____________
  6: _____________                          18: _____________
  7: _____________                          19: _____________
  8: _____________                          20: _____________
  9: _____________                          21: _____________
 10: _____________                          22: _____________
 11: _____________                          23: _____________
 12: _____________                          24: _____________
```

7405D Feature Module Form

Implementation Note:

Displayed when Feature Module on Page 1 is ‘‘y’’.



7405D Coverage Module Form (Page x of x)

Implementation Note:

Displayed when Coverage Module on Page 1 is ‘‘y’’.

```
                              STATION                              Page x of x

              DISPLAY BUTTON ASSIGNMENTS
              1: ___________
              2: ___________
              3: ___________
              4: ___________
              5: ___________
              6: ___________
              7: ___________
```

7405D Display Form (Page x of x)

Implementation Note:

Displayed when Display on Page 1 is ‘‘y’’. Button locations (1–7) are associated with buttons 1–7 on the optional Digital Display Module.

```
                                    STATION                        Page x of x
DATA MODULE
     Data Extension: ____                  BCC: 2         ITC: restricted
               Name: ________________      COR: 1_        COS: 1_

ABBREVIATED DIALING
 List1: ________

SPECIAL DIALING OPTION: _____
   HOT LINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (From above list): _

ASSIGNED MEMBER ( Station with a data extension button for this data module )
        Ext      Name
     1: _____    __________
```

7405D Data Module Form (Page x of x)

Implementation Note:

This page is displayed when Data Module on Page 1 is ‘‘y’’.

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

HOT LINE DESTINATION is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’.

DEFAULT DIALING is displayed when SPECIAL DIALING OPTION is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’ or ‘‘default’’.

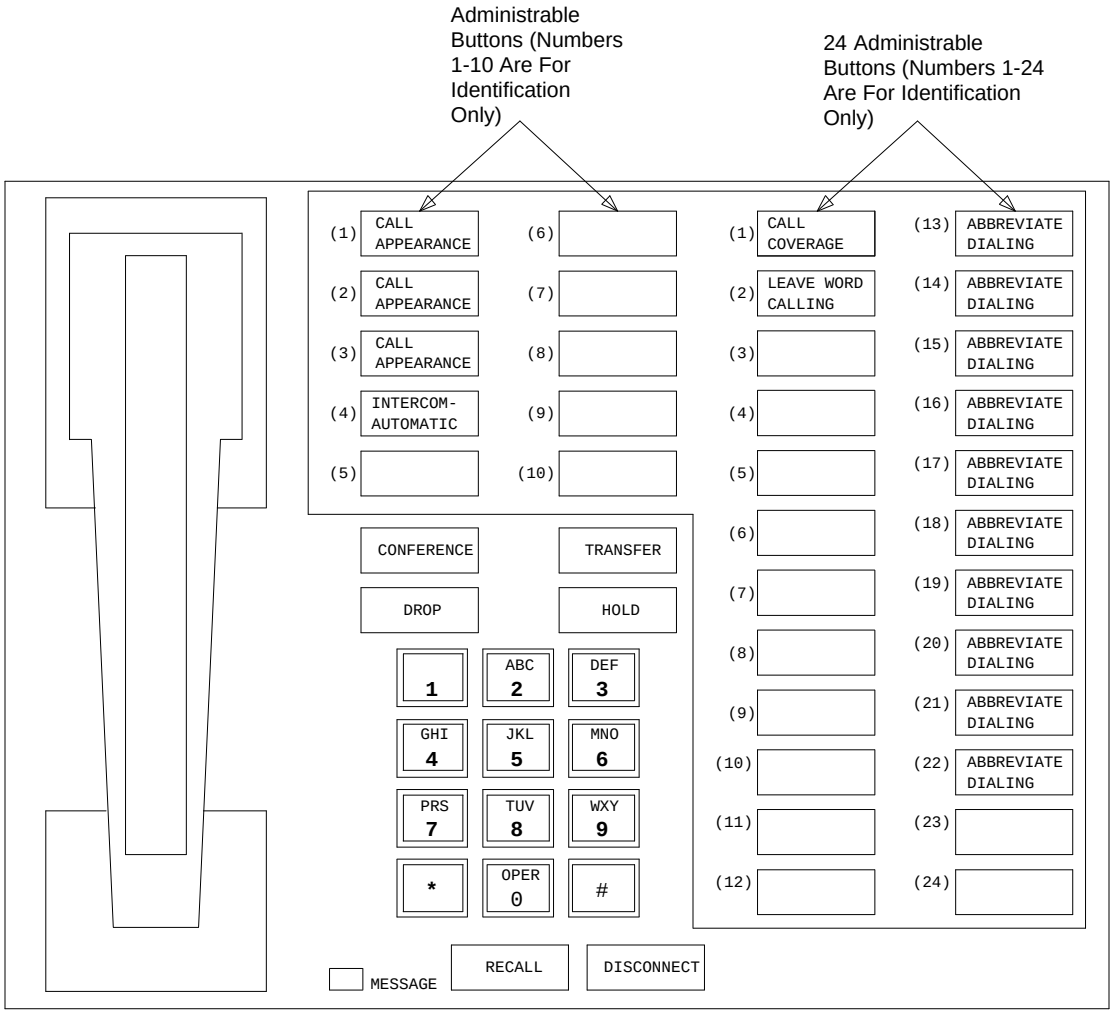


Figure 5-32. 7405D Voice Terminal

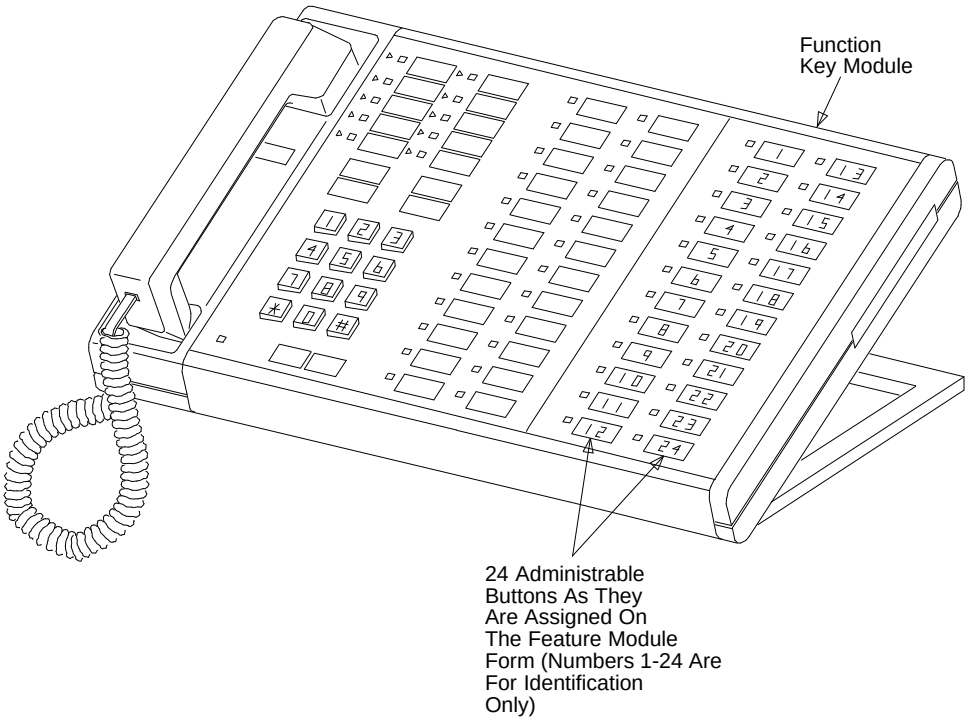


Figure 5-33. 7405D Voice Terminal With Optional Function Key Module

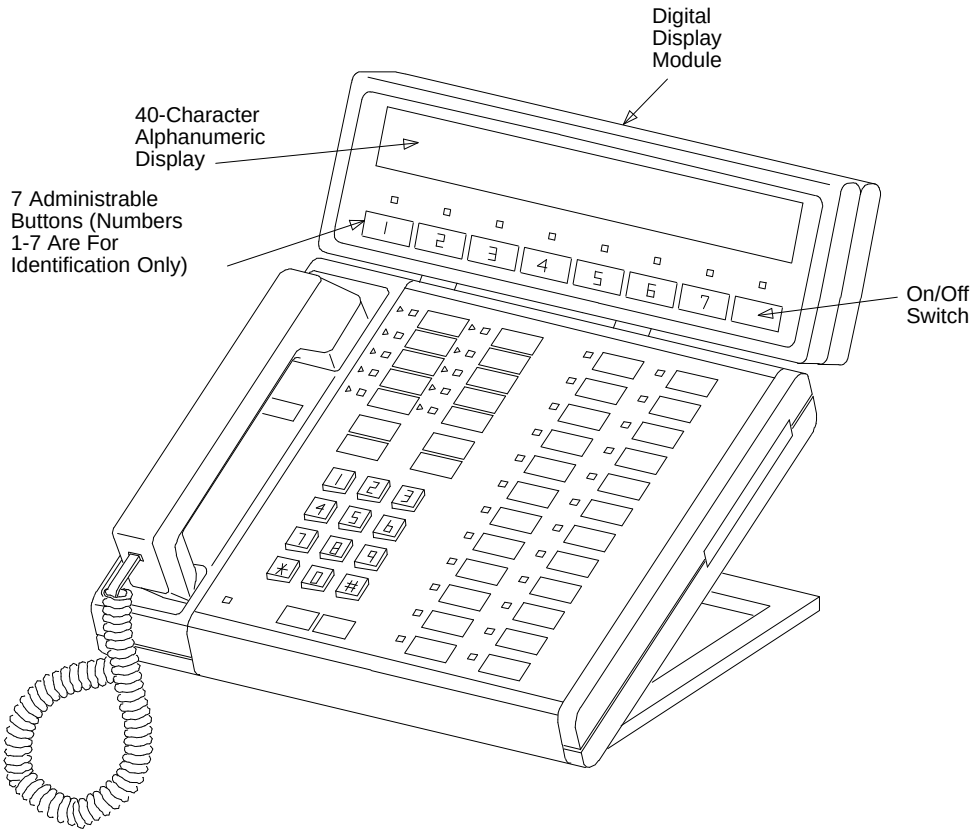


Figure 5-34. 7405D Voice Terminal With Optional Digital Display Module

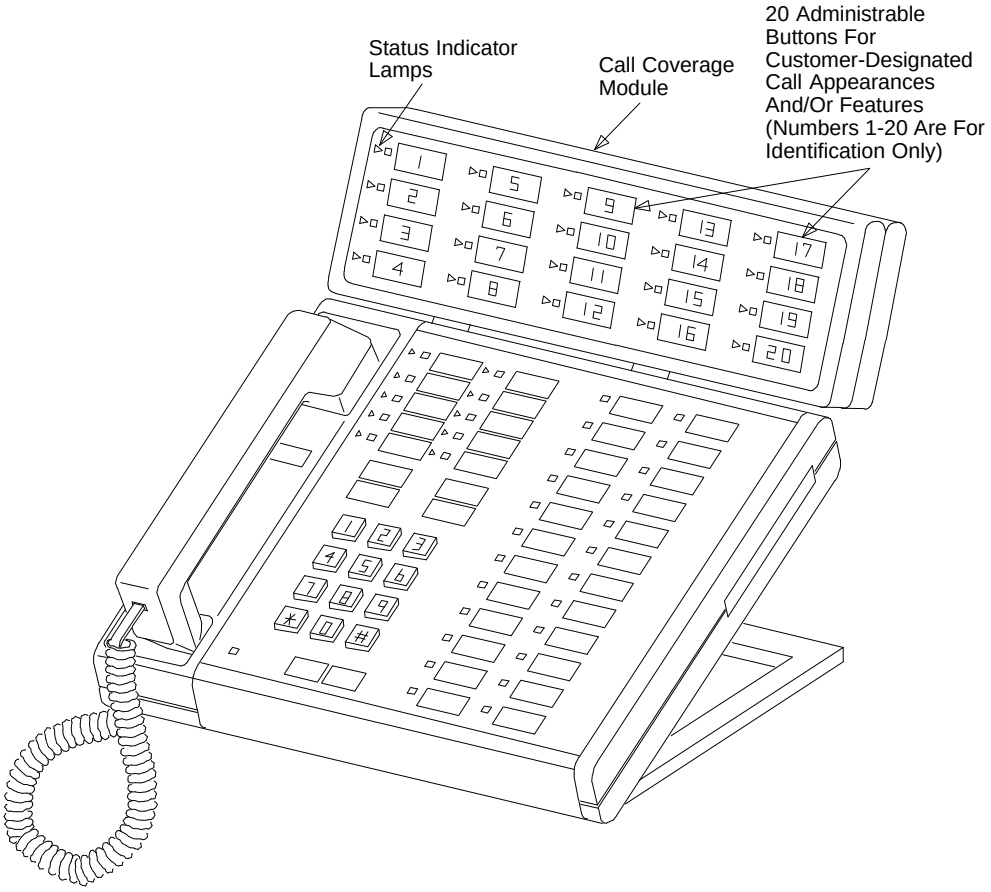


Figure 5-35. 7405D Voice Terminal With Optional Call Coverage Module

7406D and 7407D Voice Terminals

This form is used to implement a 7406D and 7407D voice terminal.

Administration Commands

The following administration commands can be used to access the Voice Terminal forms. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Please review the ‘‘Voice Terminals—General’’ information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Type**—Enter ‘‘7406D’’ or ‘‘7407D’’ as appropriate.
- **Display Cartridge** (7406D Only)—Enter ‘‘y’’ if this terminal is to have a display via an associated data terminal.
- **Data Module**—Enter ‘‘y’’ (default) if this voice terminal is equipped with an optional 703A Data Stand (7406D), a 702AL1-DSU (7407D), or 7400B Data Module (7406D or 7407D) and connected to an associated data terminal. If ‘‘y’’ is entered, the Data Module form must be completed.
- **Display Module**—Display-only field (set to ‘‘y’’) for the 7407D; default is ‘‘n’’. For the 7406D, enter ‘‘y’’ if the voice terminal is equipped with an optional digital display.

  For the 7407D form, the Display Button Assignments form must be completed.

Page 2 of the Form

- **Headset**—For the 7406D, enter ‘‘y’’ if a headset is to be used; otherwise, enter ‘‘n’’ (default).

  NOTE:
  The 7407D cannot have a headset.

- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the 7406D or 7407D voice terminals are listed below. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on the button type, additional auxiliary information may be required when administering buttons. This information is provided in the ‘‘Voice Terminals—General’’ section.

- abr-prog
- abr-spchar
- abrdg-appr
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls
- atd-qtime
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- auto-wkup
- aux-work
- brdg-appr
- busy-ind
- call-appr
- call-disp
- call-fwd
- call-park
- call-pkup
- callr-info *
- cas-backup
- cdr1-alarm
- cdr2-alarm
- check-in
- check-out
- clk-overid
- consult
- cov-cback
- cov-msg-rt
- data-ext
- date-time
- delete-msg
- dial-icom
- directory
- dn-dst
- exclusion
- ext-dn-dst
- flash
- goto-cover
- grp-dn-dst
- hunt-ns
- in-call-id
- inspect
- last-numb
- link-alarm
- lwc-cancel
- lwc-lock
- lwc-store
- major-alrm
- man-msg-wt
- man-overid
- manual-in
- mct-act
- mj/mn alrm
- msg-retr
- mwn-act
- mwn-deact
- next
- night-serv
- normal
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- stored-num
- term-x-gr
- timer
- trk-id
- trunk-name
- trunk-ns
- verify
- work-code

* Display-type button

Figures 5-36 and 5-37 show the 7406D and 7407D voice terminal button number assignments in relation to the button numbers on the voice terminal form. The first three buttons are defaulted as call appearance.

Page 3 of the Form

- **FEATURE BUTTON ASSIGNMENTS**

  The features and functions that can be assigned to the 7406D or 7407D voice terminal administrable buttons are the same as those listed for BUTTON ASSIGNMENTS above.

  Figures 5-36 and 5-37 show the 7406D and 7407D voice terminal button number assignments in relation to the button numbers on the voice terminal form.

Page x of the Form (DISPLAY BUTTON ASSIGNMENTS)

- Displayed when Display Cartridge or Display on Page 1 (7406D form) is ‘‘y’’, or Type on Page 1 is 7407D. The display buttons that can be administered are noted with asterisks on the above list (see BUTTON ASSIGNMENTS). The abbreviated names as shown on the list must be entered on the form.

Page x of the Form (DATA MODULE)

- Displayed when Data Module on Page 1 is ‘‘y’’. Refer to ‘‘Station Forms—Field Descriptions’’ elsewhere in this chapter for associated field descriptions.

```
                                    STATION                    Page 1 of x
Extension: 300              BCC: 0
     Type: 7406D                       Lock Messages? n           COR: 1_
     Port: _______                     Security Code: ____        COS: 1_
     Name: _______________             Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                    Auto Answer? n
           CDR Privacy? n                                Data Restriction? n
 Redirect Notification? y                      Idle Appearance Preference? n
 Bridged Call Alerting? n                    Personalized Ringing Pattern: 1
                                                 Restrict Last Appearance? y
           Data Module? n                               Display Cartridge? n
        Display Module? n

            AUDIX Name: _______
   Message Server Name: _______
```

7406D Station Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                   STATION                  Page 2 of x
 SITE DATA
       Room: _______                                    Headset? n
       Jack: _____                                      Speaker? n
      Cable: _____                                     Mounting? d
   Building: _______                                Cord Length: 0_
      Floor: _______                                  Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                        4: ___________
  2: call-appr_                        5: ___________
  3: call-appr_
```

7406D Station Form (Page 2 of x)

```
                                   STATION                  Page 3 of x
FEATURE BUTTON ASSIGNMENTS
                                                          2: ___________
                                                          3: ___________
     1: ___________                                       4: ___________

     5: ___________                                      12: ___________
     6: ___________                                      13: ___________
     7: ___________                                      14: ___________
     8: ___________                                      15: ___________
     9: ___________                                      16: ___________
    10: ___________                                      17: ___________
    11: ___________                                      18: ___________
```

7406D Station Form (Page 3 of x)

Implementation Note:

Buttons 5–11 are dual function buttons. An associated Shift button on the voice terminal is used to enable either buttons 5–11 or enable associated buttons 12–18.

Only buttons 1–4 have status lamps. It is recommended that feature button assignments requiring status lamp indications not be administered to buttons 5–18.

```
                                    STATION                    Page 1 of x
Extension: 300                BCC: 0
     Type: 7407D                        Lock Messages? n           COR: 1_
     Port: _______                      Security Code: ____        COS: 1_
     Name: _______________              Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                      Coverage Msg Retrieval? y
        LWC Activation? y                                      Auto Answer? n
           CDR Privacy? n                        Idle Appearance reference? n
 Bridged Call Alerting? n                      Personalized Ringing Pattern: 1
                                                   Restrict Last Appearance? y
           Data Module? n
        Display Module? y

            AUDIX Name: _______
   Message Server Name: _______
```

7407D Station Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                    STATION                    Page 2 of x
 SITE DATA
       Room: _______                                    Headset? n
       Jack: _____                                      Speaker? n
      Cable: _____                                     Mounting? d
   Building: _______                                 Cord Length: 0_
      Floor: _______                                   Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                        6: __________
  2: call-appr_                        7: __________
  3: call-appr_                        8: __________
  4: __________                        9: __________
  5: __________                       10: __________
```

7407D Voice Terminal Form (Page 2 of x)

```
                                    STATION                    Page 3 of x
FEATURE BUTTON ASSIGNMENTS

 1: _____________                    2: _____________

 3: _____________                   14: _____________
 4: _____________                   15: _____________
 5: _____________                   16: _____________
 6: _____________                   17: _____________
 7: _____________                   18: _____________
 8: _____________                   19: _____________
 9: _____________                   20: _____________
10: _____________                   21: _____________
11: _____________                   22: _____________
12: _____________                   23: _____________
13: _____________                   24: _____________
```

7407D Voice Terminal Form (Page 3 of x)

Implementation Note:

Only buttons 1 and 2 have status lamps. It is recommended that feature button assignments requiring status lamp indications not be administered to buttons 3–24.

```
                                    STATION                    Page x of x

      DISPLAY BUTTON ASSIGNMENTS
      1: _____________
      2: _____________
      3: _____________
      4: _____________
      5: _____________
      6: _____________
      7: _____________
```

7406A and 7407D Station Form (Page x of x)

Implementation Notes:

This page is displayed when Display Cartridge on Page 1 (7406D form) is ‘‘y’’ or Type on Page 1 is ‘‘7407D’’.

```
                                    STATION                      Page x of x
DATA MODULE
     Data Extension: ____                BCC: 2         ITC: restricted
               Name: _________________   COR: 1_        COS: 1_

ABBREVIATED DIALING
 List1: _________

SPECIAL DIALING OPTION: _____
   HOT LINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (From above list): _

ASSIGNED MEMBER ( Station with a data extension button for this data module )
        Ext      Name
     1: _____    ___________
```

7406D and 7407D Data Module Form (Page x of x)

Implementation Note:

This page is displayed when Data Module on Page 1 is ‘‘y’’.

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

HOT LINE DESTINATION is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’.

DEFAULT DIALING is displayed when SPECIAL DIALING OPTION is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’ or ‘‘default’’.

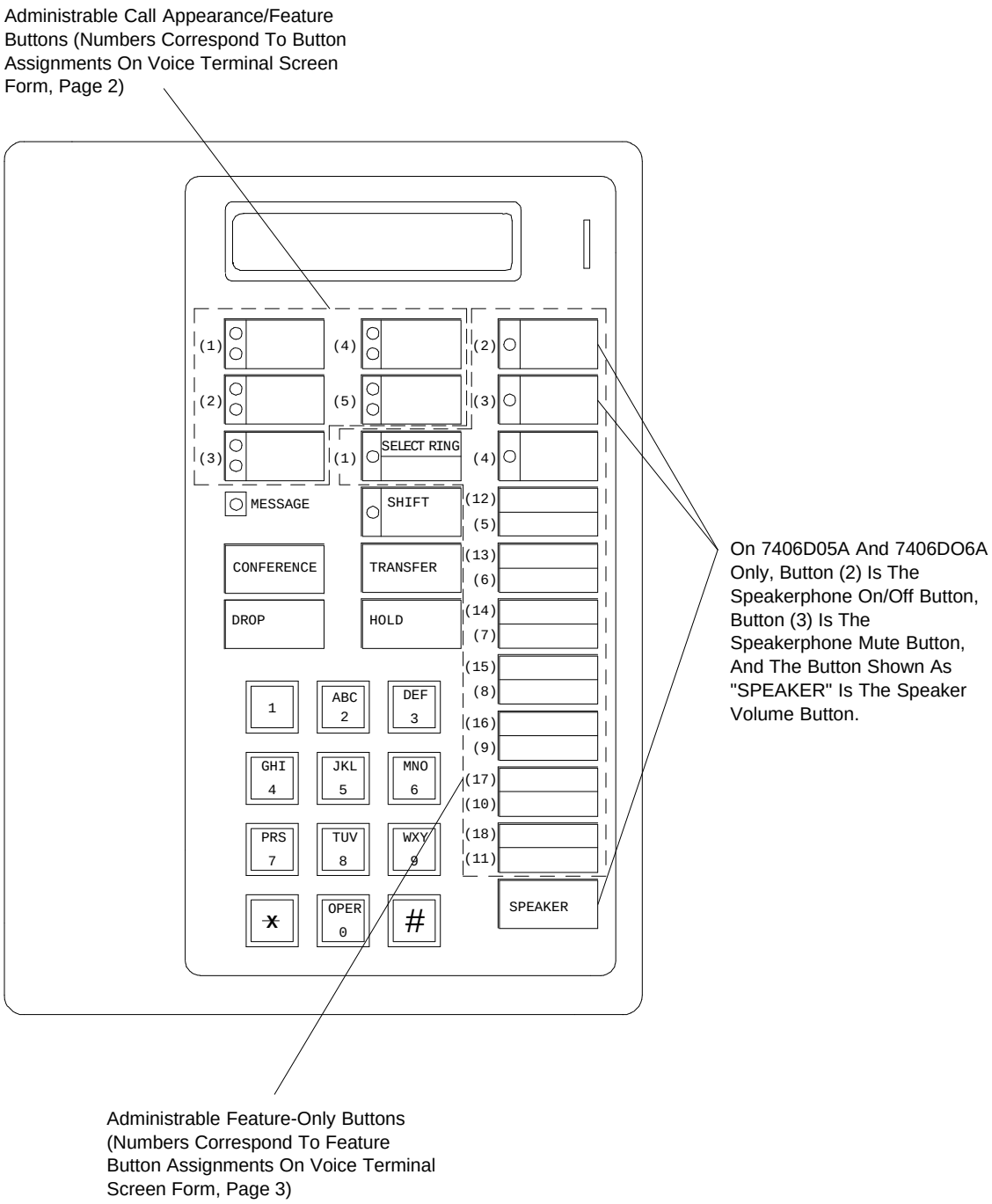


Figure 5-36. 7406D Voice Terminal

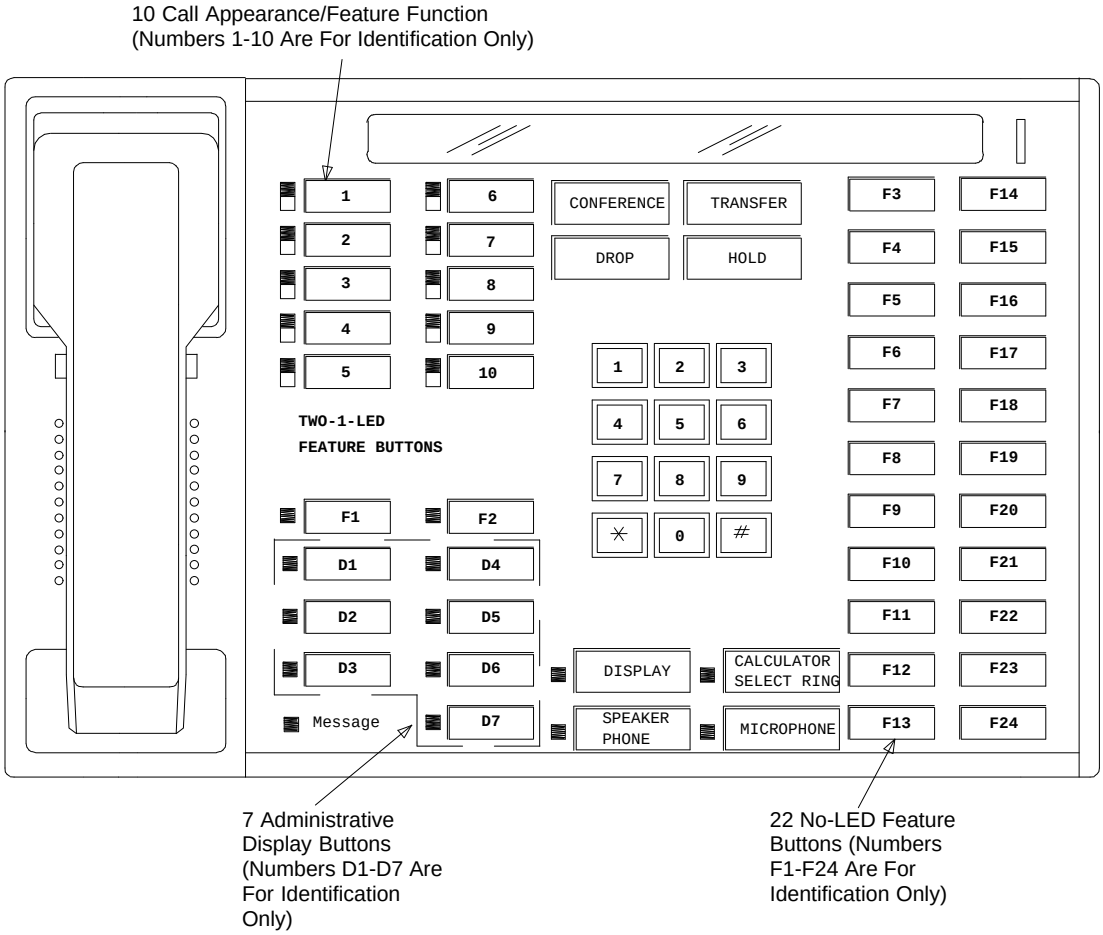


Figure 5-37. 7407D Voice Terminal

7434D Voice Terminal

This form is used to implement a 7434D multi-appearance voice terminal.

Administration Commands

The following administration commands can be used to access the Voice Terminal form. In some cases, just the most commonly used commands are shown. Refer to ‘‘Administration Commands and Error Messages’’ in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Please review the ‘‘Voice Terminals—General’’ information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Type**—Enter ‘‘7434D’’.
- **Data Module**—Enter ‘‘y’’ if this terminal is connected to an optional 7400B Data Module; otherwise, enter ‘‘n’’ (default). If a ‘‘y’’ is entered, the Data Module form (page x) must be completed.
- **Display Module**—Enter ‘‘y’’ if the voice terminal is to have a display by an optional Digital Display Module; otherwise enter ‘‘n’’ (default). If ‘‘y’’ is entered, the Display Button assignments form must be completed.
- **Coverage Module**—Enter ‘‘y’’ if the voice terminal is to be connected to an optional Call Coverage Module; otherwise enter ‘‘n’’ (default). If ‘‘y’’ is entered, the Coverage Module form must be completed. The voice terminal cannot have an optional Coverage Module and optional Digital Display Module at the same time.

Page 2 of the Form

- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the 7434D voice terminal are listed below. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on

the button type, additional auxiliary information may be required when administering buttons. This information is provided in the ‘‘Voice Terminals—General’’ section.

- abr-prog
- abr-spchar
- abrdg-appr
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls
- atd-qtime
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- auto-wkup
- aux-work
- brdg-appr
- busy-ind
- call-appr
- call-disp
- call-fwd
- call-park
- call-pkup
- callr-info *
- cas-backup
- cdr1-alarm
- cdr2-alarm
- check-in
- check-out
- clk-overid
- consult
- cov-cback
- cov-msg-rt
- data-ext
- date-time
- delete-msg
- dial-icom
- directory
- dn-dst
- exclusion
- ext-dn-dst
- flash
- goto-cover
- grp-dn-dst
- hunt-ns
- in-call-id
- inspect
- last-numb
- link-alarm
- lwc-cancel
- lwc-lock
- lwc-store
- major-alrm
- man-msg-wt
- man-overid
- manual-in
- mct-act
- mct-contr
- mj/mn alrm
- msg-retr
- mwn-act
- mwn-deact
- next
- night-serv
- normal
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- stored-num
- term-x-gr
- timer
- trk-id
- trunk-name
- trunk-ns
- verify
- work-code

* Display-type button

Figure 5-38 shows the 7434D voice terminal button number assignments in relation to the button numbers on the Voice Terminal form. The first three buttons are defaulted as call appearance. Figures 5-39 and 5-40 show the 7434D with an optional Coverage Module and Display Module, respectively. refer to the last two figures in this section.

Page 3 of the Form

- **FEATURE BUTTON ASSIGNMENTS**

  The features buttons that can be assigned are the same as those listed for BUTTON ASSIGNMENTS above. The abbreviated name as shown on the list must be entered on the form.

  Figure 5-38 shows the 7434D voice terminal button number assignments in relation to the button numbers on the Voice Terminal form.

Page x of the Form (COVERAGE MODULE BUTTON ASSIGNMENTS)

- Displayed when Coverage Module on Page 1 is ‘‘y’’. The features buttons that can be assigned are the same as those listed for BUTTON ASSIGNMENTS above except that display-type buttons cannot be assigned. The abbreviated name as shown on the list must be entered on the form.

  2–10 call appearance buttons can be administered. When two call appearance buttons are administered, the maximum number of Bridged Appearance buttons that can be administered is 52 or 32 with or without a Coverage Module, respectively.

Page x of the Form (DISPLAY BUTTON ASSIGNMENTS)

- Displayed when Display on Page 1 is ‘‘y’’. The display-type buttons that can be assigned are shown on the preceding BUTTON ASSIGNMENTS list. Display-type buttons are noted with an asterisk. The abbreviated name as shown on the list must be entered on the button field on the form.

Page x of the Form (DATA MODULE)

- Displayed when Data Module on Page 1 is ‘‘y’’. Refer to the ‘‘Station Forms—Field Descriptions’’ elsewhere in this chapter for associated field descriptions.

```
                                   STATION                    Page 1 of x
Extension: 300               BCC: 0
     Type: 7434D                       Lock Messages? n           COR: 1_
     Port: _______                     Security Code: ____        COS: 1_
     Name: _________________           Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                      Coverage Msg Retrieval? y
        LWC Activation? y                                      Auto Answer? n
           CDR Privacy? n                                 Data Restriction? n
 Redirect Notification? y                         Idle Appearance Preference? n
 Bridged Call Alerting? n                       Personalized Ringing Pattern: 1
                                                    Restrict Last Appearance? y
           Data Module? n
         Display Module? n                                 Coverage Module? n
             AUDIX Name: _______
   Message Server Name: _______
```

7434D Station Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                   STATION                    Page 2 of x
 SITE DATA
       Room: _______                                    Headset? n
       Jack: _____                                      Speaker? n
      Cable: _____                                     Mounting? d
   Building: _______                                 Cord Length: 0_
      Floor: _______                                   Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                        6: __________
  2: call-appr_                        7: __________
  3: call-appr_                        8: __________
  4: __________                        9: __________
  5: __________                       10: __________
```

7434D Station Form (Page 2 of x)

```
                                    STATION                    Page 3 of x
        BUTTON ASSIGNMENTS

          11: _____________                  23: _____________
          12: _____________                  24: _____________
          13: _____________                  25: _____________
          14: _____________                  26: _____________
          15: _____________                  27: _____________
          16: _____________                  28: _____________
          17: _____________                  29: _____________
          18: _____________                  30: _____________
          19: _____________                  31: _____________
          20: _____________                  32: _____________
          21: _____________                  33: _____________
          22: _____________                  34: _____________
```

7434D Station Form (Page 3 of x)

Implementation Note:

Assign Coverage Module feature buttons on its respective form (see below).

```
                                    STATION                    Page x of x

      COVERAGE MODULE BUTTON ASSIGNMENTS

           1: _____________                  11: _____________
           2: _____________                  12: _____________
           3: _____________                  13: _____________
           4: _____________                  14: _____________
           5: _____________                  15: _____________
           6: _____________                  16: _____________
           7: _____________                  17: _____________
           8: _____________                  18: _____________
           9: _____________                  19: _____________
          10: _____________                  20: _____________
```

7434D Coverage Module Form

Implementation Note:

Displayed when Coverage Module on Page 1 is ‘‘y’’.

Do not administer display-type buttons (such as, inspect, normal) on this form.

```
                                STATION                          Page x of x

              DISPLAY BUTTON ASSIGNMENTS
              1: ___________
              2: ___________
              3: ___________
              4: ___________
              5: ___________
              6: ___________
              7: ___________
```

7434D Display Form

Implementation Note:

Displayed when Display Module on Page 1 is ‘‘y’’. Button locations (1–7) are associated with buttons 1–7 on the optional Digital Display Module.

```
                                  STATION                        Page x of x
DATA MODULE
     Data Extension: ____                BCC: 2
               Name: _________________    COR: 1_       COS: 1_

ABBREVIATED DIALING
 List1: _________

SPECIAL DIALING OPTION: _____
   HOT LINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (From above list): _

ASSIGNED MEMBER ( Station with a data extension button for this data module )
        Ext      Name
     1: _____    ___________
```

7434D Data Module Form (Page x of x)

Implementation Note:

This page is displayed when Data Module on Page 1 is ‘‘y’’.

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

HOT LINE DESTINATION is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’.

DEFAULT DIALING is displayed when SPECIAL DIALING OPTION is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’ or ‘‘default’’.

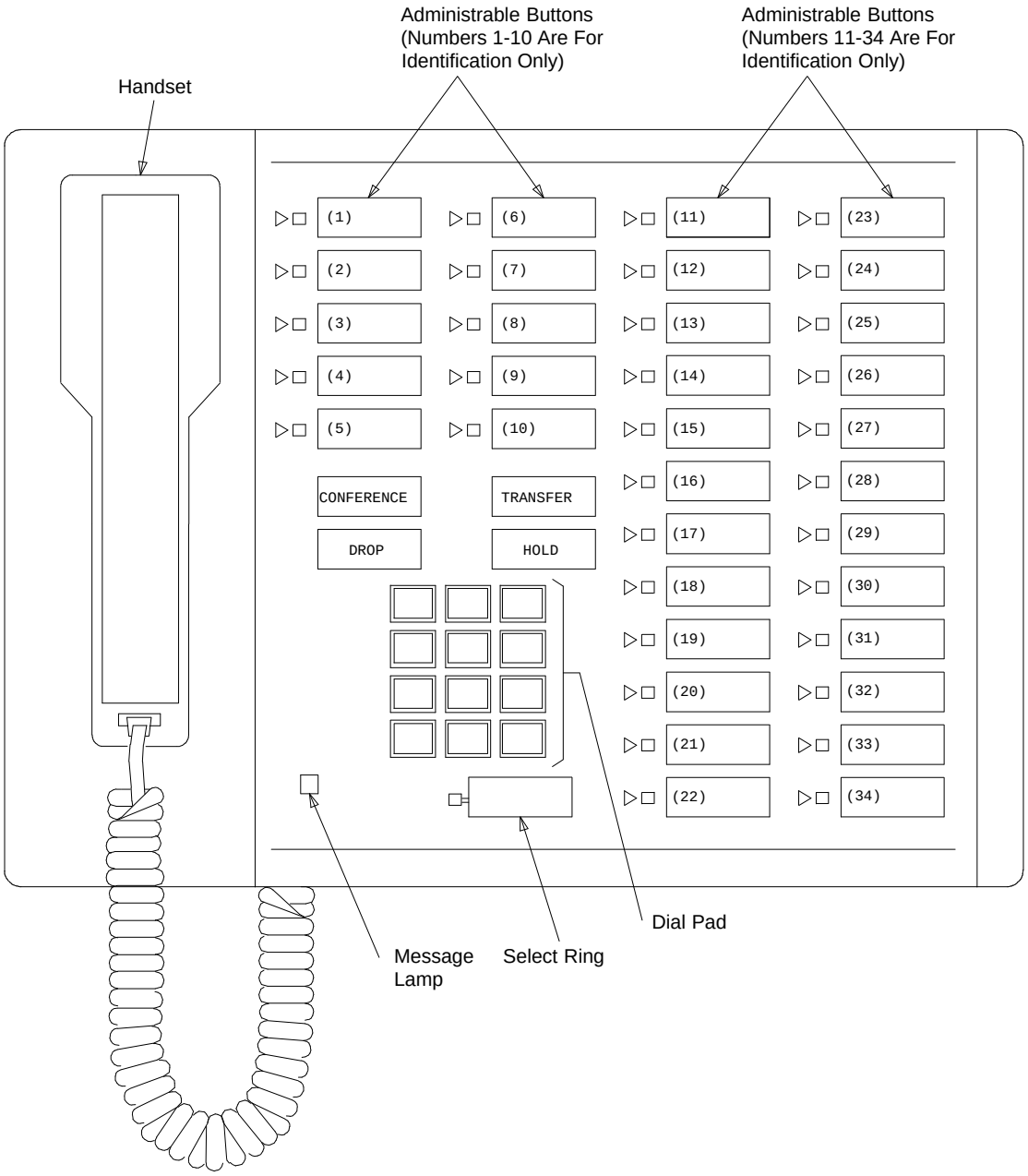


Figure 5-38. 7434D Voice Terminal

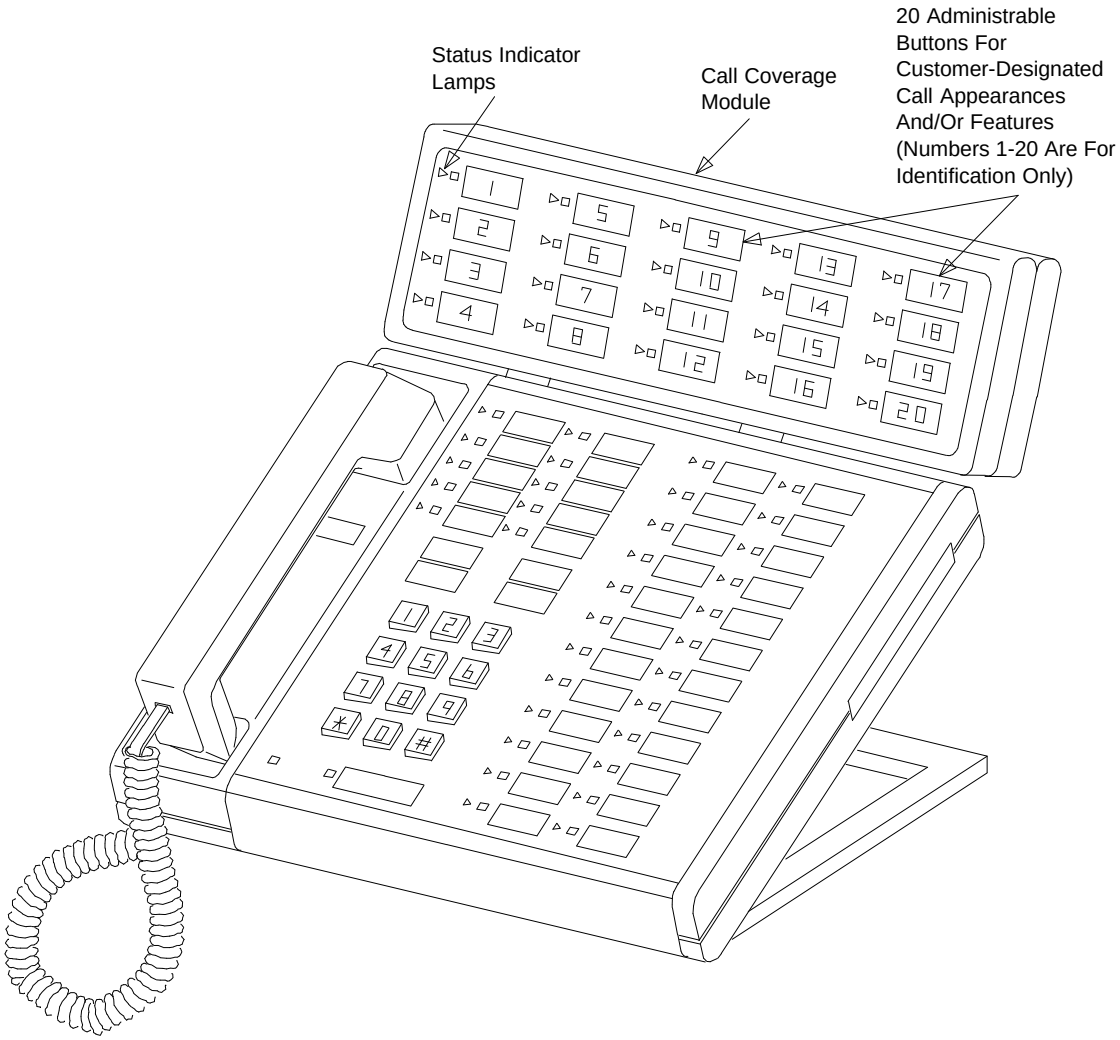


Figure 5-39. 7434D Voice Terminal With Optional Call Coverage Module

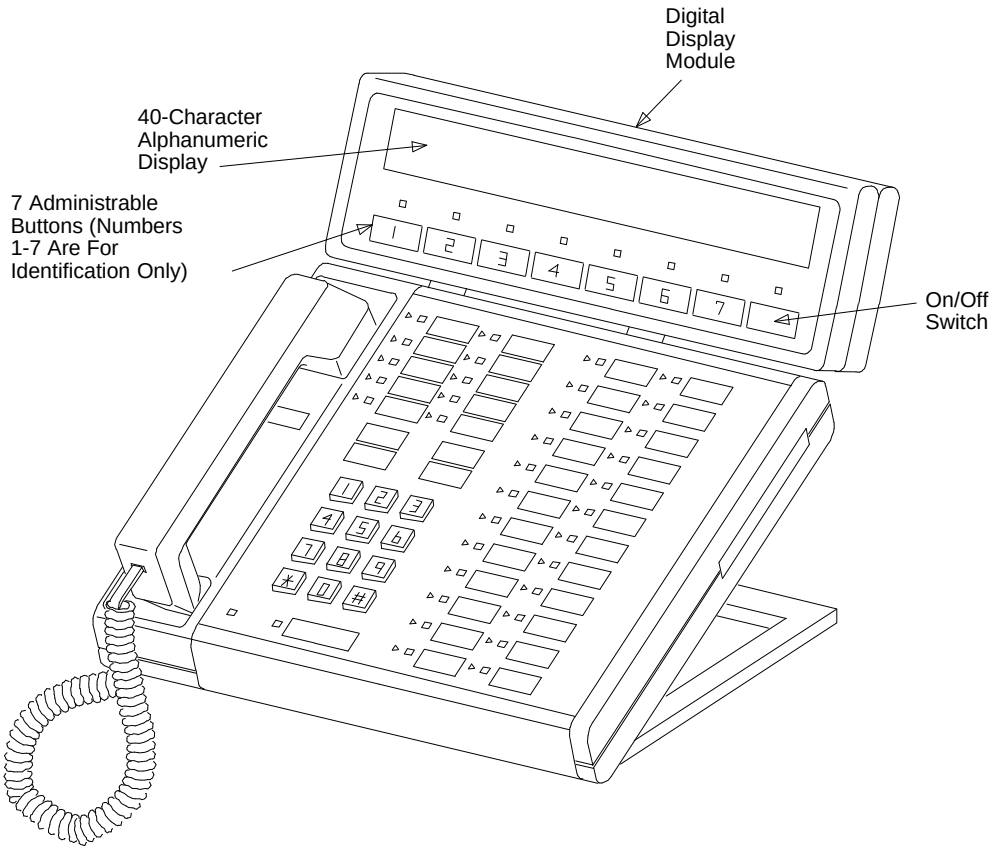


Figure 5-40. 7434D Voice Terminal With Optional Digital Display Module

7505D, 7506D, 7507D, 8503D, 8510D, and 8520D Voice Terminals

This form is used to implement the 7505D, 7506D, 7507D, 8503D, 8510D, 8520D ISDN-BRI voice terminals.

Administration Commands

The following administration commands can be used to access the Voice Terminal forms. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number) [’print’]
duplicate	station	xxxxx (extension number) [’count’ 1–16] [’start’ extension] [’Board’ address] [’one-ep’]
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Please review the ‘‘Voice Terminals—General’’ information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

NOTE:
Data Module is displayed for the 7505D, 7506D, and 7507D ISDN-BRI voice terminals. This field does not appear for the 8503D, 8510D, and 8520D ISDN-BRI voice terminals.

- **Type**—Enter ‘‘7505D’’, ‘‘7506D’’, ‘‘7507D’’, ‘‘8503D’’, ‘‘8510D’’, or ‘‘8520D’’ as appropriate.
- **Port**—Enter seven characters. The first two characters identify the cabinet (01–22, default is 1); the third character identifies the carrier (A–E); the fourth and fifth identify the slot number in the carrier (01–20 for multi-carrier cabinets or 01–18 for single-carrier cabinets); the last two characters identify the circuit number (01–24).

  NOTE:
  A 1-character entry of ‘‘X’’ in the Port field can be used to indicate that there is no hardware associated with the port assignment (Administration Without Hardware feature).

ISDN-BRI provides multipoint configuration capability which allows a previously assigned port to be specified more than once. However, for the following cases, the port is assumed to be fully assigned:

- — Maximum number of users (currently 2) are assigned on the port.
- — One of the users on the port is a fixed Terminal Identification (TEI) station.
- — One of the users on the port has B-channel voice and B-channel data capability.
- — One of the users on the port has no Service Profile Identifier (SPID) assigned, that includes terminals which have no SPID initialization capability.

- **XID**—Used to identify layer 2 XID testing capability. Valid entries are ‘‘y’’ (default) or ‘‘n’’.
- **Fixed TEI**—Used to indicate whether or not the station has Fixed Terminal Identification (TEI) capability. TEI is used to identify a unique access point within a service. For Fixed TEI stations, the TEI must be administered. For terminals with automatic TEI capability, the associated TEI is assigned by the System. Valid entries are ‘‘y’’ or ‘‘n’’ (default).
- **TEI**—Displayed when Fixed TEI entry is ‘‘y’’. Enter a 1- to 2-digit number in the range of 0–63.
- **MIM Support**—(Management Information Message Support) Used to support two types of capabilities; MIM endpoint initialization capability (SPID support), other Maintenance/Management capability. Valid entries are ‘‘y’’ (default) or ‘‘n’’.
- **Endpt Init**—Displayed when MIM Support is ‘‘y’’. Used to indicate the station’s endpoint initialization capability. Endpoint initialization is a procedure, required for multipoint operation, by which User Service Order Profile (USOP) is associated with an endpoint on the ISDN-BRI. This association is made via the Service Profile Identifier (SPID), administered into the system and entered into the ISDN-BRI terminal. For a ISDN-BRI terminal to become operational in a multipoint configuration, both the administered SPID and the SPID programmed into the ISDN-BRI terminal must be the same. This means that the SPID of the new or re-used terminals must be programmed to match the administered SPID value. Valid entries are ‘‘y’’ (default) or ‘‘n’’.

- **SPID**—Displayed when Endpoint Initialization is ‘‘y’’. The Service Profile Identifier (SPID) is a variable parameter of up to ten digits. The SPID is a numeric string value, which means that a value of ‘‘00’’ is different from ‘‘000’’. The SPID must be different for all terminals on the ISDN-BRI and from the Service SPID. The SPID should always be assigned, if the SPID is not assigned for the first ISDN-BRI on a port, any other ISDN-BRI assignment to that port will be blocked. Valid entries are numeric strings in the range of 0–9999999999; default is the station’s extension number.
- **MIM Mtce/Mgt**—Displayed when MIM Support is ‘‘y’’. Used to indicate if the terminal supports MIM Maintenance and Management capabilities, other than endpoint initialization. Valid entries are ‘‘y’’ (default) or ‘‘n’’.

Page 2 of the Form

- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the 7505D, 7506D, 7507D, 8503D, 8510D, and 8520D voice terminals are listed below. Associated descriptions and characteristics of the buttons are provided in the ‘‘Voice Terminals—General’’ section. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on the button type, additional auxiliary information may be required when administering buttons. This information is provided in the ‘‘Voice Terminals—General’’ section.

- abr-prog
- abr-spchar
- abrdg-appr
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls
- atd-qtime
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- auto-wkup * **
- aux-work
- brdg-appr
- busy-ind
- call-appr
- call-disp * **
- call-fwd
- call-park
- call-pkup
- callr-info * **
- cas-backup
- cdr1-alarm
- cdr2-alarm
- check-in * **
- check-out * **
- clk-overid * **
- consult
- cov-cback
- cov-msg-rt * **
- date-time * **
- delete-msg * **
- dial-icom
- directory * **
- dn-dst
- exclusion
- ext-dn-dst * **
- flash
- goto-cover
- grp-dn-dst * **
- hunt-ns
- in-call-id
- inspect * **
- last-numb
- link-alarm
- lwc-cancel
- lwc-lock **
- lwc-store
- major-alrm
- man-msg-wt
- man-overid * **
- manual-in
- mct-act
- mct-contr
- mj/mn alrm
- msg-retr * **
- mwn-act * **
- mwn-deact * **
- next * **
- night-serv
- normal * **
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- stored-num * **
- term-x-gr
- timer * **
- trk-id **
- trunk-name * **
- trunk-ns
- verify
- work-code ***

* Display-type button ** Not administrable on 7505D or 8503D *** Not administrable on 8503D

Figures 5-41 through 5-45 show the 7505D, 7506D, 7507D, 8503D, 8510D, and 8520D voice terminal button number assignments in relation to the button numbers on the voice terminal form. The first three buttons are defaulted as call appearance.

Page 3 of the Form

- **FEATURE BUTTON ASSIGNMENTS**

  The features and functions that can be assigned to the 7505D, 7506D, 7507D, 8503D, 8510D, and 8520D voice terminal administrable buttons are the same as those listed for BUTTON ASSIGNMENTS above.

  Figures 5-41 through 5-45 show the 7505D, 7506D, 7507D, 8503D, 8510D, and 8520D voice terminal button number assignments in relation to the button numbers on the voice terminal form.

Page x of the Form (DATA MODULE)

Applicable to 7505D, 7506D, and 7507D Voice Terminals

- Displayed when Data Module on Page 1 is ‘‘y’’. Instructions are provided below for fields that require additional consideration because of the terminal type. Otherwise, refer to ‘‘Station Forms—Field Descriptions’’ elsewhere in this chapter for associated field descriptions.
- **CIRCUIT SWITCHED DATA ATTRIBUTES**

  NOTE:
  These fields represent defaults needed for modem pooling conversion resource insertion when the endpoint does not support data query capability. These fields have no significance for data modules providing data query [all AT&T-supported ISDN-BRI data modules (7500B and ADM)]. For AT&T ISDN-BRI data modules, the default settings should be used.

  Applicable to 7505D, 7506D, and 7507D Voice Terminals

  — **Default Duplex**—Used to identify the duplex mode. Valid entries are ‘‘full’’ (default) or ‘‘half’’.

  — **Default Mode**—Used to identify the data mode. Valid entries are ‘‘sync’’ or ‘‘async’’ (default).

  — **Default Speed**—Used to identify the data rate. Valid entries are 1200 (default), 2400, 4800, 9600, and 19200.

  NOTE:
  When default mode is ‘‘sync’’, valid entries also include speeds of ‘‘56000’’ and ‘‘64000’’.

- **DATA MODULE CAPABILITIES**

  Applicable to 7505D, 7506D, and 7507D Voice Terminals

  — **Origination Default Data Applications**—Used to identify mode to be used for originating data calls when the mode is not specified with the calling parameters. This mode will also be used for terminating trunk calls which do not have bearer capability specified or administered connections. Possible mode values are M0 (mode 0), M1 (mode 1), M2 (mode 2), and M3/2 (mode 3/2 adaptable), or blank. Valid entries are ‘‘M0’’, ‘‘M1’’, ‘‘M2_A’’ (default), ‘‘M2_S’’, or ‘‘M3/2’’.

```
                                                          Page  1 of x
                                  STATION
Extension: 300              BCC: 0
     Type: _____                      Lock Messages? n           COR: 1_
     Port: _______                    Security Code: ____        COS: 1_
     Name: _______________            Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                   Auto Answer? n
           CDR Privacy? n                                Data Restriction? n
 Redirect Notification? y                        Idle Appearance Preference? n
 Bridged Call Alerting? n
                                                   Restrict Last Appearance? y
           Data Module? n

                   XID? y    Fixed TEI? n
           MIM Support? y   Endpt Init? y  SPID: 300_______   MIM Mtce/Mgt? y
            AUDIX Name: _______
   Message Server Name: _______
```

7505D, 7506D, 7507D, 8503D*, 8510D*, and 8520D* Station Form (Page 1 of x)

Implementation Notes:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

Data Module is not displayed for the 8503D, 8510D, and 8520D voice terminals.

When adding an unsupported station using the Enhanced Terminal Administration feature, if the Fixed TEI field is ‘‘y’’, the TEI field will be displayed.

Endpt Init and MIM Mtce/Mgt are displayed when MIM Support is ‘‘y’’.

SPID is displayed when Endpt Init is ‘‘y’’.

```
                                    STATION                  Page 2 of x
 SITE DATA
       Room: _______                                    Headset? n
       Jack: _____                                      Speaker? n
      Cable: _____                                     Mounting? d
   Building: _______                                Cord Length: 0_
      Floor: _______                                  Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                          6: __________
  2: call-appr_                          7: __________
  3: call-appr_                          8: __________
  4: __________                          9: __________
  5: __________                         10: __________
```

7505D, 7506D, 7507D, 8510D, and 8520D Station Form (Page 2 of x)

Implementation Note:

For a 7505D or 7506D voice terminal, button 7 can be administered as a call appearance button if an Asynchronous Data Module (ADM) is not attached to the station. When an ADM is attached, the button acts as a DATA button regardless of whether or not the data module has been administered. If the ADM has been administered, ''DATA'' will be displayed in the field and access to the field will also be restricted. If the station is aliased as a 7505D or 7506D via the Enhanced Terminal Administration feature, button 7 can be administered as a call appearance button whether or not an ADM is assigned. There is no ''Data'' button on 7507D, 8510D, and 8520D voice terminals.

```
                                    STATION                  Page 2 of x
 SITE DATA
       Room: ________                                    Headset? n
       Jack: ______                                      Speaker? n
      Cable: ______                                     Mounting? d
   Building: ________                                Cord Length: 0_
      Floor: ________                                  Set Color: _______

ABBREVIATED DIALING
     List1: _________          List2: _________          List3: _________

BUTTON ASSIGNMENTS
  1: call-appr_
  2: call-appr_
  3: call-appr_
```

8503D Station Form (Page 2 of x)

```
                                  STATION                    Page 3 of x
FEATURE BUTTON ASSIGNMENTS
     1: _____________                                  4: _____________
     2: _____________                                  5: _____________
     3: _____________                                  6: _____________
```

7505D and 7506D Station Form (Page 3 of x)

```
                                   STATION                Page 3 of x
       BUTTON ASSIGNMENTS
11: _____________                     20: _____________
12: _____________                     21: _____________
13: _____________                     22: _____________
14: _____________                     23: _____________
15: _____________                     24: _____________
16: _____________                     25: _____________
17: _____________                     26: _____________
18: _____________                     27: _____________
19: _____________                     28: _____________
                                      29: _____________
31: ----------                        30: _____________

32: _____________                     37: _____________
33: _____________                     38: _____________
34: _____________                     39: _____________
35: _____________                     40: _____________
36: _____________
```

7507D Station Form (Page 3 of x)

Implementation Note:

Button 31 can be administered as a feature button if an Asynchronous Data Module (ADM) is not attached to the station. When an ADM is attached, the button acts as a DATA button regardless of whether the data module has been administered. If the ADM has been administered, ''DATA'' will be displayed in the field and the button will be restricted. If the station is aliased as a 7507D via the Enhanced Terminal Administration feature, button 31 can be administered as a feature button whether or not an ADM is assigned.

```
                                    STATION                  Page x of x
DATA MODULE
     Data Extension: _____
               Name: ________________       COR: __        COS: __

ABBREVIATED DIALING
 List1: ________

SPECIAL DIALING OPTION: ________
   HOTLINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (from above list): ___

CIRCUIT SWITCHED DATA ATTRIBUTES
  Default Duplex: _____   Default Mode:   ______    Default Speed:  ______

DATA MODULE CAPABILITIES
                             Origination Default Data Application? ____
```

7505D, 7506D, and 7507D ISDN-BRI Data Module Form (Page x of x)

Implementation Notes:

This page is displayed when Data Module on Page 1 is ‘‘y’’.

HOT LINE DESTINATION is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’.

DEFAULT DIALING is displayed when SPECIAL DIALING OPTION is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’ or ‘‘default’’.

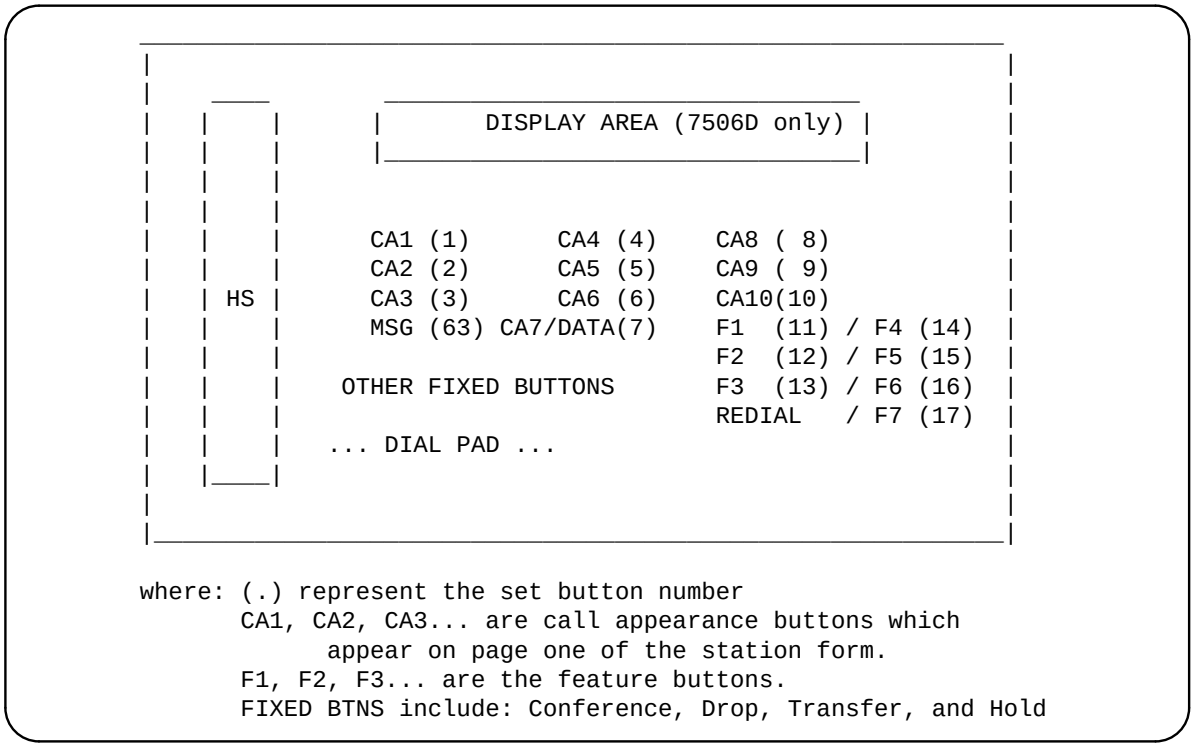


Figure 5-41. 7505D and 7506D Voice Terminal Feature Button Layout

Notes:

1. Buttons F4–F6 are accessed by shifting buttons F1–F3. Button F7 is accessed by shifting fixed REDIAL button.
2. CA7/DATA button can be administered as a call appearance button. However, CA7 button should not be administered when ADM is attached to the set. When the ADM is attached, the button acts as a DATA button, regardless of administration. For 7505D and 7506D terminals, AT&T supported terminals, if ADM is administered, the phrase "DATA" will be displayed in the CA7 button type field. Furthermore, the button field will be restricted and the user will not be able to administer that button. If a set is aliased as 7505D or 7506D set via ETA feature, button CA7 will always be administrable as a call appearance button, whether or not the data module is administered.

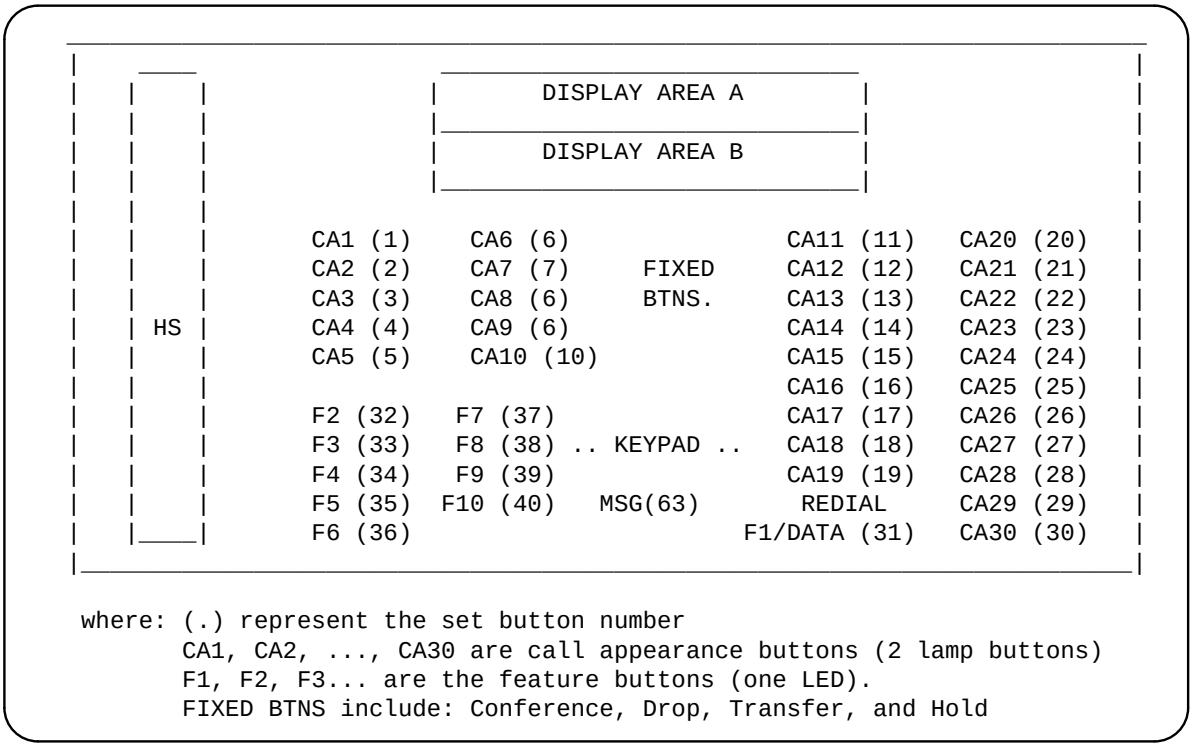


Figure 5-42. 7507D Voice Terminal Feature Button Layout

Notes:

1. F1/DATA button can be administered as a feature button. However, F1 button should not be administered if ADM is attached to the set. If the ADM is attached, the button will act as a DATA button, regardless of administration. For 7507D terminal, AT&T supported terminal, if ADM is administered, the phrase "DATA" will be displayed in the F1 button type field. Furthermore, the button field will be restricted and the user will not be able to administer that button. If a set is aliased as 7507D set via ETA feature, F1 button will always be administrable as a feature button, whether or not the data module is administered.
2. The 7507D terminal supports 31 buttons with two LEDs, however, the software will support administration of 30 of these as call appearance buttons (buttons CA1-CA30). The system maximum of 10 call appearance buttons still applies. Buttons CA1-CA30 which are not used as Call Appearance buttons can be administered as Bridged Appearance buttons.

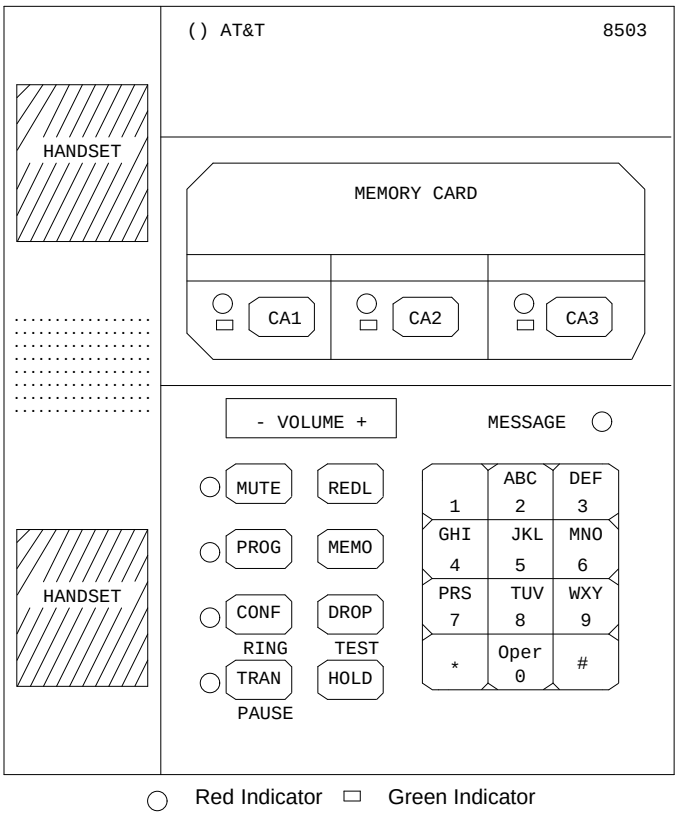


Figure 5-43. 8503D Voice Terminal Feature Button Layout

Notes:

1. CA1, CA2, CA3 are call appearance buttons (2 lamp buttons) FIXED BTNS with 1 LED: PROG, MUTE, CONF, TRANS FIXED BTNS with no LED: REDIAL, DROP, HOLD, MEMORY

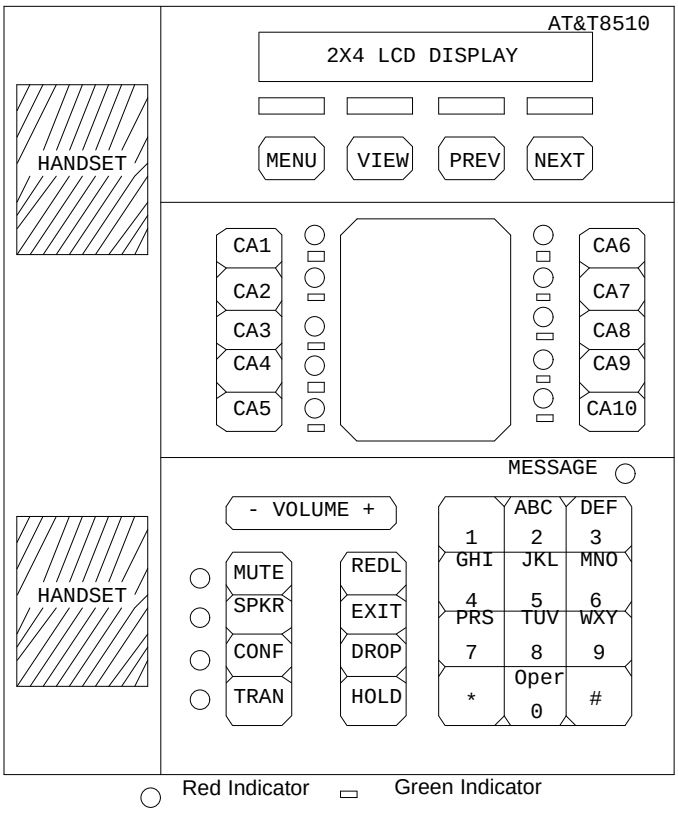


Figure 5-44. 8510D Voice Terminal Feature Button Layout

Notes:

1. CA1, CA2, ..., CA10 are call appearance buttons (2 lamp buttons) FIXED BTNS with 1 LED: MUTE, SPKR, CONF, TRAN FIXED BTNS with no LED: REDIAL, EXIT, DROP, HOLD, VOLUME Display Control Keys with no LED: MENU, VIEW, NEXT, PREVIOUS
2. The EXIT button is treated as a fixed "normal" button.

```
                                STATION                    Page 3 of x
FEATURE BUTTON ASSIGNMENTS
  11: normal
```

8510D Station Form (Page 3 of x)

NOTE:
Page 3 of the form shows that the 8510D voice terminal has one fixed "normal" button with a display-only field.

```
                                    STATION                  Page 3 of x
    BUTTON ASSIGNMENTS
11: _____________                          16: _____________
12: _____________                          17: _____________
13: _____________                          18: _____________
14: _____________                          19: _____________
15: _____________                          20: _____________
                                           21: normal
```

NOTE:
Button 21 is a fixed ‘‘normal’’ button on the 8520D voice terminal.

8520D Station Form (Page 3 of x)

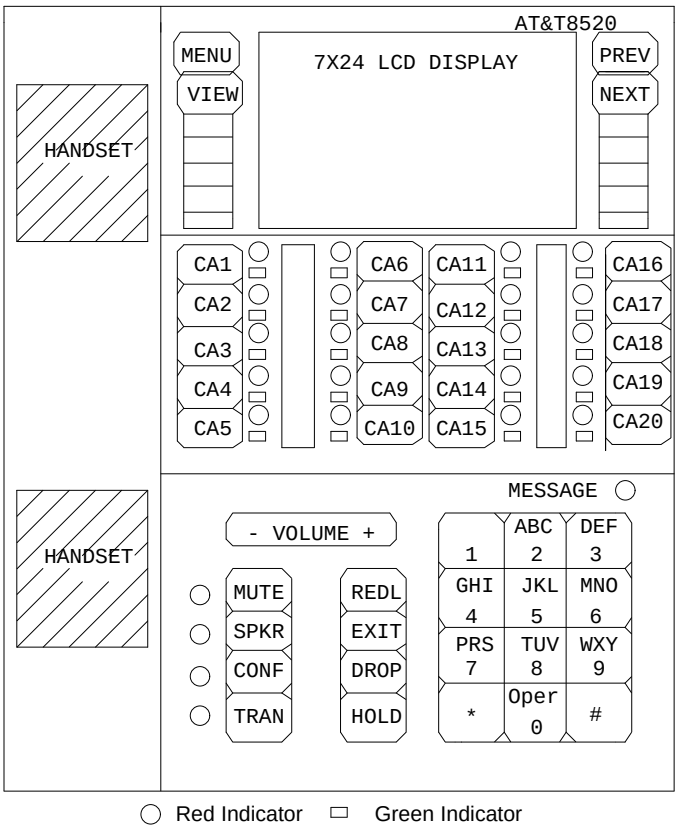


Figure 5-45. 8520D Station Set Layout

Notes:

1. CA1, CA2, ..., CA20 are call appearance buttons (2 lamp buttons) FIXED BTNS with 1 LED: MUTE, SPKR, CONF, TRAN FIXED BTNS with no LED: REDIAL, EXIT, DROP, HOLD
2. The 8520D terminal supports 20 call appearances. The system maximum of 10 call appearance buttons still applies. Buttons CA1-CA20 which are not used as Call Appearance buttons can be administered as Bridged Appearance buttons.
3. The 8520D has 7X24 LCD display. However, the top 2 lines are used to display switch-based information at all times, while the remaining 5 lines are associated with the 10 soft keys and related messages.
4. The EXIT button is treated as a fixed "normal" button.

CALLMASTER Digital Voice Terminal

This form is used to assign the CALLMASTER digital voice terminal. The terminal may also be used to support the ACD feature.

Administration Commands

The following administration commands can be used to access the Voice Terminal form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Please review the ''Voice Terminals—General'' information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Type**—Enter ''602A1''.
- **Display Module**—Display-only field; restricted to ''y''. Display-type buttons are administered on Page 3 of the form.

Page 2 of the Form

- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the CALLMASTER digital voice terminal are listed below. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on the button type, additional auxiliary information may be required when administering buttons. This information is provided in the ''Voice Terminals—General'' section.

- abr-prog
- abr-spchar
- abrdg-appr
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls
- atd-qtime
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- auto-wkup
- aux-work
- brdg-appr
- busy-ind
- call-appr
- call-disp
- call-fwd
- call-park
- call-pkup
- callr-info *
- cas-backup
- cdr1-alarm
- cdr2-alarm
- check-in
- check-out
- clk-overid
- consult
- cov-cback
- cov-msg-rt
- data-ext
- date-time
- delete-msg
- dial-icom
- directory
- dn-dst
- exclusion
- ext-dn-dst
- flash
- goto-cover
- grp-dn-dst
- hunt-ns
- in-call-id
- inspect
- last-numb
- link-alarm
- lwc-cancel
- lwc-lock
- lwc-store
- major-alrm
- man-msg-wt
- man-overid
- manual-in
- mct-act
- mct-contr
- mj/mn alrm
- msg-retr
- mwn-act
- mwn-deact
- next
- night-serv
- normal
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- stored-num
- stroke-cnt
- term-x-gr
- timer
- trk-id
- trunk-name
- trunk-ns
- verify
- work-code

* Display-type button

Figure 5-46 shows the CALLMASTER digital voice terminal's button locations in relation to the button numbers on the forms.

Page x of the Form

- **FEATURE BUTTON ASSIGNMENTS**

  The features and functions that can be assigned to the terminal's administrable buttons are the same as those for BUTTON ASSIGNMENTS above. The abbreviated name as shown on the list must be entered on the form. At least two buttons must be administered as call appearances.

Page x of the Form (DISPLAY MODULE)

- Displayed when Display Module on Page 1 is ''y''. Refer to ''Station Forms—Field Descriptions'' elsewhere in this chapter for associated field descriptions.

```
                                   STATION                  Page 1 of x
Extension: 300              BCC: 0
     Type: 602A1                    Lock Messages? n           COR: 1_
     Port: _______                  Security Code: ____        COS: 1_
     Name: _________________        Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                      Auto Answer? n
           CDR Privacy? n                        Idle Appearance reference? n
 Bridged Call Alerting? n                      Personalized Ringing Pattern: 1
                                                   Restrict Last Appearance? y
        Display Module? y

            AUDIX Name: _______
   Message Server Name: _______
```

602A1 Station Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                    STATION                  Page 2 of x
 SITE DATA
       Room: _______                                    Headset? n
       Jack: _____                                      Speaker? n
      Cable: _____                                     Mounting? d
   Building: _______                                 Cord Length: 0_
      Floor: _______                                   Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                          6: __________
  2: call-appr_                          7: __________
  3: call-appr_                          8: __________
  4: __________                          9: __________
  5: __________                         10: __________
```

602A1 Station Form (Page 2 of x)

Implementation Note:

At least two BUTTON ASSIGNMENTS buttons must be assigned to call-appr (call appearance.)

```
                                    STATION                  Page 3 of x
FEATURE BUTTON ASSIGNMENTS
     1st Column                          2nd Column
  1: _____________                    7: _____________
  2: _____________                    8: _____________
  3: _____________                    9: _____________
  4: _____________                   10: _____________
  5: _____________                   11: _____________
  6: mute                            12: _____________

     3rd Column
 13: _____________
 14: _____________
 15: _____________
 16: _____________
 17: _____________
 18: _____________
```

602A1 Station Form (Page 3 of x)

Implementation Note:

Feature button #6 is preassigned as a mute button (not administrable).

```
                                    STATION                  Page x of x
DISPLAY BUTTON ASSIGNMENTS
  1: _____________
  2: _____________
  3: _____________
  4: _____________
  5: _____________
  6: _____________
  7: _____________
```

602A1 Display Module Form (Page x of x)

Implementation Note:

This page is displayed when Display Module on Page 1 is ‘‘y’’. Button locations (1–7) are associated with buttons 1–7 on the optional Digital Display Module.

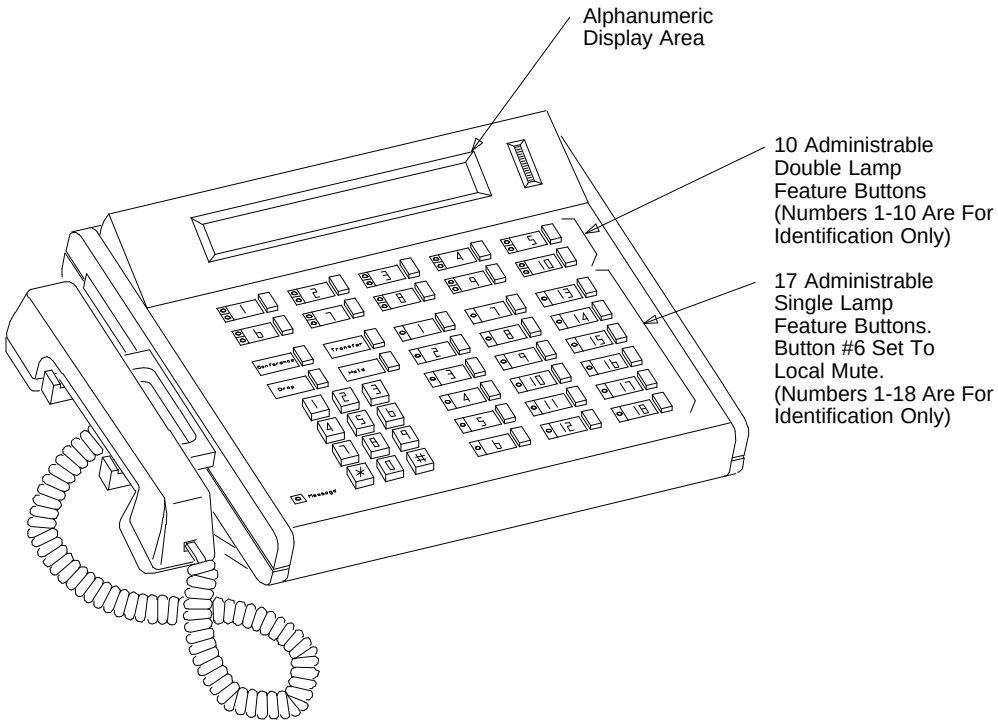


Figure 5-46. CALLMASTER Digital Voice Terminal

Personal Computer (PC)—6300 PC/PBX Connection

This form is used to implement a PC/PBX Connection. The PC can be either an AT&T PC 6300 Personal Computer (or other compatible PC) which can be used with a 7400D series voice terminal to form a workstation arrangement. [Refer to ''Personal Computer (PC)—6300 PC/PBX Connection'' elsewhere in this chapter for additional information and typical connections.]

Administration Commands

The following administration commands can be used to access the form. In some cases, just the most commonly used commands are shown. Refer to ''Administration Commands and Error Messages'' in Chapter 2 for a complete listing of all administration commands, the command structure, and the use of abbreviated command words when entering a command.

Action	Object	Qualifier*
add	station	xxxxx (extension number) or (‘next’)
change	station	xxxxx (extension number)
display	station	xxxxx (extension number)
duplicate	station	
list	station	[xxxxx](‘count’ 1–10000) [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) type ASAI [’print’ or ’schedule’]
list	station	[xxxxx](‘count’ 1–10000) port [’print’ or ’schedule’]
list	station	[extension] [type (station type)] [port 1–3 (port number)] [‘count’(n)] [’print’ or ’schedule’]
remove	station	xxxxx (extension number)

* Brackets [ ] indicate the qualifier is optional.
Single quotes (‘ ’) indicate the text inside the quote must be entered exactly as shown or an abbreviated form of the word may be entered.

Form Instructions

Please review the ‘‘Voice Terminals—General’’ information at least once before completing the form. General information including feature button descriptions and characteristics are covered. In addition, descriptions of the administrable fields appearing on Pages 1 and 2 of the form are provided. Instructions are provided below for fields and/or pages of the form that require additional consideration because of the terminal type.

Page 1 of the Form

- **Type**—Enter ‘‘pc’’.
- **Set**—Enter the digital voice terminal type the PC is connected to. Valid entries are ‘‘7401D’’, ‘‘7403D’’, ‘‘7404D’’, ‘‘7405D’’, ‘‘7406D’’, ‘‘7407D’’, 7434D, and ‘‘602A1’’.
- **PCOL/TEG Call Alerting**—Enter ‘‘y’’ if the PC user will be alerted on an incoming PCOLG/TEG call; otherwise, enter ‘‘n’’ (default).
- **Data Module**—Display-only (set to ‘‘y’’).
- **Display Module**—Display-only (set to ‘‘y’’).

Page 2 of the Form

- **BUTTON ASSIGNMENTS**

  The feature buttons that can be assigned to the associated voice terminal are listed below. The abbreviated software name (administration name) as shown on the following list must be entered on the form. Depending on the button type, additional auxiliary information may be required when administering buttons. This information is provided in the ‘‘Voice Terminals—General’’ section.

- abr-prog
- abr-spchar
- abrdg-appr
- abrv-dial
- ac-alarm
- aca-call
- after-call
- assist
- atd-qcalls
- atd-qtime
- aut-msg-wt
- auto-cback
- auto-icom
- auto-in
- auto-wkup
- aux-work
- brdg-appr
- busy-ind
- call-appr
- call-disp
- call-fwd
- call-park
- call-pkup
- callr-info *
- cas-backup
- cdr1-alarm
- cdr2-alarm
- check-in
- check-out
- clk-overid
- consult
- cov-cback
- cov-msg-rt
- data-ext
- date-time
- delete-msg
- dial-icom
- directory
- dn-dst
- exclusion
- ext-dn-dst
- flash
- goto-cover
- grp-dn-dst
- hunt-ns
- in-call-id
- inspect
- last-numb
- link-alarm
- lwc-cancel
- lwc-lock
- lwc-store
- major-alrm
- man-msg-wt
- man-overid
- manual-in
- mct-act
- mct-contr
- mj/mn alrm
- msg-retr
- mwn-act
- mwn-deact
- next
- night-serv
- normal
- per-COline
- pms-alarm
- pr-awu-alm
- pr-pms-alm
- print-msgs
- priority
- q-calls
- q-time
- release
- ringer-off
- rs-alert
- sd-stroke
- send-calls
- send-term
- serv-obsrv
- signal
- stored-num
- term-x-gr
- timer
- trk-id
- trunk-name
- trunk-ns
- verify
- work-code

* Display-type button

Page 3 of the Form

- **FEATURE BUTTON ASSIGNMENTS**

  The feature buttons that can be administered are the same as those for BUTTON ASSIGNMENTS above. The abbreviated name as shown on the list must be entered on the form.

Page x of the Form (DISPLAY BUTTON ASSIGNMENTS)

Administer display-type buttons as required. Display-type buttons are noted with an asterisk on the above BUTTON ASSIGNMENTS list. The abbreviated name as shown on the list must be entered on the form.

Page x of the Form (DATA MODULE)

Complete the Data Module fields as required. Refer to ''Station Forms—Field Descriptions'' elsewhere in this chapter for associated field descriptions.

```
                                    STATION                  Page 1 of x
Extension: 300              BCC: 0
     Type: PC    Set: 7404D         Lock Messages? n           COR: 1_
     Port: _______                  Security Code: ____        COS: 1_
     Name: _______________          Coverage Path: ___

FEATURE OPTIONS
         LWC Reception: spe____                    Coverage Msg Retrieval? y
        LWC Activation? y                                    Auto Answer? n
           CDR Privacy? n                                Data Restriction? n
 Redirect Notification? y                       Idle Appearance Preference? n
PCOL/TEG Call Alerting? n
                                                 Restrict Last Appearance? y
           Data Module? n
        Display Module? y

            AUDIX Name: _______
   Message Server Name: _______
```

PC Station Form (Page 1 of x)

Implementation Note:

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

```
                                   STATION                  Page 2 of x
 SITE DATA
       Room: _______                                  Headset? n
       Jack: _____                                    Speaker? n
      Cable: _____                                   Mounting? d
   Building: _______                              Cord Length: 0_
      Floor: _______                                Set Color: ______

ABBREVIATED DIALING
     List1: ________          List2: ________          List3: ________

BUTTON ASSIGNMENTS
  1: call-appr_                          6: ___________
  2: call-appr_                          7: ___________
  3: call-appr_                          8: ___________
  4: call-appr_                          9: ___________
  5: ___________                        10: ___________
```

PC Station Form (Page 2 of x)

Implementation Note:

Call appearance buttons (‘‘call-appr’’, ‘‘brdg-appr’’, abrdg-appr’’) should only be administered in BUTTON ASSIGNMENTS fields 1–4.

```
                              STATION                       Page 3 of x
FEATURE BUTTON ASSIGNMENTS
  1: ___________                         13: ___________
  2: ___________                         14: ___________
  3: ___________                         15: ___________
  4: ___________                         16: ___________
  5: ___________                         17: ___________
  6: ___________                         18: ___________
  7: ___________                         19: ___________
  8: ___________                         20: ___________
  9: ___________                         21: ___________
 10: ___________                         22: ___________
 11: ___________                         23: ___________
 12: ___________                         24: ___________
```

PC Station Form (Page 3 of x)

```
                                    STATION                  Page x of x
        DISPLAY BUTTON ASSIGNMENTS
        1: ___________
        2: ___________
        3: ___________
        4: ___________
        5: ___________
        6: ___________
        7: ___________
```

PC Station Form (Page x of x)

```
                                   STATION                      Page x of x
DATA MODULE
     Data Extension: ____                BCC: 2
               Name: _________________     COR: 1_       COS: 1_

ABBREVIATED DIALING
 List1: _________

SPECIAL DIALING OPTION: _____
   HOT LINE DESTINATION
   DEFAULT DIALING
        Abbreviated Dialing Dial Code (From above list): _

ASSIGNED MEMBER ( Station with a data extension button for this data module )
        Ext      Name
     1: _____    __________
```

PC Data Module Form (Page x of x)

Implementation Note:

This page is displayed when Data Module on Page 1 is ‘‘y’’.

BCC is displayed when the ISDN-PRI option is enabled on the System-Parameters Customer-Options form.

HOT LINE DESTINATION is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’.

DEFAULT DIALING is displayed when SPECIAL DIALING OPTION is ‘‘default’’.

Abbreviated Dialing Dial Code is displayed when SPECIAL DIALING OPTION is ‘‘hot-line’’ or ‘‘default’’.

SPID Installation

A

All AT&T—interface terminals used with the AT&T 5ESS switch or the DEFINITY® Communications System, Generic 1, Generic 2, or Generic 3 must have a unique Service Profile Identifier (SPID) number recorded within the terminal. A SPID is not required when the terminal is used with the 5E4 switch. This terminal is entered into the terminal via the terminal's key pad. A terminal connected to the DEFINITY® Communications System typically uses the terminal's 4-digit extension number plus two additional digits as its SPID. These two additional digits range from 00 to 15 and represent the terminal identifiers A through P, respectively. A terminal connected to the 5ESS typically uses the terminals 10-digit telephone number as its SPID.

The 5ESS switch calculates the SPID automatically upon completion of the service order input process. Obtain the SPID from the System Administrator.

CAUTION:
The SPID number identifies your terminal to the network and should not be changed unless your System Administrator so indicates. Changing the value could result in loss of service.

Use the following procedure to enter the Service Profile Identifier (SPID) in the terminal and key telephone.

1. Press the **Shift/Select** or **Select** button.

   Message lamp comes on.

2. Press the **Mute** button followed by key pad digits ‘‘I’’ and ‘‘D’’ (‘‘4’’ and ‘‘3’’, respectively).

   The present value of the SPID is shown on the display.

3. Enter digits from the key pad for the new SPID number.

NOTE:
To erase a SPID, enter ‘‘*****’’.

To save a SPID, enter ‘‘**#**’’.

References

B

The following is an abbreviated listing of Generic 3 documents. Included is a brief description of each document in the list. User instructions are also available for all terminals used with the systems. For a complete listing of documents, refer to the *DEFINITY Communications System Generic 3—Documentation Guide,* (555-200-010).

To order copies of any of these documents, refer to the address on the back of the title page.

- *Business Communications Systems Publications Catalog* (555-000-010). Provides a list of publications that support AT&T business communications systems. Also provides a brief description of each publication listed.
- *DEFINITY® Communications System and System 75 and System 85—DS1/DMI/ISDN-PRI—Reference* (555-025-101). Provides a broad but detailed description of the DS1 Tie Trunk Service, Digital Multiplexed Interface (DMI), and Integrated Services Digital Network-Primary Rate Interface (ISDN-PRI) features. Introduces and defines concepts and terminology unique to DS1, DMI, and ISDN-PRI. Also includes applications, engineering procedures and considerations, cabling and connection arrangements, administration requirements, restrictions and limitations, etc.
- *Security Handbook* (555-025-600). Provides suggestions on preventing unauthorized access to your ports.
- *Introduction to DEFINITY® Communications System Generic 3* (555-230-020). Provides an overview of Generic 3. Major hardware components, such as the switch, terminals, and software applications, are described to provide an understanding of the system's functional areas. Also provides an overview of System Management and data features and functions available with DEFINITY Generic 3.

- *Introduction to DEFINITY® Communications System Generic 3 Hospitality Services* (555-200-026). Provides an overview of Generic 3 Hospitality Services. Major hardware components, such as the system cabinet, and terminals are described to provide an understanding of the system's functional areas. Also provides an overview of the hospitality features available with the system, as well as other voice, data, and System Management features.
- *Generic 1 and Generic 3—Feature Description* (555-230-200). Provides a technical description of the system features and parameters. For each feature, the following information is provided:
  - Limitations/considerations
  - Feature interactions
  - Administration requirements
  - Hardware and software requirements.
- *Generic 3—Pocket Reference* (555-230-202). Provides the reader with a quick, pocket-sized reference to the benefits, requirements, limitations, parameters, features, and circuit packs associated with the system.
- *Generic 1 and Generic 3—Planning and Configuration* (555-230-600). Provides information be used by the Account Team to determine the customer's requirements and to collect the information needed to estimate system hardware requirements.
- *Generic 1 and Generic 3—Console Operations* (555-230-700). Provides ''how-to-operate'' instructions for the attendant console. Serves as a reference when defining the console control keys and Incoming Call Identification requirements.
- *Generic 1 and Generic 3—Voice Terminal Operations* (555-230-701). Describes all the voice features and provides the ''how-to-operate'' instructions for each voice terminal. Serves as a training guide for system users.
- *Generic 1 and Generic 3—ACD Agent Instructions* (555-230-722). Provides information for use by agents after training is completed. The various ACD features are described and the procedures for using them are provided in this document.
- *Generic 1 and Generic 3—Hospitality Operations* (555-230-723). Contains procedures for using the Hospitality Services. These services include a group of system-based features that support the lodging and health industries.

- *Generic 1 and Generic 3—ACD Supervisor Instructions* (555-230-724). Provides information for use by supervisors after training is completed. The various ACD features are described and the procedures for using them are provided in this document.
- *Generic 1 and Generic 3—Installation and Test* (555-230-104). Provides the information necessary to perform the tasks of installing and testing the system's common equipment. Includes a description of the necessary tools and equipment.
- *Generic 3r—Maintenance* (555-230-105). Provides the information necessary for monitoring, testing, and maintaining DEFINITY Generic 1. It is intended to cover many of the faults and troubles that can occur in the system.
- *Generic 3r—Upgrades and Additions* (555-230-106). Provides procedures and information required to upgrade a System 75, System 85, Generic 1, or Generic 2 to a Generic 3r system and make additions to an operational system, after the initial switch installation.
- *Generic 1 and Generic 3i—Wiring* (555-230-111). Provides an overview of the DEFINITY Generic 1 and Generic 3i wiring plan.
- *Generic 1 and Generic 3—System Description and Specifications* (555-230-200). Provides a technical description of the system and its hardware, environmental and space requirements, and parameters. Also provides a brief description of features and services.
- *Generic 3—Capabilities* (555-230-499). Provides a description of the new capabilities, features, and enhancements available on Generic 3 systems that were not available on Generic 1 systems.
- *Generic 1 and Generic 3—Basic Call Management (BCMS) Operations* (555-230-703). Describes all the features and provides the ''how-to-operate'' instructions for the Basic Call Management System (BCMS) feature.
- *DEFINITY® Communications System Generic 1— Application Notes—Outbound Call Management* (555-209-014). Describes in detail the Outbound Call Management feature of DEFINITY Generic 1 and provides information about system capabilities and requirements for implementing and using the feature.

- *Generic 1 and Generic 3—System Management* (555-230-500). Describes the Generic 3 Management Application (G3-MA) terminal types, function keys, and other G3-MA operations. Also describes various administrative tasks such as logon/logoff, changing of password, remote administration, etc.
- *Generic 3r—System Reports* (555-230-510). Explains switch-based measurement, traffic, performance, and summary reports. Descriptions include the overall purpose and uses for each report, complete definitions for each field, correlations with other reports, and possible actions that can be taken to further diagnose situations and remedy unsatisfactory conditions.
- *AT&T ISDN Gateway Release 1 Version 2 Planning and Application Development* (585-245-201). Provides a description of the AT&T ISDN Gateway and information on how to plan for it. It also contains information on ISDN Gateway interfaces that can be used for software application development.

Abbreviations and Acronyms

C

A

AAR	Automatic Alternate Routing
AAS	Automatic Available Split
AC	Alternating Current
ACA	Automatic Circuit Assurance
ACD	Automatic Call Distribution
ACDC	Automatic Call Distribution Console
ACU	Automatic Call Unit
ACW	After Call Work
AD	Abbreviated Dialing
ADU	Asynchronous Data Unit
AFRL	Alternate Facility Restriction Level
AIM	Asynchronous Interface Module
AISC	Attendant Incoming Serial Calling
ALM-ACK	Alarm Acknowledge
AMW	Automatic Message Waiting
ANI	Automatic Number Identification
AP	Applications Processor
APLT	Advanced Private Line Termination
ARS	Automatic Route Selection

ASCII	American Standard Code for Information Interchange
ASAI	Adjunct Switch Applications Interface
ATB	All Trunks Busy
AUDIX™	Audio Information Exchange
AVD	Alternate Voice Data
AWT	Average Work Time

B

BCC	Bearer Capability Class
BCMS	Basic Call Management System
BCT	Business Communications Terminal
BHCC	Busy Hour Calls Completions
BLF	Busy Lamp Field
BOS	Bit Oriented Signaling
BRI	Basic Rate Interface
BTU	British Thermal Unit

C

CAMA	Centralized Automatic Message Accounting
CACR	Cancellation of Authorization Code Request
CAG	Coverage Answer Group
CAS	Centralized Attendant Service
CBC	Call-by-Call
CC	Country Code
CCITT	Consultative Committee for International Telephone and Telegraph
CCMS	Common Channel Message Set
CCS	Hundred Call Seconds
CCSA	Common Control Switching Arrangement
CDM	Channel Division Multiplexing
CDOS	Customer-Dialed and Operator Serviced
CDR	Call Detail Recording
CDRR	Call Detail Recording and Reporting
CDRU	Call Detail Recording Utility

CEM	Channel Expansion Multiplex
CMDR	Centralized Message Detail Recorder
CMS	Call Management System
CO	Central Office
COR	Class of Restriction
COS	Class of Service
CP	Circuit Pack
CPE	Customer Provided Equipment
CPN/BN	Calling Party Number/Billing Number
CPTR	Call Progress Tone Receiver
CRC	Cyclical Redundancy Checking
CSA	Canadian Safety Association
CSM	Centralized System Management
CSSO	Customer Services Support Organization

D

DC	Direct Current
DCE	Data Communications Equipment
DCIU	Data Communications Interface Unit
DCP	Digital Communications Protocol
DCS	Distributed Communications System
DDC	Direct Department Calling
DDD	Direct Distance Dialed
DDS	Digital Data System
DID	Direct Inward Dialed
DLC	Data Line Circuit
DLDM	Data Line Data Module
DMI	Digital Multiplexed Interface
DND	Do Not Disturb
DNIS	Dialed Number Identification Service
DOD	Direct Outward Dialed
DOSS	Delivery Operations Support System
DP	Dial Plan
DS1	Data Services Level 1

DSU	Data Service Unit
DTDM	Digital Terminal Data Module
DTE	Data Terminal Equipment
DTGS	Direct Trunk Group Selection
DTMF	Dual Tone Multifrequency
DXS	Direct Extension Selection

E

E&M	Ear and Mouth (Receive and Transmit)
EBCDIC	Extended Binary Coded Decimal Interexchange Code
EDA	Extended Digit Analysis
EI	Expansion Interface
EIA	Electronic Industries Association
EMI	Electro-Magnetic Interference
ENC	Extension Number Conversion
ENP	Extension Number Portability
EPN	Expansion Port Network
EPROM	Erasable Programmable Read Only Memory
EPSCS	Enhanced Private Switched Communications Services
ESF	Extended Superframe Format
ETA	Enhanced Terminal Administration (sometimes called Alias Station)
ETA	Extended Trunk Access
ETN	Electronic Tandem Network

F

FAC	Feature Access Code
FAS	Facility Associated Signaling
FCC	Federal Communications Commission
FEAC	Forced Entry Account Code
FIC	Facility Interface Codes
FNPA	Foreign Numbering Plan Area
FRL	Facility Restriction Level

FRS	Fully Restricted Service
FX	Foreign Exchange

G

G3-MA	DEFINITY® Communications System Generic 3 Management Application
G3-MT	DEFINITY Communications System Generic 3 Management Terminal
GPTR	General Purpose Tone Receiver
GRS	Generalized Route Selection

H

HNPA	Home Numbering Plan Area Code

I

IAS	Inter-PBX Attendant Service
ICC	Inter Carrier Cable
ICDOS	International Customer Dialed Operator Serviced
ICI	Incoming Call Identifier
ICM	Inbound Call Management
IDDD	International Direct Distance Dialing
IE	Information Element
INADS	Initialization and Administration System
INS	ISDN Network Service
INWATS	Inward Wide Area Telephone Service
ISDN	Integrated Services Digital Network
ISN	Information Systems Network
ITC	Information Transfer Capability
IXC	Inter-Exchange Carrier Code

K

KBPS	Kilo-Bits Per Second

L

LAN	Local Area Network
LAPD	Link Access Procedure D
LATA	Local Access and Transport Area
LDN	Listed Directory Number
LED	Light-Emitting Diode
LND	Last Number Dialed
LSU	Local Storage Units
LWC	Leave Word Calling

M

MA-UUI	Message Associated User-to-User Signaling
M-Bus	Memory Bus
MBPS	Mega-Bits Per Second
MCC	Multi-Carrier Cabinet
MCS	Message Center Service
MCT	Malicious Call Trace
MDM	Modular Data Module
MDR	Message Detail Record
MET	Multibutton Electronic Telephone
MIM	Management Information Message
MIS	Management Information System
MISCID	Miscellaneous Identification
MNCR	Multi-National Call Routing
MOS	Message Oriented Signaling
MS	Message Server
MSA	Message Servicing Adjunct
MPDM	Modular Processor Data Module
MTDM	Modular Trunk Data Module
MTP	Maintenance Tape Processor
MWL	Message Waiting Lamp

N

NANP	North American Numbering Plan
NAU	Network Access Unit
NCOSS	Network Control Operations Support Center
NEC	National Engineering Center
NFAS	Non-Facility Associated Signaling
NID	Network Inward Dialing
NIPM	Non-channelized ISDN Packet Mode
NN	National Number
NNR	Node Number Routing
NPA	Numbering Plan Area
NPE	Network Processing Element
NQC	Number of Queued Calls
NSE	Night Service Extension
NSF	Network Specific Facility
NSU	Network Sharing Unit
NXX	Public Network Office Code

O

OA	Operator Assisted
OPS	Off-Premises Station
OQT	Oldest Queued Time
OSHA	Occupational Safety and Health Act
OTQ	Outgoing Trunk Queuing
OTTOTT	Outgoing Trunk To outgoing Trunk Transfer

P

PBX	Private Branch Exchange
PC	Personal Computer
PCOL	Personal Central Office Line
PCOLG	Personal Central Office Line Group
PCM	Pulse Code Modulated

PCS	Permanent Switched Calls
PDM	Processor Data Module
PDS	Premises Distribution System
PGATE	Packet Gateway
PGN	Partitioned Group Number
PI	Processor Interface
PIB	Processor Interface Board
PL	Private Line
PMS	Property Management System
PN	Port Network
PNDN	Port Network Destination Number
PPN	Processor Port Network
PRI	Primary Rate Interface
PSC	Premises Service Consultant
PSDN	Packet Switch Public Data Network
PT	Personal Terminal

R

RAM	Random Access Memory
RCL	Restricted Call List
RHNPA	Remote Home Numbering Plan Area
RLT	Release Link Trunk
RNX	Private Network Office Code
ROM	Random Access Memory
RPN	Routing Plan Number
RSC	Regional Support Center

S

SAKI	Sanity and Control Interface
SCC	Single Carrier Cabinet
SCI	Switch Communications Interface
SCO	System Control Office

SDN	Software Defined Network
SDDN	Software Defined Data Network
SID	Station Identification Number
SIT	Special Information Tones
SM	System Management
SPE	Switch Processing Element
SSI	Standard Serial Interface
STARLAN	Star-based Local Area Network
SVC	Switched Virtual Circuit
SXS	Step-by-Step

T

TAAS	Trunk Answer From Any Station
TAC	Trunk Access Code
TCM	Traveling Class Mark
TDM	Trunk Data Module
TEG	Terminating Extension Group
TOD	Time of Day
TOP	Task Oriented Protocol
TTI	Terminal Translation Initialization
TTR	Touch Tone Receiver
TTTN	Tandem Tie Trunk Network
TTY	Teletypewriter

U

UAP	Usage Allocation Plan
UCD	Uniform Call Distribution
UCL	Unrestricted Call List
UDP	Uniform Dial Plan
UNP	Uniform Numbering Plan
UPS	Uninterruptible Power Supply
USOP	User Service Order Profile

V

VDN	Vector Directory Number

W

WATS	Wide Area Telecommunications Service
WCC	World Class Core

Glossary

8

800 Service
A service that allows incoming calls from a certain area or areas to an assigned number for a flat-rate charge based on usage.

A

Access Code
A 1-, 2-, or 3-digit dial code used to activate or cancel a feature or access an outgoing trunk. The star (*) and pound (#) can be used as the first digit of an access code.

Access Endpoint
Either a non-signaling channel on a DS1 interface or a non-signaling port on an Analog Tie Trunk circuit pack that is assigned a unique extension.

Access Tie Trunks
Tie trunks used to handle normal ETN calls between Main and Tandem switches.

ACD split
An ACD split is a UCD/DDC hunt group in a system where ACD has been optioned by the customer and the hunt group has been administered as used for ACD. ACD Splits are capable of being measured, i.e., data concerning the split and its members' status will be sent to the CMS.

Adjunct
Any processor connected to the switch and capable of controlling certain functionalities.

Adjunct-Controlled Split
An ACD split that is administered to be under adjunct control. Login to such split is under adjunct control. When an ACD agent is logged into an adjunct-controlled split, the ACD agent's voice set is locked.

Administer
To access and change the parameters associated with the services or features of the system.

Administered Connection
An end-to-end connection between two access endpoints or two data modules that is automatically established whenever the system is restarted or the administered connection (AC) is administered and the AC is due to be active.

Agent
An agent is a member of a hunt group. The term ''ACD agent'' is used to specify that the hunt group in question is an ACD split.

Alphanumeric Dialing
Allows a terminal user to place a data call using Data Terminal Dialing (see Data Call Setup feature) and an alphanumeric dialing string or alpha name for the call destination address.

Announcements
Announcements are prerecorded messages that give the caller information. If the first announcement given to a caller is played before the call is queued to any split, it is a Forced First Announcement.

Answer Supervision
Answer supervision is a signal, sent from the switch to the serving CO, that tells the CO to begin recording toll charges for a call. However, while a call waits in queue, AT&T ACD software often delays sending answer supervision so that the ACD owner/operator or caller can avoid excessive toll charges. Call vectoring commands work in a similar manner, several steps behave differently depending on whether answer supervision has been supplied. The Call Vectoring commands that most notably affect or depend upon answer supervision are the announcement, busy, disconnect, and wait commands.

Answer-Back Code
A code dialed to retrieve a parked call.

Appearance
See Call Appearance.

Applications Processor
A minicomputer used to support several user-controlled applications such as traffic analysis and electronic documentation.

ARS/AAR Digit Conversion
ARS Digit Conversion replaces the initial digits of a number dialed after the ARS access code (or of a call crossed over from AAR) with another digit string. The call is then routed as if the modified digits were dialed after the AAR access code.

AAR Digit Conversion replaces the initial digits of a number dialed after the AAR access code with another digit string. The call is then routed as if the modified digits were dialed after the AAR access code.

ASAI Adjunct
Any adjunct that makes use of the ASAI (Adjunct-Switch Application Interface) protocol, including adjuncts that perform Inbound Call Management (ICM) functions.

Asynchronous Data Transmission
A scheme for transmitting data where each character is preceded by a start bit and followed by a stop bit, thus permitting data elements to occur at irregular intervals. This type transmission is advantageous when transmission is not regular (characters typed at a keyboard).

Asynchronous Data Unit (ADU)
A data communications equipment (DCE) type device that allows direct connection between RS-232C equipment and the system digital switch.

Attendant
The operator of the Attendant Console. Individual who handles the processing of various types of internal, incoming, and outgoing calls. May also manage and monitor some of the System's operations.

Attendant Console
An electronic call-handling position with pushbutton control. Used by attendants to answer and place calls and to manage and monitor some of the system operations. Two console types are supported; Basic Attendant Console (301A) and Enhanced Attendant Console (302A).

Audio Information Exchange (Audix™)
A unit that provides voice mail service to users.

Authorization Codes
Authorization Codes have three purposes. First, certain trunk groups that receive incoming calls can be administered to require authorization codes for incoming calls. Secondly, Remote Access to PBX Services users can be required to enter an authorization code instead of, or in addition to, a barrier code when accessing local PBX facilities. Lastly, they can be used for re-routing ARS/AAR calls that were blocked because the default FRL was not high enough to continue routing.

Automatic Alternate Routing (AAR)
Used to route calls over alternate private and public network facilities in the order of preference specified by the customer. The preference order is specified by translating a group of trunks into a routing pattern that is used for calls to a particular network location. AAR also provides privilege checking that allows the customer to restrict access to particular trunk groups to a limited set of users. This is done by comparing the Facility Restriction Level (FRL) of the calling party with the FRL of the particular routing pattern entry.

Automatic Call Distribution
Automatic Call Distribution (ACD) provides automatic termination of incoming calls to agents that have been administered into hunt groups called splits. Calls are distributed according to the algorithm selected by the customer, either Uniform Call Distribution (UCD) or Direct Department Calling (DDC).

Automatic Restoration
A service that restores disrupted connections between access endpoints (non-signaling trunks) and data endpoints (devices that connect the switch to data terminal/communications equipment). This restoration is achieved within seconds of a service disruption so that critical data applications can remain operational.

Automatic Route Selection
Automatic Route Selection provides automatic routing of outgoing calls over customer trunk facilities with transparent access to an Inter-Exchange Carrier (IXC) based on the Direct Distance Dialing (DDD) number. Alternate trunk groups are selected during peak demand periods when the primary trunk groups are busy. The alternate trunk groups are selected in decreasing order of preference for making the calls.

Automatic Route Selection Partitioning
ARS Partitioning provides for up to eight different user groups having access to their own or shared trunk groups in ARS patterns.

Automatic Trunk
A trunk that does not require the sending or receiving of digits. The destination is predetermined. A request for service on the trunk (called a seizure) is sufficient to route the call. The normal destination of an automatic trunk is the system attendant group.

Auto-In
Auto-In is an ACD agent work mode that makes the agent available to receive calls and allows the agent to receive a new ACD call immediately after disconnecting from the previous call.

Auxiliary Work
Auxiliary Work is an ACD agent work mode that makes the agent unavailable to receive any ACD calls for the specified split. It is used when an agent is performing non-ACD related activities such as going on a break.

Available Agent
An ACD agent is considered available to receive a call through an ACD split if logged in and not on a call, and in the Auto-In or Manual-In mode.

B

Barrier Code
A security code used with the Remote Access feature to prevent unauthorized access to the system.

Basic Call Management System
The Basic Call Management System (BCMS) provides traffic reports for Automatic Call Distribution (ACD). The reports are a subset of the adjunct CMS applications.

Bearer Capability Class (BCC)
The Bearer Capability Class (BCC) identifies the type of a call, e.g., voice and different types of data. Determination of BCC is based on the call originator's characteristics for non-ISDN endpoints and on signaling in the D-channel for ISDN endpoints. There are five Bearer Capability Classes (0-4), based on voice and data Modes 0,1,2,3 capabilities.

Bit (Binary Digit)
One unit of information in binary notation (having two possible states or values, 0 or 1).

Bridged Appearance
A call appearance on a voice terminal that matches a call appearance on another voice terminal for the duration of a call.

Bridge (Bridging)
The appearance of a voice terminal's extension at one or more other voice terminals.

Buffer
A" circuit or component that isolates one electrical circuit from another. Typically, a buffer holds data from one circuit or process until another circuit or process is ready to accept the data.

Bus
A multi-conductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

Business Communications Terminals
An advanced series of semi-intelligent terminals.

Bus, Time Division Multiplex
See Time Division Multiplex Bus.

Bypass Tie Trunks
One-way, outgoing tie trunks from a Tandem switch to a Main switch in an ETN. These trunks, provided in limited quantities, are used as a ''last-choice'' route when all trunks to another Tandem switch are busy. Bypass tie trunks are used only if all applicable intertandem trunks are busy.

Byte
A sequence of bits, 8 bits long, that is usually shorter than a word. A word is 16 bits long.

C

Call Appearance, Attendant Console
Six buttons, labeled a through f, used to originate, receive, and hold calls. Each button has two associated lamps to show the status of the call appearance.

Call Appearance, Voice Terminal
A button labeled with an extension number used to place outgoing calls, receive incoming calls, or hold calls. Two lamps next to the button show the status of the call appearance or status of the call.

Callback Call
A call that is automatically returned to a voice terminal user who activated the Automatic Callback or Ringback Queuing feature.

Call Classification
The function of receiving and/or detecting call progress tones and call outcomes (ringing, busy, answered) and notifying the adjunct responsible for recording the call status. Call classification may be done by the switch automatically or done by the user listening to call progress tones.

Call Management System (CMS)
An adjunct processor that collects data from an ACD and generates reports to be stored or displayed concerning status of agents, splits, and trunks.

Call Vector
A set of up to 15 vector commands to be performed for an incoming or internal call.

Call Vectoring
A flexible call handling method of managing incoming calls that gives unique treatment to a particular call type based on dialed number or trunk terminating to a vector. Vector commands dictate the treatment given to callers.

Call Vector Step
Vectors are made up of 15 steps that are processed sequentially unless a ''GoTo'' vector command is encountered or vector processing stops.

Call Waiting Ringback Tone
A low-pitched tone identical to the ringback tone except the tone decreases the last 0.2 second. This tone notifies the attendant that the Attendant Call Waiting feature has been activated and that the called user is aware of the waiting call.

Call Work Code
A number, up to 16 digits, entered by ACD agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

Central Office
The location housing telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

Central Office Codes
The first three digits of a 7-digit public network telephone number. These codes are typically numbered from 200 through 999.

Central Office Trunk
A telecommunications channel that provides access from the system to the public network through the local central office.

Channel
A communications path for transmitting voice and data.

Circuit Pack Vintage
The vintage of a circuit pack is a numeric tag to identify the Read Only Memory that resides on that pack. It is used to facilitate record keeping and maintainability.

Class of Restriction (COR)
A number (0 through 63) that specifies the restrictions assigned to voice terminals, voice terminal groups, data modules, and trunk groups.

Class of Service (COS)
A number (0 through 15) that specifies if voice terminal users can activate the Automatic Callback, Call Forwarding—All Calls, Data Privacy, or Priority Calling features.

Common Control Switching Arrangement (CCSA)
A private telecommunications network using dedicated trunks and a shared switching for interconnecting company locations.

Confirmation Tone
Three short bursts of tone followed by silence; indicates that the feature activated, deactivated, or canceled has been accepted.

Console
See Attendant Console.

Controlled Outward Restriction
A calling party with this feature activated is restricted from dialing outgoing exchange network calls. Restricted calls are routed to the attendant, coverage, or intercept.

Controlled Restrictions
The controlled restrictions are distinct from the calling and called restrictions administered through the COR. Controlled Restrictions are activated by an attendant or by a station with the ''Console Permission'' COS. The controlled restrictions are activated for an individual terminal or for a pre-defined group of terminals. The COR is used to pre-define a group of terminals.

Controlled Station-to-Station Restriction
A calling party or called party with this feature activated is restricted from placing or receiving station-to-station calls. Restricted calls are routed to the attendant, coverage, or intercept.

Controlled Termination Restriction
A called party with this feature activated is restricted from receiving any calls. Restricted calls are routed to the attendant, coverage, or intercept. This form of controlled restriction is used in the Do Not Disturb feature to prevent termination to a user. It may be overridden only by a priority call.

Controlled Total Restriction
A calling party or called party with this feature activated is restricted from placing or receiving any calls. DID or APLT calls to a station with Controlled Total Restriction active are routed to the attendant or to a recorded announcement. All other calls are routed to intercept.

Coverage Answer Group
A group of up to eight voice terminals that ring simultaneously when a call is redirected to it by Call Coverage. Any one of the group can answer the call.

Coverage Call
A call that is automatically redirected from the called party's extension number to an alternate answering position when certain coverage criteria are met.

Coverage Path
The order in which calls are redirected to alternate answering positions.

Coverage Point
The attendant positions (as a group), Direct Department Calling group, Uniform Call Distribution group, Coverage Answer Group, a voice terminal extension, or Message Center Hunt Group designated as an alternate answering position in a coverage path.

Covering User
The person at an alternate answering position who answers a coverage call.

D

Data Channel
A communications path between two points used to transmit digital signals.

Data Communications Equipment (DCE)
The equipment on the network side of a communications link that provides all the functions required to make the binary serial data from the source or transmitter compatible with the communications channel.

Data Endpoint
Data Endpoints refer to the various Data Terminal Equipment (DTE) and Data Communications Equipment (DCE) that are connected to the System. They are associated with an extension. In the switching environment, they can be analog or digital endpoints serving as the interface between a host computer port and the switch, or between a data network and the switch.

Data Terminal Equipment (DTE)
Equipment comprising the source or link of data, or both, that also provides communication control functions (protocol). DTE is any piece of equipment at which a communications path begins or ends.

DCS
Distributed Communications System—a private network of distributed switches linked together with private trunks and data links.

Default Dialing
Enhances Data Terminal Dialing by allowing a data terminal user to place a data call to a pre-administered destination by simply entering a carriage return at the ''DIAL'' prompt. (See ''Data Call Setup'' in chapter 4.)

Delay-Dial Trunk
After a request for service (called a seizure) is detected on an incoming trunk, the system sends a momentary signal followed by a steady tone over the trunk. This informs the calling party that dialing can start. This type of trunk allows dialing directly into the system. That is, the digits are received as they are dialed.

Designated Voice Terminal
The specific voice terminal to which calls, originally directed to a certain extension number, are redirected. Commonly used to mean the ''forwarded-to'' terminal when Call Forwarding All Calls is active.

Dialed Number Identification Service
Provides an indication (display) to the answering agent of the service (or project) or number called by the caller so that agents grouped in one split may answer calls appropriately for many different services.

Digital Communications Protocol (DCP)
Defines the capability for providing simultaneous voice and data transmission over the same channel.

Digital Data Endpoints
Digital data endpoints include the following:

- 510D Personal Terminal or 515-Type Business Communications Terminal
- 7404D Terminals
- 7406D or 7407D Equipped With Optional Data Module Base
- Asynchronous Data Units
- Digital Terminal Data Modules
- (Modular) Processor Data Modules
- (Modular) Trunk Data Modules
- 3270 Data Modules
- Internal Data Channels.

Digital Multiplexed Interface (DMI)
Specifies the remote interface requirements for multiplexed data communications between a host computer and a private switching system.

Digital Terminal Data Module (DTDM)
An adjunct to Model 7403D or 7405D voice terminals. Provides the required interface between the system and a data terminal such as a 513 Business Communications Terminal.

Digital Trunk
A circuit in a telecommunications channel designed to handle digital voice and data.

Digit Conversion
A process used to convert specific dialed numbers into other dialed numbers. ARS uses Digit Conversion to convert public network numbers (ARS) to private network numbers (AAR) in order to save toll charges. AAR uses Digit Conversion to convert private network numbers (ARS) to other private or public network numbers (AAR).

Direct Agent Calling (DAC)
An entry is provided in the COR to allow originating and receiving of direct-agent calls. A direct-agent call is a special type of ACD call directed to a particular agent, rather than any available agent in the split.

A calling party that is DAC restricted is denied the ability to originate direct-agent calls. A called party that is DAC restricted is denied the ability to receive direct-agent calls. Restricted calls are routed to intercept.

Direct Extension Selection (DXS)
An option at the attendant console that allows an attendant direct access to voice terminals by pressing a Group Select button and a DXS button.

Direct-Agent Calls
A special type of ACD call directed to a particular agent, rather than any available agent in the split.

Distributed Communications System (DCS)
The Distributed Communications System is a private network of distributed switches linked together with trunks to form a DCS complex. The switches in the complex are connected with data links that allow call processing information to be passed from one switch to another. This provides feature transparency so that certain features are perceived by users to be the same whether they are talking to a station served by the same switch or to a station on a different switch in the complex.

DS1
A DS1 trunk multiplexes up to twenty-four 64 kbps digital channels over a 4-wire interface for data or voice. The 64 kbps capacity is achieved by having 8000 frames of 8 bit data per second. This trunk can be used as a timing reference for the switch or by an external Stratum 3 clock.

D-Channel Pair
Refers to a pair of D-Channels, where one is designated as the primary D-Channel, and the other is the secondary D-Channel.

E

Electronic Tandem Network (ETN)
A special tandem tie trunk network that has automatic call routing capabilities based on the number dialed and most preferred route available at the time the call is placed. Each switch in the network is assigned a unique private network office code (RNX) and each voice terminal is assigned a unique extension number.

End-to-End Signaling
The transmission of touch-tone signals generated by dialing from a voice terminal user to remote computer equipment. A connection must first be established over an outgoing trunk from the calling party to the computer equipment. Then additional digits can be dialed to transmit information to be processed by the computer equipment.

Enhanced Private Switched Communications Service (EPSCS)
A private telecommunications network that provides advanced voice and data telecommunications services to companies with many locations.

Expansion Interface
Used to connect an EPN to the PPN TDM Bus and provide connectivity between the TDM Buses on the PPN and EPNs. This circuit pack carries synchronization information between the two cabinets that it connects and also provides connectivity between the packet buses on the PPN and EPNs.

Expansion Port Network
A cabinet that contains port circuit packs but no processor. Up to two EPNs may be connected to a Processor Port Network (PPN).

Extension Number
A 1- to 5-digit number assigned to each voice terminal, certain system groups, data modules, and various other facilities on the switch. The number is used in call processing to access the facility.

External Call
A connection between a system user and a party on the public telephone network or on a tie trunk.

F

Facility
A general term used for the telecommunications transmission pathway and associated equipment.

Facility Restriction Level (FRL)
The Facility Restriction Level is used to determine the accessibility of a user trunk groups in a routing pattern. When searching for a routing pattern, the originator's FRL must be greater than or equal to the FRL for the accessed trunk group.

FAS/NFAS
Facility-Associated Signaling (FAS)—describes the type of signaling in which an ISDN DS1 interface D-Channel carries signaling information for only those B-Channels located on the same DS1 facility as the D-Channel.

Non-Facility Associated Signaling—describes the type of signaling in which an ISDN DS1 interface D-Channel carries signaling information on one DS1 facility for B-Channels located on another DS1 facility.

Feature
A specifically defined function or service provided by the system.

Feature Button
A labeled button on a voice terminal or attendant console designating a specific feature.

Foreign Exchange Trunk
A telecommunications channel that directly connects the system to a central office other than its local central office.

Foreign Exchange (FX)
A central office other than the one providing local access to the public telephone network.

Foreign Numbering Plan Area Code
An area code other than the local area code. The foreign area code must be dialed to call outside the local geographical area.

G

Ground-Start Trunk
On outgoing calls, the system transmits a request for services to the distant switching system by grounding the trunk ring lead. When the distant system is ready to receive the digits of the called number, that system grounds the trunk tip lead. When the system detects this ground, the digits are sent. (Tip and ring are common nomenclature to differentiate between ground-start trunk leads.) On incoming calls, detection of ground on the ring lead is sufficient to cause the call to route to a predetermined destination, normally the system attendant group. No digits are received.

H

Handshaking Logic
A format used to initiate a data connection between two data module devices.

Home Numbering Plan Area Code
The local area code. The area code does not have to be dialed to call numbers within the local geographical area.

Hospitality
Hospitality features, such as Automatic Wakeup and Do Not Disturb, are those required for the administration of stations considered to be ''guests'' or ''clients'' of the customer. Additionally, these features allow the customer to connect the System to a Property Management System (PMS), which is used to collect and manage guest room information.

Hospitality Parameter Reduction
Provides the user with a reduced set of system parameters. Namely, the number of trunks, number of hunt-groups, number of pick-up groups and the number of coverage paths.

Host
A customer processor that, when connected to the switch using ASAI, for example, is considered an adjunct.

Hunt Group
A group of stations which answer calls that are distributed using a routing algorithm. An ACD split is a special type of hunt group.

I

Immediate-Start Tie Trunk
After establishing a connection with the distant switching system for an outgoing call, the system waits a nominal 65 milliseconds before sending the digits of the called number. This allows time for the distant system to prepare to receive the digits. Similarly, on an incoming call, the system has less than 65 milliseconds to prepare to receive the digits.

Information Exchange
The exchange of data between users of two different systems (DEFINITY Generic 1 and host computer) over a local area network.

Initialization and Administration System (INADS)
An AT&T Network Operations Division (NOD) services alarm reception and trouble tracking system.

Integrated Services Digital Network—Primary Rate Interface (ISDN-PRI)
ISDN-PRI is an internationally accepted standard interface that provides end-to-end digital connectivity. It uses a high-speed interface which provides service independent access to switches services. It uses a T1 Interface and supports twenty-three 64 kbps voice or data ''B-Channels'' and one 64 kbps signaling ''D channel'' (on the 24th channel when using Facility Associated Signaling) or 24 ''B-Channels'' on one DS1 facility and a ''D-Channel'' on a separate DS1 facility (when using Non-facility Associated Signaling) for a total bandwidth of 1.544 MB.

Intercept Tone
An alternating high and low tone; indicates a dialing error or denial of the service requested.

Interface
A common boundary between two systems or pieces of equipment.

Interflow
Interflow allows calls directed or redirected to one split to be redirected to an external destination.

Internal Call
A connection between two users within the system.

Interworking
The linking of dissimilar networks to provide an end-to-end call. In public networks interworking might include a Common Channel Interoffice Signaling (CCIS) path, which does not support ISDN. In private networks, a tandeming PBX might interface an existing analog facility to an ISDN facility to provide calls end-to-end.

Intraflow
Intraflow allows calls that are unanswered within a predefined time, at a split to be redirected to other splits on the same switch.

Inward Restriction
A called party is that inward restricted is denied the ability to receive incoming exchange network calls, attendant originated calls, and attendant completed calls.

A call that is denied because of termination or inward restriction is routed to intercept, the attendant, or a recorded announcement depending on the calling party. If the calling party is a DID, APLT or tie trunk, the call is routed to the attendant or recorded announcement, at the customer's option. In all other cases the call is routed to intercept.

In-Use Lamp
A red lamp on a multi-appearance voice terminal that lights to show which call appearance will be selected when the handset is lifted or which call appearance is active when a user is off-hook.

ISDN—Basic Rate Interface (ISDN-BRI)
ISDN-BRI is one of the two standard ISDN frame formats. The ISDN Basic Rate Interface is typically used to connect telephones or work stations to an ISDN capable switching system. It provides one 16 kbps signaling and data channel (D-channel) and two 64 kbps information channels (B-channels). The primary purpose of the signaling channel is to convey Q.931 message oriented signaling for the setup and tear down of calls carried by the B-Channels on the BRI interface.

For G1.2 Systems, ISDN-BRI is only used to provide an ASAI link to the switch in support of the Inbound Call Management feature.

ISDN Gateway
An adjunct network that forwards information from the switch to a host for data screen delivery to agents in an ACD split.

L

Link
A transmitter-receiver channel or system that connects two locations.

Listed Directory Number
A Listed Directory Number (LDN) is a publically listed telephone number for an organization. These numbers are administered as special extensions, each associated with a fifteen character name. Direct Inward Dialing (DID) for any of these extensions causes routing of the call to the attendant group with the terminating attendant display indicating an LDN call and the name associated with the dialed extension.

Local Clock
The tone/clock circuit pack that has a local oscillator that can be used to maintain timing for the switch if DS1's are not used or if both DS1 primary and secondary clock references fail.

Lookahead Interflow
Lookahead Interflow is an enhancement to Call Vectoring that checks the status of remote ACD locations that calls may be interflowed to. For example, calls under vector control will not interflow to a remote ACD location that is not accepting calls. This capability will be provided via the use of a private or public network ISDN-PRI connection with the receiving switch having the capability to reject or accept the call.

Loop-Start Trunk
After establishing a connection with the distant switching system for an outgoing call, the system waits for a signal on the loop formed by the trunk leads before sending the digits of the called number. On incoming calls, the received request for service is sufficient to cause the call to route to a predetermined destination, normally the system attendant group. No digits are received.

M

Main/Satellite/Tributary
A Main switch provides: interconnection, via tie trunks, with one or more subtending switches, called Satellites; all attendant positions for the Main/Satellite configuration; and, access to and from the public network. To a user outside the complex, a Main/Satellite configuration appears as a single switch, with a single Listed Directory Number (LDN). A Tributary is a switch, connected to the Main via tie trunks, but which has its own attendant position(s) and its own LDN.

Manual Terminating Line Service
A called party that has manual terminating line service is only allowed to receive calls originated or extended by an attendant. Termination of all other calls is denied.

Manual-In
Manual-In is an ACD agent work mode that makes the agent available to receive calls and automatically puts the agent into After Call Work mode after disconnecting from an ACD call.

Message Center
An answering service for calls that might otherwise go unanswered; an agent accepts and stores messages for later retrieval.

Message Center Agent
A member of the Message Center Hunt Group who takes and retrieves messages for voice terminal users.

Miscellaneous Station Restriction
A calling party can be disallowed access to pre-selected groups of terminals. The term miscellaneous refers to this grouping of terminals. Any or all terminals can be in a given miscellaneous station restriction group. This restriction is controlled by the CORs assigned to the calling party and to the terminal being accessed. All terminals in a given miscellaneous station restriction group must be assigned the same COR. A calling party is restricted by its COR which denies permission to call the terminal's COR. Restricted calls are routed to intercept.

Miscellaneous Trunk Restriction
A calling party can be disallowed access to pre-selected groups of trunk groups. The term miscellaneous refers to this pre-selected grouping of trunk groups. Any or all trunk groups can be in a given miscellaneous trunk restriction group. This restriction is controlled by the CORs assigned to the calling party and to the trunk group being accessed. All trunk groups in a given miscellaneous trunk restriction group must be assigned the same COR. A calling party is restricted by its COR which denies permission to call the trunk group's COR. Restricted calls are routed to intercept.

Modem Pooling
Provides shared-use conversion resources that eliminate the need for a dedicated modem when a data module accesses, or is accessed by, an analog line or trunk.

Modular Processor Data Module
See Processor Data Module.

Modular Trunk Data Module
See Trunk Data Module.

Multiplexer
A device for simultaneous transmission of two or more signals over a common transmission medium.

Multi-Appearance Voice Terminal
A terminal equipped with several call appearance buttons for the same extension number. Allows the user to handle more than one call, on that same extension number, at the same time.

N

Network
An arrangement of inter and/or intra location circuits designed to perform specific functions.

Non-Facility Associated Signaling
(see FAS/NFAS)

O

Offhook
Term used for the switchhook up, or the Speakerphone turned on, or the Headset plugged in. For multi-appearance stations, the term offhook also includes choosing a call appearance on which to originate the call.

Off-Net
Off-Net facilities (e.g., WATS, FX, or CO trunk groups) are not part of a customer's private network, but may be utilized to carry private network calls. Whenever the call uses Off-Net facilities, it is called an Off-Net call.

Onhook
Term used for a depressed switchhook, the Speakerphone turned off, or the Headset unplugged. Also, depression of the DISCONNECT button sends an onhook message, followed by an offhook message.

On-Net
On-Net facilities (e.g., TIE trunks, private ISDN-PRI trunks) are dedicated to a customer's private network. Whenever the call is routed over the customer's private trunking facilities, it is called an On-Net call.

Outward Restriction
A calling party that is outward restricted is denied the ability of directly accessing the exchange network.

P

Paging Trunk
A telecommunications channel used to access an amplifier for loudspeaker paging.

Partitioned Group Number (PGN)
A Partitioned Group Number (PGN) is a number (1-8) assigned to different groups of users. The PGN is used to determine the AAR/ARS services to be provided on a call. A PGN is not used directly to restrict the user, it is only used as a method to indicate the choice of call routing tables (AAR/ARS Analysis forms) to be used to process a call.

Pickup Group
A group of individuals authorized to answer any call directed to an extension number within the group.

Port
A designation of the location of a circuit that provides an interface between the system and lines and/or trunks.

Port Network
May be either an EPN or a PPN.

Primary Reference
A DS1 circuit pack facility used as a reference for clock timing synchronization; the primary reference should be chosen to be a more reliable DS1 link.

Primary/Secondary D-Channel
The D-Channel Backup feature requires that one D-Channel be administered as the *primary* D-Channel, and that a second D-Channel be administered as the *secondary D-Channel. The reason for this distinction is that at certain times during the D-Channel Backup procedures, both D-Channels are in the same state, and it is imperative in order to avoid a deadlock situation that both switches at opposite ends of the PRI select the same D-Channel to be put into service. In these case, the primary D-Channel is given precedence over the secondary D-Channel.*

Principal (User)
In terms of Call Coverage, a person for whom a call was originally intended.

Priority Queuing
An entry is provided in the COR to allow priority queuing. The queuing priority of a call can be raised such that when a call with increased priority is queued, it is queued ahead of calls of normal priority. This priority queuing is for non-vector controlled calls and non-direct-agent calls.

Private Networking
A Private Network is a network of customer switches linked with private lines that carry voice and data communication throughout the network. A Private Network is characterized by a uniform numbering plan that includes the assignment of a unique number to each station in the network. The Automatic Alternate Routing (AAR) Analysis table is used to route private network calls.

Private Network Office Code (RNX)
The first three digits of a 7-digit private network number. These codes are numbered 220 through 999, excluding any codes that have a 0 or 1 as the second digit.

Privileged Station
A station that has been administered with console privileges allowing it to perform functions normally associated with an attendant.

Processor Data Module (PDM)
Provides the required interface between the system and an EIA computer or data terminal.

Processor Port Network
The cabinet in which the switch processor resides. Only one of these per switch is allowed.

Property Management System (PMS)
A stand-alone computer that Lodging and Health Services organizations use for services such as reservations, housekeeping, billing, etc.

Protocol
A set of conventions or rules governing the format and timing of message exchanges to control data movement and correction of errors.

Public Network
The network that can be openly accessed by all customers for local or long-distance calling.

Q

Queue
An ordered sequence of calls waiting to be processed.

Queuing
The process of holding calls in order of their arrival to await connection to an attendant, to an answering group, or to an idle trunk.

R

Random Access Memory (RAM)
A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

Read Only Memory (ROM)
A storage arrangement primarily for information retrieval applications.

Recall Dial Tone
Three short bursts of tone followed by steady dial tone; indicates the system has completed some action (such as holding a call) and is ready to accept dialing.

Redirection Criteria
The information administered for each voice terminal's coverage path that determines when an incoming call is redirected to coverage.

Remote Access Barrier Code
Used with remote access trunks to limit access to the System. When a call comes in on a remote access trunk, the user may be required to dial a barrier code to gain access. If the user dials an invalid barrier code, the call is routed to intercept.

A barrier code has an associated COR that defines call restriction features and COS that defines feature restrictions. The use of barrier codes is a customer option. If barrier codes are used, they apply to all remote access trunk groups in a given System. If they are not required, the default barrier code's COR is used. There may be more than one barrier code in the System.

Remote Home Numbering Plan Area Code (RHNPA)
A foreign numbering plan area code that is treated as a home area code by the Automatic Route Selection feature. Calls can be allowed or denied based on the area code and the dialed central office code rather than

just the area code. If the call is allowed, the Automatic Route Selection pattern used for the call is determined by these six digits.

Removable Mass Storage Subsystem (RMSS)
A tape storage device that stores the software information for the system.

Reorder Tone
A fast-busy tone repeated 120 times a minute; indicates that at least one of the facilities, such as a trunk or a digit transmitter, required for the call was not available at the time the call was placed.

Restricted Call List
A list of digit strings that can be assigned to any COR.

Routing Pattern
A routing pattern is a list of up to six trunk groups that ARS and AAR use to try to select a trunk when routing outgoing calls. There are a maximum of 640 routing patterns that can be assigned. The patterns can be shared between the AAR and ARS features.

Trunk groups are arranged in the routing pattern in descending order of desirability (most desirable first). If the first choice route (usually the least expensive facility) is unavailable, a call is attempted over the second choice route. This procedure continues until an available route is found, or all routing preferences are exhausted.

S

Secondary Reference
The secondary reference is a backup DS1 facility used as a clock timing reference for synchronization in case the primary reference fails or has too many slips.

Service Observing
Service observing allows users to monitor calls. Once the feature is activated and a station call is being monitored, the activating user has the capability to toggle back and forth between a listen-only connection and a listen/talk connection on the call. Subsequent calls at the station can be monitored without having to reactivate the feature.

Signaling Groups
Refers to a group of B-Channels for which a given D-Channel (or D-Channel Pair) will carry the signaling information.

Single-Line Voice Terminals
Voice terminals served by a single-line tip and ring circuit (e.g., models 500, 2500, 7101A, 7103A).

Software
A set of computer programs that accomplish one or more tasks.

Special Information Tones (SIT)
Tones that precede certain recorded announcements provided by the network. Such announcements are used when the caller encounters a condition that requires an explanation (e.g., ''no such number'').

Split
A condition whereby a caller is temporarily separated from a connection with the attendant. This split condition automatically occurs when the attendant, active on a call, presses the Start button.

Standard Serial Interface (SSI)
A communications protocol developed by AT&T Teletype Corporation for use with the 500 Business Communications Terminals and the 400-series printers.

Status Lamp
A green lamp that shows the status of a call appearance or a feature button by the state of the lamp (lighted, flashing, fluttering, broken flutter, or dark).

Stratum 3 Clock
This is the most accurate clock supported by the System; it is duplicated and has a holdover of 24 hours. The implementation requires external hardware to provide timing to the TN780 Tone/Clock circuit pack.

Stroke Counts
Method used by ACD agents to record up to nine customer-defined events on a per call basis when the Call Management System (CMS) is active.

Suffix
A suffix is an alphabetic character (e.g., A, B, C) that is sometimes appended to a circuit pack code (TN number). It indicates additional feature functionality of a particular circuit pack.

Switchhook
The button(s) on a voice terminal located under the receiver.

Switch Processing Element (SPE)
The complex of circuit packs that provide high level processing functions within the switch.

Synchronous Data Transmission
A scheme for sending and receiving data, where data elements may occur only at regular specified times. Sending and receiving devices must operate in step with each other.

System Manager
A person responsible for specifying and administering features and services for the system.

System Reload
A process that allows stored data to be written from a tape into the system memory (normally after a power outage).

T

Tandem Switch
A switch within an ETN that provides the logic to determine the best route for a network call, possibly modifies the digits outpulsed, and allows or denies certain calls to certain users.

Tandem Through
The switched connection of an incoming trunk to an outgoing trunk without human intervention.

Tandem Tie Trunk Network
A private network that interconnects several customer switching systems by dial repeating tie trunks. Access to the various systems is dictated by codes that must be individually dialed for each system.

Terminal Alarm Notification
A method of customer alarm notification using lamps associated with feature buttons on multi-appearance digital or hybrid voice terminals or attendant console terminals or both.

Termination Restriction
A called party that is termination restricted is denied the ability to receive any calls at any time.

Third Party Call Control
ASAI capabilities that allow a host/adjunct to take control of a call, to transfer the call, etc.

Tie Trunk
A telecommunications channel that directly connects two private switching systems.

Time Division Multiplex Bus
A special bus that is time shared by preallocating short time slots to each transmitter on a regular basis. In a PBX, all port circuits are connected to the time division multiplex bus permitting any port to send a signal to any other port.

Time Division Multiplexed (TDM)
A switching technique of splitting a large bandwidth into many small channels (called time slots) in the time domain.

Time of Day Routing
Time of Day Routing allows the routing of calls economically, based on time of day and day of week. The customer has the option of changing the routing plan up to six times each day for each day of the week. The choice of routing plan is made from a pool of routing plans. These routing plans are used in conjunction with the routing of Automatic Route Selection (ARS) and Automatic Alternate Routing (AAR) calls.

Toll Restriction
A calling party that is toll restricted cannot make calls to certain numbers defined on the Toll List unless the number is contained on a UCL defined on the Toll analysis form and associated with the calling party's COR.

Tone Ringer
A device with a speaker, used in electronic voice terminals to alert the user.

Tone/Clock
The Tone/Clock circuit pack provides tone generation and timing for the TDM bus. The active Tone/Clock circuit pack is currently providing service for the cabinet in a duplicated system whereas the standby tone/clock is a backup circuit pack in the event the active tone/cock fails.

Trunk
A telecommunications channel between two switching systems.

Trunk Data Module
Provides the required interface between the system and a data set (modem) or data service unit connected to a private or switched data line.

Trunk Group
Telecommunications channels assigned as a group for certain trunking functions.

U

Uniform Dial Plan
A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multi-switch configuration, such as a Distributed Communications System (DCS) or Main/Satellite/Tributary configuration.

Unrestricted Call List
A list of digit strings that can be accessed by a user.

V

Vector Controlled Split
A hunt group or ACD split is vector controlled when the field ''Vector'' is enabled on the Hunt Group form. Only vector controlled hunt groups or vector controlled ACD splits are accessible via the vector commands ''queue to main'' and ''check backup''.

Vector Directory Number (VDN)
A number that can be dialed to access a vector. Several VDNs may map into the same vector.

Vectoring (Basic)
Allows the customer to specify the treatment of calls coming into the switch based upon the dialed number. Vectoring (Basic) allows incoming calls to be placed in a queue for a hunt group or split and may specify the delay treatment given to the caller.

Vectoring (Prompting)
Allows a call vector to collect digits from a user and use that information in routing the call.

Voice Terminal
A single-line or multi-appearance voice terminal (telephone).

W

Wide Area Telecommunications Service (WATS)
A service that allows calls to a certain area or areas for a flat-rate charge based on expected usage.

Wink-Start Tie Trunk
After establishing a connection with a distant switching system for an outgoing call, the system waits for a momentary signal (wink) before sending the digits of the called number. Similarly, on an incoming call, the system sends the wink signal when ready to receive digits.

Write Operation
The process of putting information onto a storage medium such as magnetic tape.

Z

Zip Tone
Single burst tone is provided with auto-answering operation when an agent answers an ACD call.

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