RECENT CHANGE PROCEDURES
(CENTRAL OFFICE CHANGES)
GENERIC PROGRAM EF-2 AND 2B-EF-2
NO. 2/2B ELECTRONIC SWITCHING SYSTEM

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1. GENERAL

1.01 This section covers all recent change (RC) procedures (including central office, traffic, LTD and service order changes) associated with a No. 2/2B Electronic Switching System (ESS) office containing an EF-2 or 2B-EF-2 generic program. This section also includes information for making terminal equipment assignments in an ESS office. Reference should be made to the current issue of the appropriate Input and Output Message Manuals. Input Message Manual (IM-2H200-04) and Output Message Manual (OM-2H200-04) are reference

documents for EF-2 generic programs. Input Message Manual (IM-2H200-05) and Output Message Manual (OM-2H200-05) are reference documents for 2B-EF-2 generic programs.

1.02 This section is reissued to:

(a) Include keyword descriptions in paragraph 4.33.

(b) Provide information on International Direct Distance Dialing (IDDD) in Part 29.

(c) Provide information on the changing, printing, and punching of the call forward list in Part 30.

(d) Reflect new keyword assignments.

(e) Include changes for clarification and standardization purposes.

Since this is a general revision, arrows ordinarily used to indicate changes have been omitted. The Equipment Test List (ETL) is not affected by this change.

1.03 The messages given in this section are for use as examples only. Valid telephone office information should be used during system operations.

1.04 This section provides the procedures for entering recent change information into the No. 2/2B ESS. It also includes necessary information for plant assignment office personnel to type an ESS order direct from the Commercial Department issued service order. The ESS order is then transmitted, via the maintenance TTY or the service order TTY, to the ESS central processor where it is written into ESS memory.

1.05 In this manner, information pertaining to customer service (such as telephone number, class of service, central office terminal equipment, and special features) and office dates are stored in the ESS memory. For customer or company reasons, this information is constantly subject to change. When a change is required, a new ESS order must be originated.

1.06 The general category of recent change messages consists of ten classes of input messages. These are identified by the following headings:

(a) A RC Administrative recent changes

(b) A VY Administrative verify

(c) A TC Traffic changes

(d) A TV Traffic verify

(e) M LI ST Store parameters for automatic line installation test (ALIT)

(f) M HD RC Set high and dry threshold

(g) A AU Audit recent changes

(h) A HP Administrative help

(i) A CF Call forward print and punch

(j) A CR Control restriction print and punch.

Categories (a) and (b) include all changeable translations data except categories (c) and (f). This includes lines, trunks, routing, charging, alarms, etc. All categories are allowed from the maintenance TTY. In addition, the following are allowed: Categories (a), (b), (g), (h), (i), and (j) are allowed from the service order TTY. Categories (b), (c), and (d) are allowed from the traffic TTY. Categories (b), (e), and (f) are allowed from the local test desk TTY.

1.07 The ESS order information transmitted to the ESS must follow input guidelines, and the information must be accurate and complete. Format errors will cause rejection of an ESS order, but clerical errors, such as the transposition of numbers, cannot be recognized by the ESS as errors and will cause incorrect translation data to be written into memory.

1.08 The No. 2 ESS has no provisions for a delayed ESS order. A delayed ESS order is an order that is transmitted to the ESS but is not activated until another input request is made.

1.09 The main frame cross-connection jumper is the only jumper necessary to establish service for a customer in the No. 2/2B ESS central office. It cross-connects the cable pair with the central office terminal equipment.

1.10 Whenever the term TOUCH-TONE® telephone service is used, it refers to the equipment required to provide this service to the customer.

1.11 This section refers to the terminal equipment number (TEN) as originating equipment number (OE) and the new terminal equipment number (NTE) as the new originating equipment number (IOE). The EF-2 and 2B-EF-2 generic programs recognize OE and IOE as conventional (new) keywords. Therefore, when referencing equipment, the expression "terminal equipment" will be used. When referencing the keyword used in various recent change input messages and the 6-digit assignment numbers the term "originating equipment" will be used.

DEFINITIONS

1.12 The following is a listing of terms and their definitions as used in this section.

(a) Electronic Switching System (ESS): An electronic system which utilizes the stored program control to provide telephone service.

(b) Memory: The storage unit into which information can be placed and which can be referred to at a later time.

(c) Translation: Customer service information and office data contained in the memory such as telephone numbers, central office terminal equipment, class of service, routing, charging, trunking, traffic, etc. It does not include cable pair information.

(d) Program Store or Main Store: The semipermanent (read only) memory unit that stores the office translation information, the generic program, and the parameters.

(e) Recent Change: Any changes to translations which are caused by TTY input messages. Included are central office force messages, service order messages and traffic changes.

(f) Recent Change Area: The section of the ESS temporary memory into which changes or additions in office translation are temporarily stored before the semipermanent memory (program store) is changed.

(g) Central Processor: The equipment unit that controls the operations of the other ESS equipment units according to instructions stored in the program store.

(h) Originating Equipment: Synonymous with terminal equipment.

(i) Terminal Equipment: The network appearance to which lines, trunks, service circuits, etc, are connected.

2. MODULAR DISTRIBUTING FRAME

2.01 In No. 2/2B ESS, modular type distributing frames are usually used to interconnect outside plant facilities, trunk circuits, service circuits, miscellaneous circuits, carrier circuits, and network circuits. For an illustration of how the various modules are cabled together, see Fig. 1. The protector frame (PROT), the combined distributing frame (CDF), and the intermediate distributing frame (IDF) are of primary concern to the plant assignment office. The CDF is the frame on which most central office jumpers will be placed. It contains terminations of exchange customer cables, terminating equipment networks, and some miscellaneous central office equipment. In some cases, tie cable pairs are necessary between the CDF and IDF for certain types of equipment.

2.02 Some offices converting to ESS may use the existing main distributing frame (MDF). The assigning of cable pairs and terminal equipment described does not pertain to existing MDFs. These offices will use the present method of choosing terminal equipment and cable pairs.

2.03 In those ESS installations where the modular frames are used, the plant assignment office will assign terminal equipment, after cutover, under the direction of the Network Administrator. The terminal equipment selected for assignment is based on class-of-service requirements and cable pair termination location. The Network Administrator will supply lists of spare terminal equipment to be used by the plant assignment office.

2.04 The CDF can be separated into three components:

- CDF module
- CDF vertical

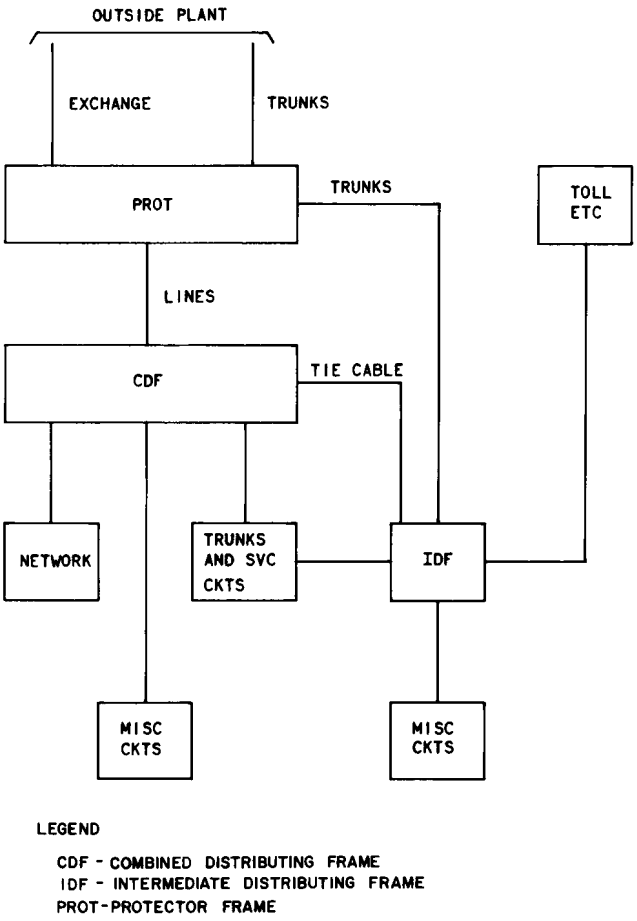


Fig. 1—Combined Distributing Frame—Intermediate Distributing Frame Cable Plan

- CDF terminal strips.

A. CDF Module

2.05 A module consists of ten verticals (Fig. 2). These verticals, numbered 00 through 09, are provided for terminating the underground cable pairs and terminal equipment. In ESS offices with more than one module, the additional verticals will be numbered 10 through 19 and 20 through 29, etc.

B. CDF Verticals

2.06 The terminal equipment is terminated on the odd-numbered CDF verticals 3, 5, etc, and the underground pairs on the even-numbered verticals 0, 2, etc.

2.07 The verticals have eight points (four pairs) of connections horizontally. These points are divided in half, four to the left side and four to the right side. The entire vertical is divided this way.

Note: One circuit would use two points of horizontal connections (ring and tip).

C. CDF Terminal Strips

2.08 The cable pairs are permanently wired from the protector frame to the CDF in groups of 20. These groups are spread over the CDF horizontally and are not spread vertically as on conventional frames.

2.09 The first group of 20 cable pairs (1 through 20) would be in cable vertical 00, the second group (21 through 40) in vertical 02, the third group (41 through 60) in vertical 04, etc.

2.10 On the cable verticals, the cable pairs are terminated ten on the left half and ten on the right half of the even-numbered verticals. For example, on cable pairs 1 through 20, the count of 1 through 10 would be on the left half and the count of 11 through 20 on the right half.

2.11 On the terminal equipment verticals, the originating equipment numbers (OE) are terminated and identified in the same manner according to left or right half of the vertical.

D. Assigning Terminal Equipment and Cable Pairs

2.12 For terminal equipment assignment purposes, the terminations on each vertical are divided in half vertically in order to provide a left and right arrangement.

2.13 To effectively utilize the CDF cross-connections, the jumper from the terminal equipment to the cable pairs must be as short as possible. The first choice [first choice cross-connection (Fig. 3)] should be used whenever possible.

(a) Service assigned to a cable pair that terminates on the left half of a cable vertical should be assigned to OE on the right half of the left adjacent OE vertical.

(b) Conversely, service assigned to a cable pair that terminates on the right half of a cable

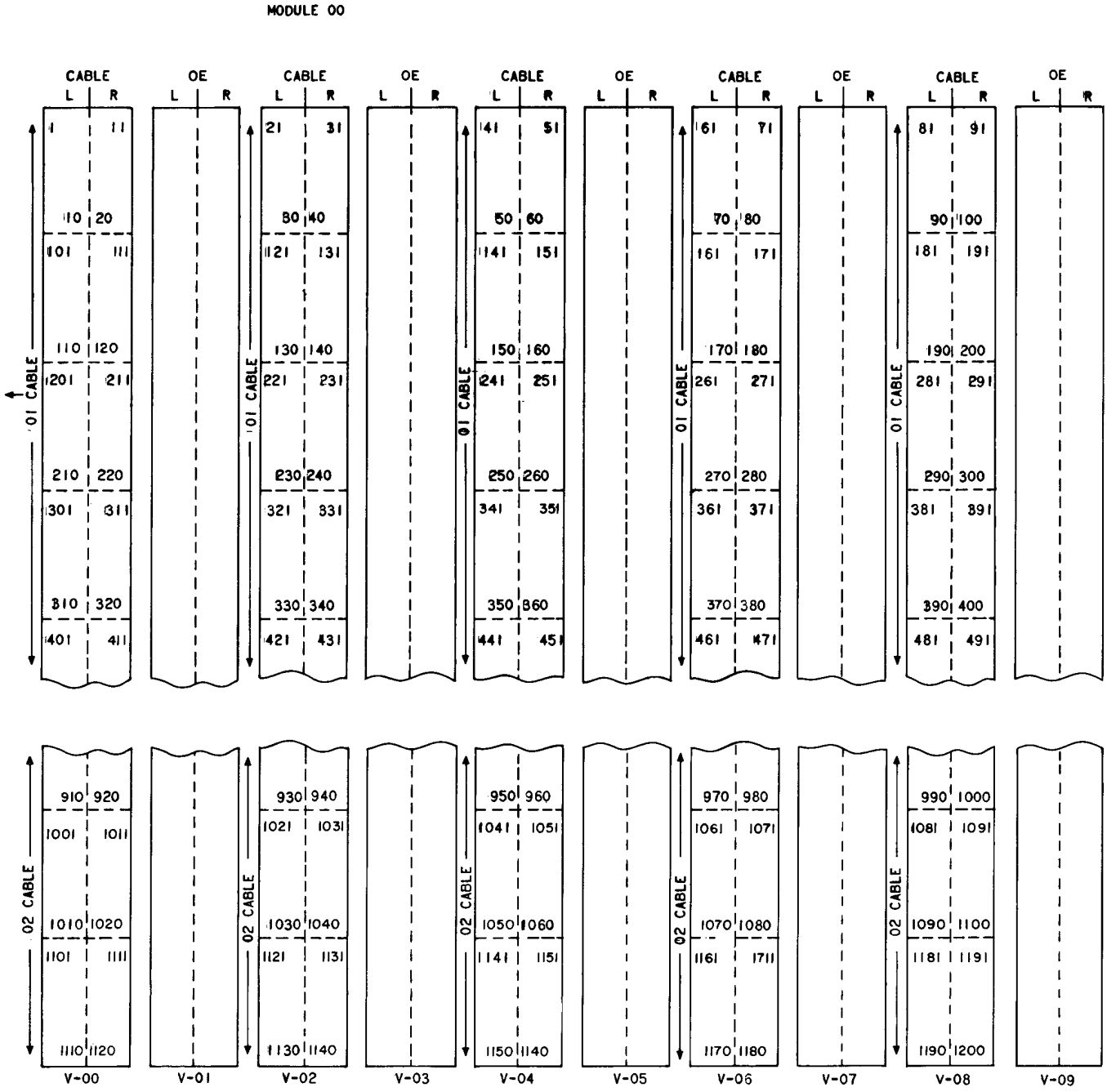


Fig. 2—Partially Equipped Combined Distributing Frame Module Showing Cable and Terminal Equipment Terminations

vertical should be assigned to OE on the left half of the right adjacent OE vertical.

Note: These assignments are designated as short cross-connections in Fig. 3.

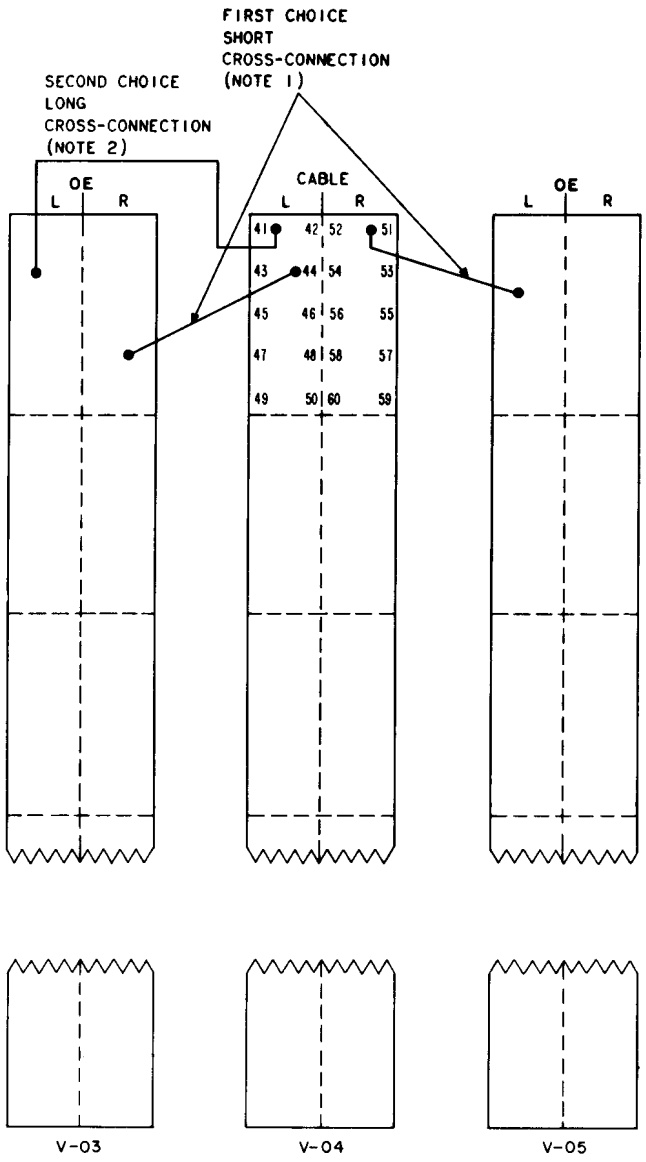
(c) Vertical 00 left of module 00 has no line equipment for a short cross-connect away. Therefore, spread the assignment equally over OE in verticals 01L to 09R. This is done in the following manner for Fig. 2:

PAIR	FIRST CHOICE TEN
1—10	V—01L
101—110	V—01R
201—210	V—03L
301—310	V—03R
•	•
•	•
•	•

2.14 When it is not possible to make short cross-connection assignments, an OE as near to the cable vertical as possible is chosen. These assignments are called long cross-connections or second choice cross-connection (Fig. 3). Every effort should be made to keep the number of long cross-connections to a minimum.

2.15 In central office areas with dedicated outside plant, the first choice OE vertical is recorded on the feeder cable record as a permanent entry (Fig. 4). For the initial dedicated assignment, the first choice OE vertical is obtained from the feeder cable record and posted as a permanent entry on the dedicated plant assignment card (DPAC) so that it will be available for subsequent assignments (Fig. 5).

2.16 In central office areas with multiple outside plant, the first choice OE vertical should be recorded on the customer cable record (Fig. 6).



NOTES:
1. WITH A SHORT CROSS-CONNECTION ORIGINATING EQUIPMENT NUMBER VERTICAL MIDPOINT OR CABLE VERTICAL MIDPOINT SHOULD NOT BE CROSSED OVER.
2. LONG CROSS-CONNECTIONS SHOULD BE KEPT TO A MINIMUM.

Fig. 3—Choosing Cross-Connection Jumper

2.17 The Network Administrator supplies the assignment office with available OEs. These lists are by left and right verticals. When the assignment employee selects the cable pair from the appropriate record, the first choice OE vertical is obtained. The proper OE is then selected from the appropriate OE list.

2.18 Vertical locations of the assigned cable pair and OE should be entered on the service order. This information should also be part of the repair service bureau line card. The USO format for this data is as follows:

--- ASGM

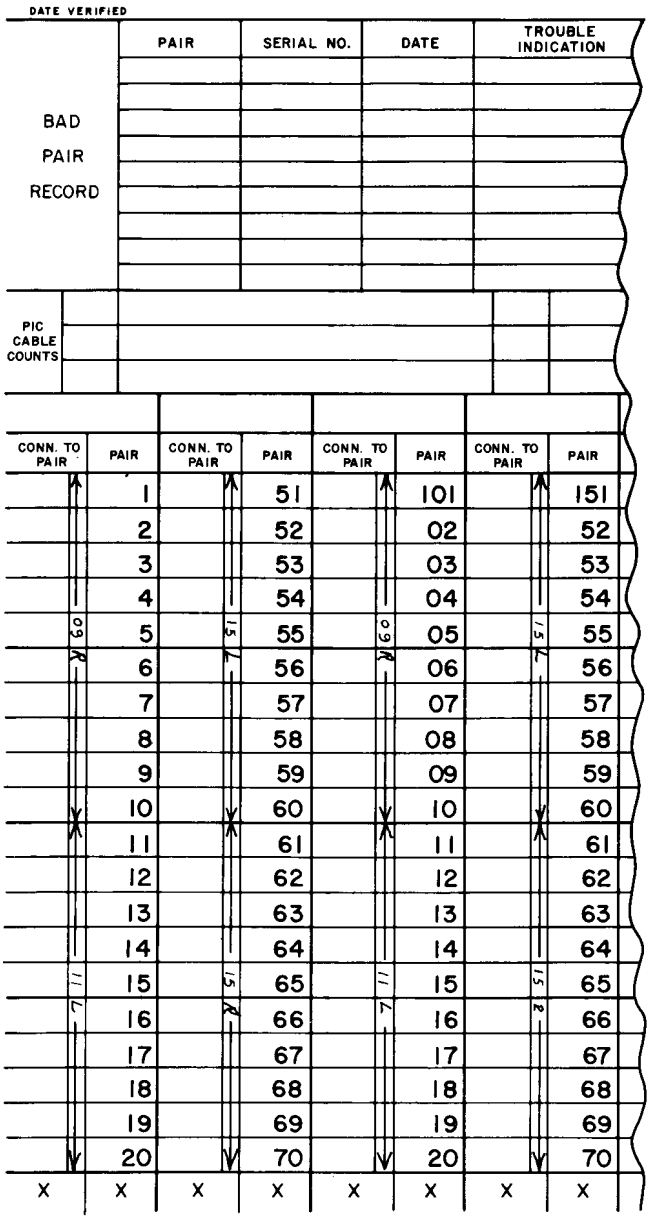


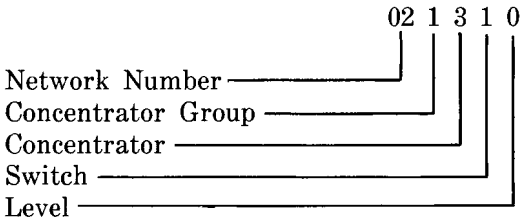
Fig. 4—600-Pair Feeder Cable Pair Record—First Choice Terminal Equipment Number Vertical

IOE 00 3060/MFV 03R/F1 10-44, MFV 04L,

R3520 Ann-4, BL-W + W-BR.

E. Originating Equipment Number

2.19 The OE is a 6-digit number that describes its appearance in the ESS network. For this reason, it must be shown in proper sequence on all work orders and office records. For example, a typical OE assignment as it should appear on all work orders is 02 1310. The following describes what the OE means to central office personnel:



Note: NN, G, C & S = 0-7; L = 0-3
Class A Lines have L = 0 with S = even number.
OEs 0000, 0070, 0470, 1070 and 1470 of each network cannot be used.
Ground Start Lines must have L = 0 or 2.

F. Terminal Equipment Transfers

2.20 When the Network Administrator issues terminal equipment transfers (TETs) in order to maintain office balance, the TETs will contain the old and the new terminal equipment and the telephone number. The Repair Service Bureau provides the cable pair assignment associated with the telephone number from the line card record.

2.21 In order to work the TET, close coordination is essential between the plant assignment office and the central office personnel. An ESS order must be prepared for each TET. At the same time the ESS order is processed, the central office cross-connection must be transferred from the old to the new terminal equipment. Unless this work is coordinated, customer service can be interrupted.

2.22 TETs should be kept to a minimum since they may necessitate the use of a long cross-connection on the CDF.

G. Cable Transfer

2.23 The transfer of a cable pair does not require an ESS order. The field work can be completed by running a back tap shoe or by using a front tap shoe from the central office equipment to the new pair. When the field work is completed, the cross-connection from the central office equipment to the old pair will be removed.

S.C. AREA 35 EXCH

PROT	TZ	RZ	BLOCK			
YES	5		17			

HOUSE OR BLDG. NO.	TEL. NO.	SERV.	PTY OR RC	CENTRAL OFFICE EQUIPMENT	ESS JMPR LOC	LI	OTHER INFORMATION	CABLE NO. PAIR	SOP	TERMINAL LOCATION	BP	COLOR
3520	368-6348	IFR		00 30 60	03R			10,44		R3520	1	1-WBK

STREET	FROM	TO	SOP NO.
ANN			1 2

Fig. 5—Dedicated Plant Assignment Card—First Choice Terminal Equipment Number Vertical

2.24 In most cases, the completed cable transfers may create a long cross-connection on the CDF. To eliminate this long cross-connection, a spare originating equipment number is assigned in the adjacent CDF vertical to the new cable pair.

2.25 To physically change this originating equipment number, a TET must be issued. Sufficient copies must be prepared to correct Network Administrator and Repair Service Bureau records.

2.26 Completed copies of the TET should be forwarded to the Network Administrator and to the Repair Service Bureau.

3. TELETYPEWRITER (TTY)

TTY CHANNELS

3.01 The No. 2 and No. 2B ESS is designed with eight TTY channels of which six are currently assignable. Channels 0 and 1 are multipled together for reliability on the maintenance channel, which allows five different TTY assignment functions to be made.

3.02 The maintenance TTY function is provided through the multipled channels 0 and 1. For No. 2 ESS only, separate central pulse distributor (CPD) and scanner control points are provided for the local and remote maintenance TTYs for added reliability. All categories of input messages are allowable from the maintenance TTYs (A RC, A VY, A TC, A TV, A CF, A CR, A HP, A AU).

3.03 The traffic TTY function is provided through channel 2. All traffic related input messages are normally inputted through this channel (A TC, A TY, A VY). All traffic schedules, except the plant maintenance schedule, are outputted through this channel. However, a traffic schedule can also be individually requested to be immediately printed from any TTY on a one-shot basis.

3.04 The service order TTY function is provided through channel 3. All service order related

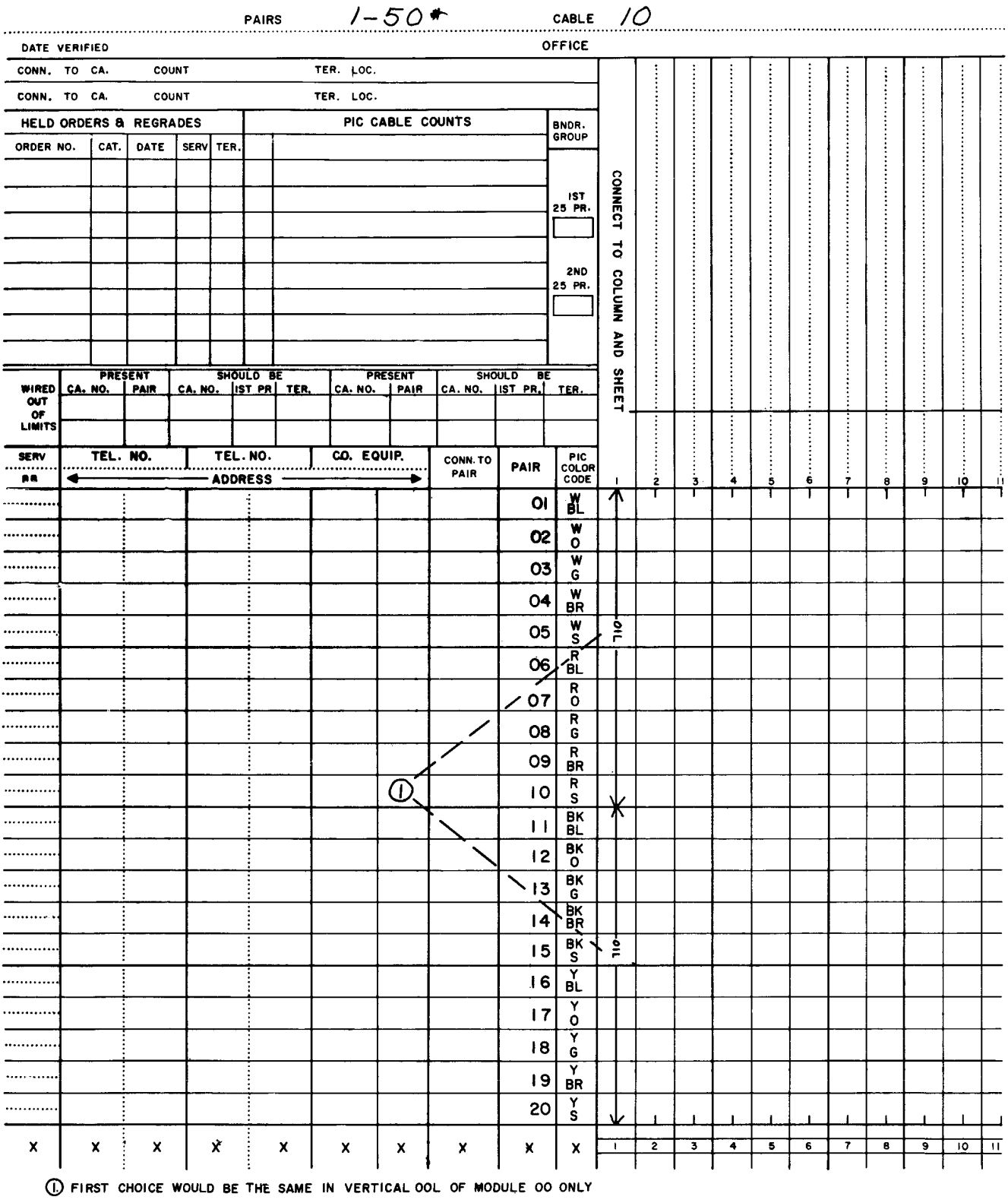


Fig. 6—Customer Cable Record—Multiple Plant—First Choice Terminal Equipment Number Vertical

messages are normally inputted through this channel (A RC, A VY). It is required that this TTY be equipped with a paper tape punch and reader. It is recommended that service orders be prepared on paper tape on another machine in advance of input. The tape will preserve a record of the inputted message. The system will punch paper tapes of customer dialed changes to their speed calling lists, if so requested.

3.05 The local test desk TTY function is provided through channel 4. The messages outputted on this channel relate to the high and dry list, line insulation test results, and other line oriented messages. The local test desk TTY can also input A VY messages.

3.06 The trunk maintenance TTY function is provided through channel 5. The messages outputted on this channel relate to trunk maintenance features.

3.07 Any channel may be equipped as a local TTY, a remote TTY (through data set connection), or both. All channel assignments are optional except the local maintenance TTY.

3.08 The local maintenance TTY and remote maintenance TTY are backed up by each other because of the channel 0 and 1 multiple. Any of the four other channels may be backed up by any channel from 0 to 5. Normally, the maintenance TTY is used for backup of unequipped channels unless otherwise specified. The backup channel assumes all functions of the channel that is unequipped or out of service.

3.09 For further details on the TTY channels, refer to:

- Section 232-003-101—No. 2 ESS TTY Facility Description
- Section 232-003-301—No. 2 ESS TTY Operating Procedures
- Section 232-303-301—No. 2B ESS TTY Operating Procedures
- Section 232-309-107—2B Processor—Functional Description of TTY Facilities.

TTY ARRANGEMENTS

3.10 Recent change information may be sent to the ESS by more than one TTY (Fig. 7). One is a service order TTY located in the assignment office. The others are maintenance TTYs located at the maintenance center or at a remote location, (traffic TTYs, and local test desk TTYs). The maintenance TTYs are primarily used for the maintenance of the ESS office and are not generally used for transmitting ESS service order information to the ESS.

> ***Note 1:*** Recent change orders are permitted from the service order TTY and the maintenance TTYs, but the ESS can process only one request at a time. When a request is in progress at the service order TTY, a request cannot be inserted at a maintenance TTY. When a request is in progress at a maintenance TTY, a request cannot be inserted at the service order TTY.

> ***Note 2:*** Any service order message sequence can be directly inputted through the service order channel or maintenance channel exactly as formatted in the examples listed below. The user needs only to substitute valid numerical data into the message sequence to build a valid service order for the No. 2/2B ESS.

TTY OPERATION

A. Typing Recent Changes On-Line

> ***Note:*** All orders typed from the service order TTY channel should be typed off-line using a tape. If typed on-line, a tape should be made and retained for possible future use. For ease in handling the tape, 2 to 3 inches of rub-out characters should be perforated before and after each recent change.

3.11 A typical example of an input message is:

A VY:RI:32!

Input fields are separated by spaces or colons as shown above. Colons are used to separate the action field from adjacent fields except when the action field is the last field. In this case, the execute character is typed in place of the colon following the field. One or more extra spaces may be typed between fields, before the first character,

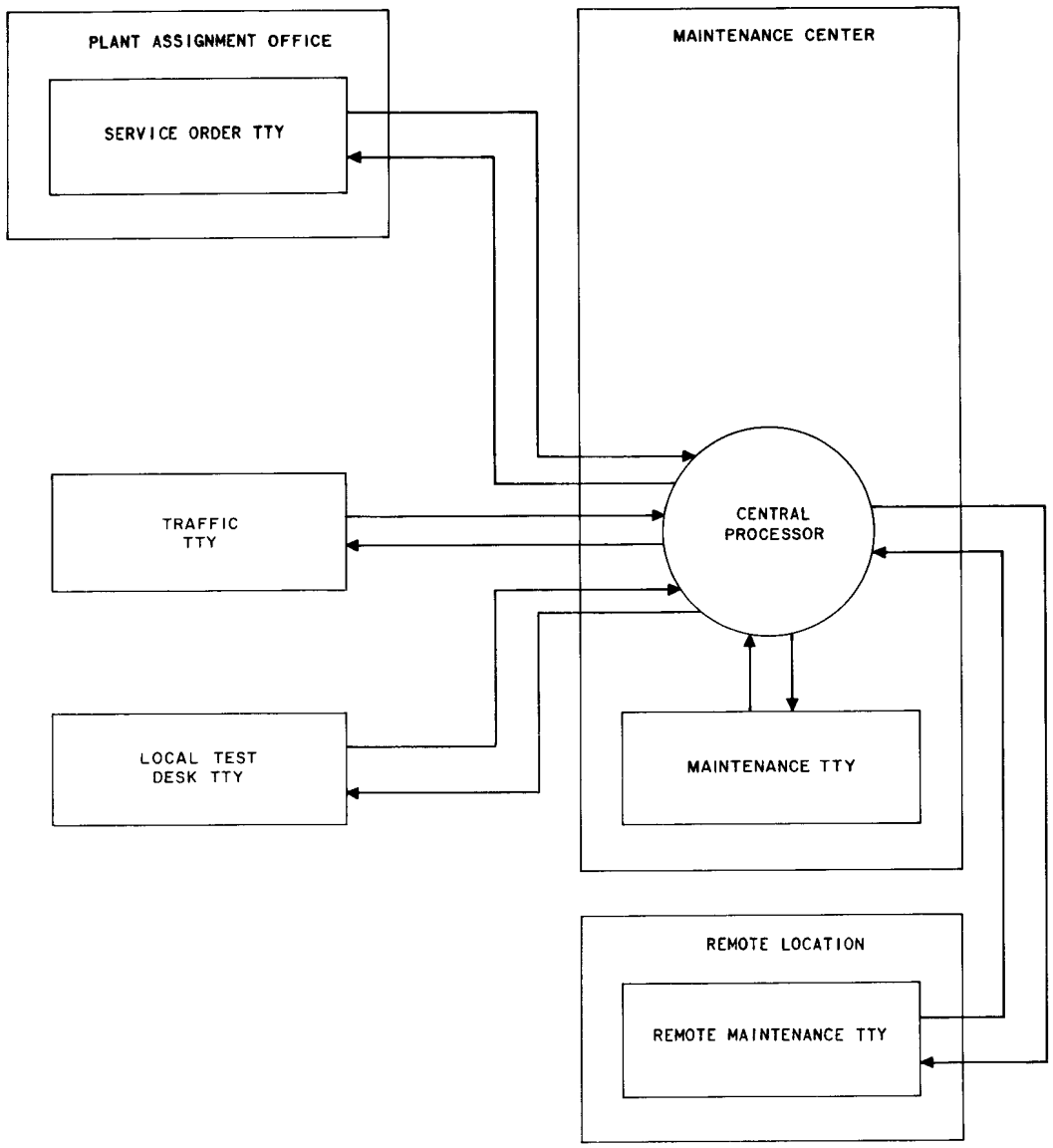


Fig. 7—Teletypewriter Arrangements

or before the execute character, as convenient. Time-out (?T) can be prevented by typing extra spaces before or after any field. Time-out can also be prevented at any time by typing a rub-out character in the input stream.

3.12 An execute character must follow each line of an input message. One or more spaces may precede it, except when the input is coming from paper tape. The standard execute character, the exclamation point (!), is to be used on all single line messages. Where the input message is a multiline input message, the execute character is a slash (/), indicating more information is to follow. The last line of the input must use the exclamation point to indicate the end of the message. The slash must never be used on a single line input message.

3.13 An input message may be typed any time the TTY is not busy with an output message. After the first character is typed, a sharp sign (#)

will be returned if the entire TTY buffer area is currently full. The typist should wait a few seconds and try again. If, after several tries, the area is still full, the priority of the input message can be increased if absolutely necessary. This action deletes one output message from the output buffer. The priority is increased by depressing the BREAK key, typing a SPACE, then following immediately with the desired input message. The preceding action will completely discard the remaining portion of the output message and put the TTY in the input state. Any output messages generated by this input will be put into the output buffer, if there is room, and will be typed after any output messages currently waiting for this TTY.

3.14 If an error has been typed or if the input message should be abandoned for any other reason, the abandon character, the ampersand (&), should be typed. This causes the line being inputted to be erased and a line feed carriage return to be given. If the previous line ended in an exclamation point (!), an extra line feed is given, but if the previous line ended in a slash (/), only the current line is abandoned and all previous lines are retained. The current line may then be retyped correctly. The ampersand can also be used to allow comments to be typed, either between messages or between lines of a multiline message. After the comment is typed, the ampersand is typed to abandon this line.

3.15 Reference should be made to Fig. 8 and 9 for the TTY keyboard and perforated tape used with the service order TTY. The keyboard should have upper-case characters in both red and white. These upper-case characters are selected in a similar manner as the capital letters are on a standard typewriter. There are two keys, the SHIFT and CTRL keys. The SHIFT key lettering is white and is used to control the upper-case characters that are lettered white. The CTRL key lettering is red and is used to control the upper case characters that are lettered red; simply stated, red controls red and white shifts to white.

3.16 All upper-case character keys are lettered white with the exception of the following which are lettered red:

X ON	STX
WRU	X OFF
TAPE	EOT
~~TAPE~~	VT
TAB	FF
SOH	ETX

3.17 The following is an explanation of some of the commonly used keys:

(a) CTRL—This key must be depressed and held depressed while operating those upper-case characters under its control.

(b) X ON—This key is under control of the CTRL key (CTRL "Q") and is used to start the transmission of paper tape and turns on the tape reader.

(c) TAPE—This key is under control of the CTRL key (CTRL "R") and is used when perforating tape to turn on a tape perforator. For an ASR type TTY, the mode switch must be in the KT position.

(d) ~~TAPE~~—This key is under control of the CTRL key (CTRL "T") and is used when perforating tape to turn off the tape perforator.

(e) X OFF—This key is under control of the CTRL key (CTRL "S") and is normally used when making tape to insert a character that will stop the sending of the tape it is on. This is used after each line of information on an order or verification message to stop transmission of tape in order to allow the ESS machine to check the accuracy of each line of information before continuing with the next line. The ESS machine will send a signal that will restart the tape.

(f) ETX—This key is under control of the CTRL key (CTRL "C") and is normally used when making tape to insert a character that will inform the ESS machine that this is the last tape message and not to turn the tape reader on after the message is processed. Also for No. 2, it will take the ESS machine out of tape receive mode, and if this character is not used, the ESS machine will remove itself from the tape mode in approximately 45 seconds. No manual messages can be transmitted during this time-out period; however, if manual messages

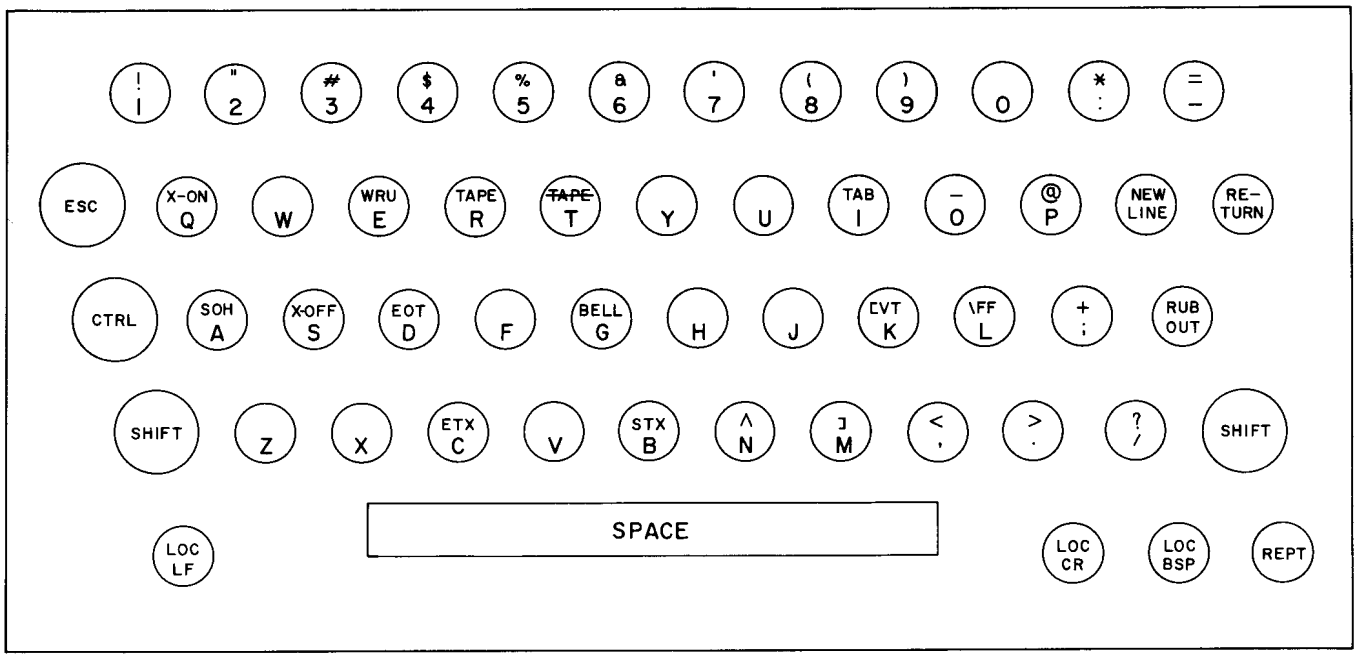


Fig. 8—Teletypewriter Keyboard

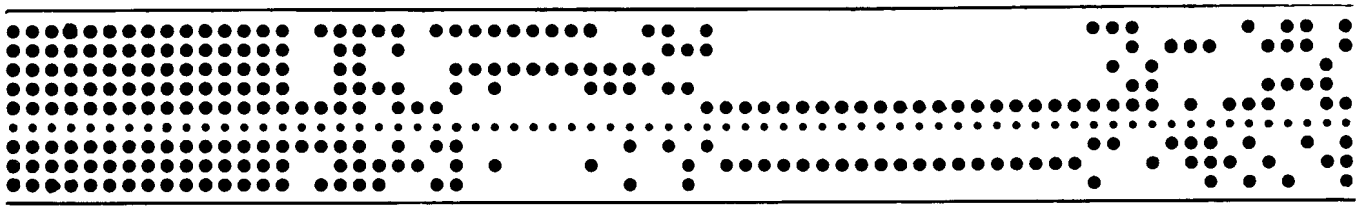


Fig. 9—Perforated Tape Used With Service Order Teletypewriter

are required, the ESS machine can be taken out of the tape mode by typing ETX (space) X OFF!

(g) SHIFT—This key must be depressed and held depressed while operating those upper-case characters under its control.

(h) !—The exclamation mark is the upper-case 1 which is under the control of the SHIFT key and is used as the "execute" character to end an input message to the ESS, whether preparing tape or directly on-line as when requesting verifications.

(i) LINE FEED—This key is used to automatically advance the paper through the TTY one line at a time. It is mainly used when making tape.

(j) RETURN—This key is used to return the TTY carriage to its left margin and is mainly used when making tape.

(k) RUB OUT—This key is used only when making tape and is used to punch all possible holes across the tape. This character is ignored by the ESS machine and is used to prepare the leading and trailing portion of the tape for ease of handling. It is also used to correct a wrong

character on the tape by punching over the incorrect character.

(l) LOC BSP—This key is the local backspace key and is used to back up the tape when a wrong character has been typed in order to remove it by typing over it with the rub-out character.

(m) REPT—This key is a repeat key and is most commonly used with the RUB OUT key. By depressing the REPT and RUB OUT keys, the 2 to 3 inches of rub outs requested when preparing tape can be quickly done. The RUB OUT key can be released as soon as rub outs start, and only the REPT key need be held.

(n) LOC LF—This key is the local line feed key, and when depressed the TTY will start line feeding and continue until the key is released. Single line feed is next to impossible with this key. This key ***will not*** make an entry on tape.

(o) LOC CR—This key is the local carriage return key and when depressed will return the TTY to its left margin. This key ***will not*** make an entry on tape.

(p) /—The slash is used for No. 2/2B ESS TTY channels as the "continued input" indication. This character ends a line of input and instructs the program to input this line and that another related data line will be immediately inserted. If the line is in correct format and consistent with preceding lines, the machine will respond with a carriage return (CR) and line feed (LF). If the data on the line is inconsistent with preceding input lines, the program will print the response "NG" after the line, give the CR and LF, and then print an error message. The error number of the message indicates the type of error encountered. After any type of message failure response printed by the machine, the reason for the error should be corrected and the entire message sequence reinputted. Any previous lines of a message sequence are discarded by the machine if a line error is found.

(q) &—The ampersand is used for No. 2/2B ESS TTY channels as the "line abandon" character. If a mistake is made on any line of input or if an "informational comment" is inserted before the "!" or "/", the "&" may be typed to cause the program to completely ignore that line. The program will respond with a carriage return (CR) and line feed (LF). Any previous lines of a continued input message sequence will remain unaffected.

B. Typing Recent Changes Off-Line Using a Perforated Paper Tape

3.18 A tape is perforated (punched) by the typing reperforator while the recent change is being typed. This should be done with the service order TTY in the off-line (local) mode. This method allows for proofreading of the recent change prior to transmitting the recent change to the ESS. Proofreading is essential in order to minimize the possibility of transmitting errors to the central processor which are time-consuming and costly to correct. In using this procedure, a backup file of tapes will be available in the event they are needed. Tape input also assures rapid inputting or changes that require two separate message sequences (such as changing the party number of an assigned TN).

3.19 The following is an explanation of five mode switches located to the left of the keyboard.

(a) K (keyboard)—Permits transmission from keyboard when the unit is on-line and the printing of the typed message. An incoming message is only printed.

(b) KT (keyboard-tape)—Permits transmission from the keyboard when the unit is on-line, the printing of the typed message, and the perforation of a tape for the typed message. If the unit is off-line, the typed message is printed and a tape is perforated. An incoming message is printed and a tape is perforated.

(c) T (tape)—Permits transmission from keyboard when the unit is on-line and the perforation of a tape for the typed message. If the unit is off-line, the typed message is perforated on tape. An incoming message is printed and a tape is perforated.

(d) TTS (tape-to-tape send)—Not normally used. If used, it must be coordinated with the receiving TTY.

(e) TTR (tape-to-tape receive)—Not normally used. If used, it must be coordinated with the sending TTY.

3.20 Reference should be made to Fig. 10 for a flowchart giving the preparation and processing of ESS order and tape.

USE OF PERFORATED PAPER TAPE

A. Making a Paper Tape Manually

3.21 To communicate via paper tape, four extra characters must be inserted into the message. Three of these are entered on the paper tape as part of the message, while the fourth depends on the circumstances. The message(s) tape should be perforated in an off-line mode. For No. 2 ESS, a TTY connected to the system can be placed off-line by using the "TTY disconnect" or "data set disconnect" key at the maintenance center (MC). For No. 2/2B it can also be done by switching an ASR TTY to LOCAL, ***after removing the channel from service*** (see paragraph 3.34). The message is then typed in normal fashion. At the end of the message, before the execute character (! or /, or abandon character &) is typed, a reader-off character (X OFF) must be punched, followed immediately by the execute, followed immediately by a RUB OUT character. No spaces are allowed between these three characters because the reader stops after the second character following the X OFF. These characters may be optionally followed immediately by the carriage return (CR)

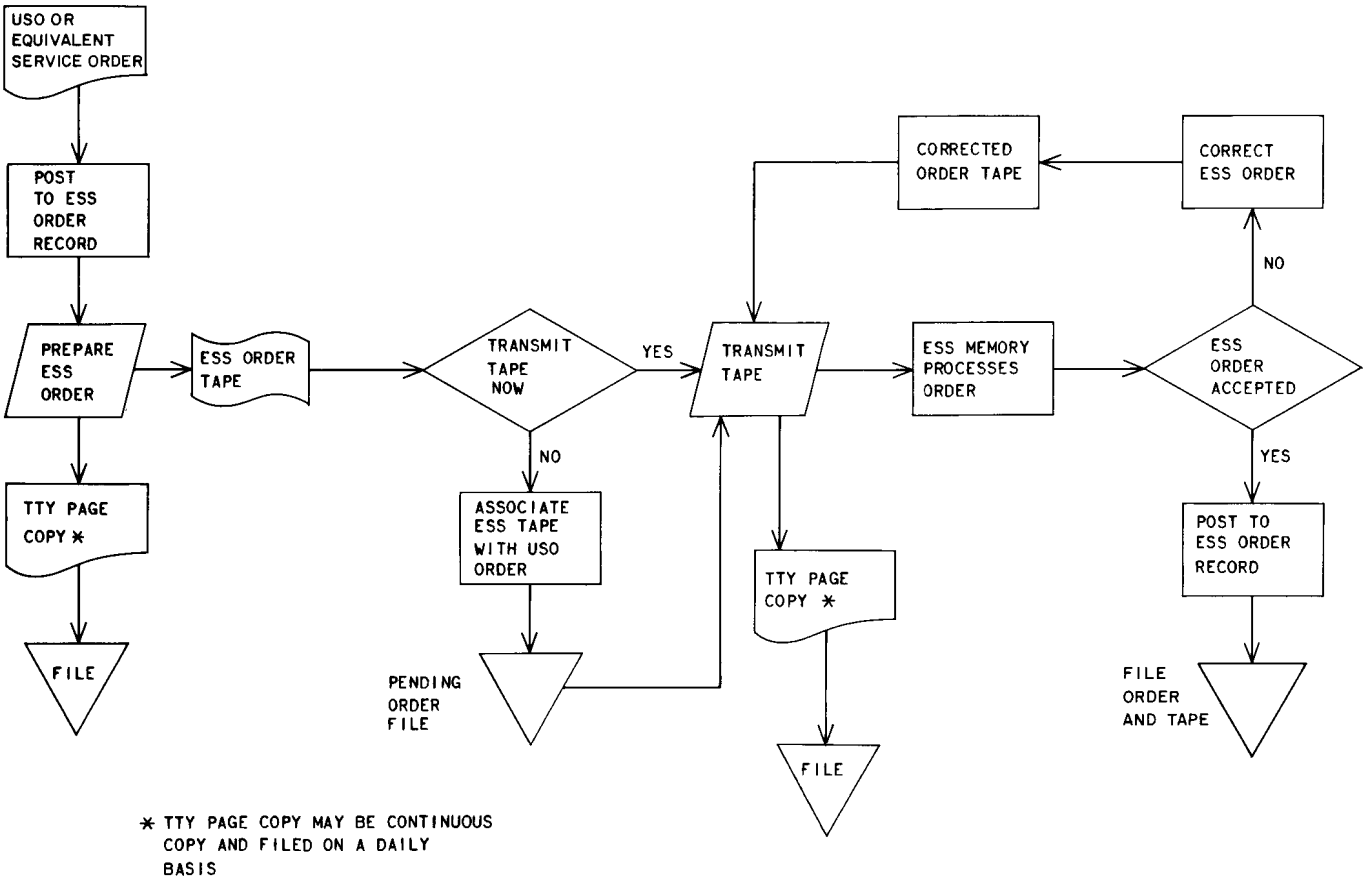


Fig. 10—Flowchart for Preparation and Processing of ESS Service Order and Tape

and line feed (LF) characters to reposition the off-line TTY printer head for the next line of input. This sequence is performed for each message (line). In the last message (line) on ***every*** physical piece of paper tape, the end of text (ETX) character ***must*** be typed somewhere within the message before the X OFF but not in the middle of a field. The preferred position is just prior to the X OFF. This character signals the system not to turn on the reader after processing the current message.

3.22 The following procedure is an example for typing an ESS order off-line using a tape.

(1) Teletypewriter must be in off-line (LCL) condition.

(2) The MODE key on left side of teletypewriter must be in the KT position.

(3) Operate the CTRL and TAPE keys to activate the tape perforator.

(4) Operate RUB OUT and REPT keys until 2 to 3 inches of RUB OUT characters are perforated on tape. (This is for ease in handling the tape.)

(5) Type the necessary information using the following format. (The following is an ESS order for a new telephone with 1FR service.)

Note: When use of the CTRL key and X OFF key is required, the CTRL key must be held depressed when the X OFF key is operated.

(a) A(space)RC:L(CTRL key and X OFF key)/(RUB OUT key, RETURN key, and LINE FEED key)

(b) ORD(space)0001(CTRL key and X OFF key)/(RUB OUT key, RETURN key, and LINE FEED key)

(c) TYP(space)NEW(CTRL key and X OFF key)/(RUB OUT key, RETURN key, and LINE FEED key)

(d) OE(space)00(space)1030(CTRL key and X OFF key)/(RUB OUT key, RETURN key, and LINE FEED key)

(e) TN(space)554(space)1234(CTRL key and X OFF key)/(RUB OUT key, RETURN key, and LINE FEED key)

(f) LCC(space)1FR(CTRL key and X OFF key)/(RUB OUT key, RETURN key, and LINE FEED key)

(g) END (CTL key and ETX key)(CTRL key and X OFF key)!(RUB OUT key, RETURN key, and LINE FEED key).

(6) Operate RUB OUT and REPT keys until 2 to 3 inches of RUB OUT characters are perforated on tape. (This is for ease in handling the tape.)

(7) Operate CTRL and ~~TAPE~~ keys to deactivate tape perforator and remove the tape from the machine.

(8) When transmitted (via tape) to the ESS, the recent change will appear as follows:

```
A RC:L/
ORD 0001/
TYP NEW/
OE 00 1030/
TN 554 1234/
LCC 1FR/
END!
```

(9) The & character is used to delete a line in a message that contains incorrect information or to permit the insertion of an "informational comment." In the following example, if the TN in Step 4 should have been 554 1151 and not 554 1234 and the error was detected after 554 12 was typed, the line that contained the incorrect information is deleted as follows:

TN(space)554(space)12(CTRL key and X OFF key)&(RUB OUT key, RETURN key, and LINE FEED key).

(10) The correct information is entered as follows:

TN(space)554(space)1151(CTRL key and X-OFF)/(RUB OUT key, RETURN key, LINE FEED key).

(11) When transmitted (via tape) to the ESS, the recent change will look like the following:

```
A RC:L/
ORD 0001/
TYP NEW/
OE 00 1030/
TN 554 12&
TN 554 1151/
LCC 1FR/
END!
```

B. Making a Paper Tape Automatically

3.23 In some cases, the No. 2/2B ESS machine can automatically perforate a paper tape which can be used at a later time. These are generally related to update, restart, or recovery situations. The three most commonly used automatic tapes are:

(1) A dump of the call forward list when an update or restart is planned (see A CF:PUN!).

(2) An ongoing record of customer dialed changes to the customer speed call list (see A RC:PUN:d!).

(3) Dump of control restriction list when update or restart is planned (see A CR:PUN).

3.24 When a paper tape perforator is left on-line for the purpose of making one of the above tapes, care must be taken not to "contaminate" the tape output with other characters (such as system responses, etc) that cannot be read back into the system. For this reason, the perforator must be dedicated to the tape being made, for the life of that tape. No. 2/2B ESS will ensure that no extra characters are perforated, as long as it is always in the on-line mode and under control of the ~~TAPE~~ and TTY control characters.

3.25 When a tape is made by the No. 2/2B ESS program, the start of text (STX) character is punched in place of RUB OUT. These characters are synonymous to the TTY program, which cannot punch a RUB OUT. Otherwise, all rules for off-line tape perforation are as follows. For No. 2 ESS, a tape perforated by a program in No. 2 ESS is not punched with parity. Therefore, for the tape to be read back in, the parity check must be first turned off with the message:

```
M TT:PAI:a 0!
```

a = TTY channel (see paragraph 3.01 through 3.06).

For No. 2B ESS, the program does punch the tape with parity, and no action need be taken.

C. Transmitting Tape Into the ESS

3.26 The communication between the system and the paper tape is accomplished as follows. The paper tape reader, which may be in a loop by itself or in series with a TTY device, is started and proceeds to the execute character or abandon character where it stops. This allows the system time to decode and execute the message, and type any required acknowledgment. Unless instructed otherwise, the system will then restart the reader.

- The transmitting of the tape into the ESS must be coordinated with central office procedure according to local practice.

- The number of ESS orders (transmitted via tape) that the ESS can accept before the program store must be updated is limited by space in the recent change area. Different types of orders take different amounts of space. Since there are many variables, it is not always possible to predict accurately in advance how much space is needed by a given order. An output message is printed to advise that the recent change area is 81 percent full. When the RC area reaches 93 percent full, an output message is printed and all subsequent RC messages are rejected. Such a circumstance should be avoided because of emergency situations which require that an order be immediately accepted. Therefore, it is recommended that the available recent change area be carefully monitored and that updating of the program store take place long before all the recent change area is used.

3.27 When a paper tape is entered into the No. 2/2B ESS, the parity of each incoming character is checked for validity unless the test is inhibited. Because of the parity test it must be known if the paper tape was perforated on a

machine that will produce correct parity. Any tape that was automatically punched by the No. 2 ESS ***does not*** have correct parity. Any tape that was automatically punched by the No. 2B ESS ***does*** have correct parity. All tapes that have incorrect parity must have the parity test inhibited before they can be read into the system. The parity test is inhibited by the input message:

M TT:PAI:a 0!

3.28 Once the tape has been perforated, it is inserted into the tape reader of an on-line TTY channel that is in the STOP position. The reader key is then moved to the RUN position. If the reader does not begin inputting the tape immediately, type in the X ON character to place the TTY in the tape mode and start the reader. The system ***must*** see the X ON character to put it into the paper tape mode. At the end of each message, the system automatically issues the next X ON to restart the reader.

3.29 Once the system has seen the X ON, it assumes the paper tape mode until the ETX is received. If the ETX is not in the last message (line), the system will turn the reader on and continue reading until the physical end of the tape, at which time it will time for 45 seconds. During this time another tape may be inserted without typing the X ON character. Since the system is waiting for an input message, one can be typed from the keyboard. In the No. 2 ESS case, the paper tape mode is still in effect, requiring an ETX and X OFF before the execute character (/ or !). If no operator response is given to the system within 45 seconds, the system will issue a ?T acknowledgment and the No. 2 ESS will forcibly take the channel out of the paper tape mode.

3.30 If an error is detected while reading the paper tape, the program will respond as in typed input and will not restart the reader. When a typing error stops the paper tape, the faulty message or line may be retyped on the associated keyboard, if it is available. The paper tape is then restarted manually with the X ON character.

3.31 For No. 2 ESS, when the tape transmission is complete, the parity test must be restored if it was inhibited for the transmission. To restore the parity test, use the following input message:

M TT:PAI:a 1!

3.32 To transmit the tape into the ESS system, via the transmitter distributor (TD) (also called tape reader), use the following procedure:

(1) TTY must be in the ON LINE position.

(2) Move the tape reader switch to the FREE position.

(3) Insert the tape in the tape reader.

(4) Return the tape reader switch to the RUN position.

(5) Depress the KT mode key on left side of TTY, or set the mode switch to the KT position.

(6) Operate the CTRL and TAPE keys to prevent a duplicate tape being perforated.

(7) Operate the CTRL and X ON keys to start tape reader.

Note: The TTY will remain in the tape mode for 45 seconds after message input if an ETX was not entered on the tape. If a message must be typed during this interval, the No. 2 ESS requires that the TTY be removed from the tape mode by the sequence ETX key, X OFF key, and ! key.

(8) If the reader does not start automatically hold the CTRL key depressed and operate the X ON key.

3.33 During the time the tape transmits the data into the ESS system, the TTY prints a copy of the message. When the ESS receives the END! (signifying the end of the message), the ESS sends an acknowledgment (accepting or rejecting message), an X ON signal (if accepted), a carriage return, and a line feed. If the system sends an OK or PF, this indicates that the message was accepted. If the system sends anything other than OK or PF, this indicates that the message was rejected.

TTY MAINTENANCE

A. Removing a TTY From Service

3.34 The TTY channel must be removed from service in the ESS before the TTY is put into the LOCAL or OFF-LINE mode, or before

power is turned off. The channel is removed by the message.

For No. 2 ESS—

M TT:RMV:a!

where a = the channel, (SO = 3)

For No. 2B ESS—

RMV:TTYC a!

where a = number of TTYC for which removal is requested.

B. Restoring a TTY to Service

3.35 When it is desired to use a channel that is marked out of service in the ESS (as indicated by the ?O acknowledgement) it must first be restored to service. This is done by depressing the BREAK key on the TTY for 1/2 second. This action will initiate a diagnostic to be run on the TTY channel. If the diagnostic passes, a message will be printed out indicating it is now in service.

For No. 2 ESS—

MR TT DGN a ATP IS

For No. 2B ESS—

INIT TTYC a STAT PORT cc EQP dd BCP g

If a message is not printed within 30 seconds, the channel failed diagnostics and remains out of service.

C. Diagnosing a TTY

3.36 A TTY is not working properly, or if maintenance is being performed, the channel should be diagnosed by typing:

For No. 2 ESS—

M TT:DGN:a!

For No. 2B ESS—

DGN:TTYC a!

If the diagnostic passes, a message will be printed out indicating the results:

For No. 2 ESS—

MR TT DGN a ATP IS

For No. 2B ESS—

DGN TTYC a COMPL ATP IN

If the diagnostic fails, the following message is printed:

For No. 2 ESS—

MR TT DGN a b cccccc

where b and cccccc are failure numbers. This message should be referred to the central office craft personnel.

For No. 2B ESS—

REPT TTYC a DGN FALT b c d e

where b, c, d, and e are data describing the feature. The variables b, c, d and e are explained in OM-2H200-05.

3.37 If characters are not being typed or printed correctly, the following message should be typed:

For No. 2 ESS—

M TT:SEN:a!

For No. 2B ESS—

OP:TTYC a, ECHO!

Then type the BEL character.

This message results in all the output characters being typed on the TTY followed by a mode where the ESS will repeat any character typed. See IM-2H200-04 or IM-2H200-05 for details of this message.

4. ESS ORDERS

ORDER NUMBER ASSIGNMENT

4.01 Each ESS order must have a 1- to 4-digit serial number assigned to it. These order numbers range from 0 to 9999. (The number 0 or 9999 is generally used as a substitute or dummy number.)

4.02 Each ESS order should be assigned a number starting with the number 0001 and numbered consecutively. ESS Order Record (Fig. 11) is used to maintain a cross-reference of the ESS order to the service order.

4.03 When an ESS order tape is prepared, the DATE USED column should be posted by the employee preparing the tape. At the time the tape is transmitted to the RC area, the DATE ACTIVATED column should be posted. Other columns should be posted as required.

ESS ORDER FILE

4.04 For reference purposes, future dated service orders and their corresponding ESS order tapes are filed by due date in the pending order file.

4.05 Teletype tapes of accepted ESS orders should be stored with the ESS order. This tape should be retained until advised by the central office personnel that the RC area has been updated. The order should then be placed in a dead file and the tape disposed of. The length of retention is established by each company.

LINE CLASS CODE (LCC)

4.06 A translation committee consisting of plant, commercial, comptroller, and Network Administrator representatives will be formed before the cutover of an ESS office. The committee will do the following:

(a) Compile the trunking, routing, and charging information that must be stored in the ESS office memory and

(b) Establish the 3-character alphanumerical line class codes (LCCs) that are to be programmed into the ESS office memory to describe the classes of service.

4.07 There may be times when there is no standard universal service order code (USOC) to describe the class of service (for example, vacation rate service). In that case, the translation committee will assign a 3-character code to describe the type of service within the ESS office. If there is no LCC to describe the class of service desired, the local company Network Administrator should clear any newly assigned LCC with the AT&T Network Administrator.

4.08 Once these LCCs have been programmed into the ESS office, they are the only codes that may be entered on a service order.

4.09 The Network Administrator will record the LCC on form ESS 2306 line class code table (Fig. 12). The Network Administrator must supply a copy of form ESS 2306 to the assignment office. Assignment office personnel should attach this copy to this section. The Network Administrator will then:

(a) Send copies of the form to Western Electric Company to program these LCCs into the ESS office and to the assignment office for processing ESS orders and

(b) Notify the plant assignment office if any LCCs are changed or added by sending an updated copy of form ESS 2306 (see Fig. 12).

MESSAGE FORMATS

4.10 The ESS service order is formatted to meet the program requirements of the ESS office. Most service orders use a free flow order that uses mnemonic codes known as ***keywords.*** The keyword indicates the type of data that follows, such as TN 555 1212 for telephone number. The keywords and other ESS order information must be in proper language and format. The keywords, except for the beginning and ending entries, can be in any sequence. It is recommended that a sequence for typing keywords be adopted that is most convenient for each office. Before the end-of-message keyword is typed, the order should be proofread for typing errors or missing keywords. If a keyword has been inadvertently omitted or typed incorrectly, it can be added or changed and then the end-of-message keyword typed. If other typographical errors are discovered, they must be corrected before the ESS order is transmitted to the recent change area.

THOUSANDS_____

HUNDREDS_____

ESS ORDER LOG

ESS ORDER NO.	DATE USED	USED BY	SERVICE ORDER NO.	DUE DATE	ACTIVATED DATE	ACTIVATED BY	REMARKS
00							
01							
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
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49							

Fig. 11—ESS Order Form

ESS 2306

LINE CLASS CODE TABLE
NO. 2 ESS

DATE ___ - ___ - ___ (1 2 3 4 5)

BASE & CONTROL _____ (6 7 8 9 10 11)

ESS UNIT _____

PAGE ___ (21) OF ___

FORM CODE 36 (14 15)

ITEM (22 23)	LINE CLASS CODE (25 27)	MAJOR CLASS ORIG. (28 29)	MAJOR CLASS TERM. (30 31)	SYNONYMOUS LCC (32 34)	TOLL DIVERSION (35)	REMARKS (36 79)	REVISE (80)	ITEM (22 23)	LINE CLASS CODE (25 27)	MAJOR CLASS ORIG. (28 29)	MAJOR CLASS TERM. (30 31)	SYNONYMOUS LCC (32 34)	TOLL DIVERSION (35)	REMARKS (36 79)	REVISE (80)
00								50							
01								51							
02								52							
03								53							
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48								98							
49								99							

EXAMPLE

Fig. 12—Form 2306—Line Class Code Table

4.11 Other service orders, as well as most other recent changes, use a single line input message with data fields in fixed format.

4.12 The ESS service order should be typed off-line (via type) to provide for proofreading before it is entered into the recent change area.

4.13 After the service order is proofread, the punched tape is inserted into a tape reader, and the order is transmitted to the ESS.

4.14 Information received by the ESS is stored in the recent change area of a temporary memory designated call store. (Periodically the information in the recent change area is transferred, by central office personnel, to the program store which is a semipermanent memory.) If for any reason the information received by the ESS is not in the proper format, sequence, or certain information is left out, the central processor automatically sends back an acknowledgment and rejects the order. If everything is in the proper order, the central processor sends back an acknowledgment that the order has been accepted.

4.15 Information that has been transmitted and accepted by the ESS, but is later discovered to contain an error (such as transposition of digits in a telephone number), can be changed or removed. To make a correction, a change or out order must be used.

TYPICAL ESS SERVICE ORDER

4.16 The following is a typical ESS service order for a new telephone with 1FR service:

```
A RC:L/          (Note 1)
ORD 0001/
TYP NEW/
OE 00 2160/      (Refer to 1.11)
TN 554 1150/
LCC 1FR/
END! OK          (Note 2)
```

Note 1: The A RC:L indicates that an ESS order is being entered. The slash (/) is used for continued input indication. This character ends a line of input and informs the ESS that another related data line will be immediately inserted. The keyword format and its associated data is checked also.

Note 2: The END! indicates that the message is completed. The OK is the system response indicating that the message was accepted.

ESS ORDER ACKNOWLEDGMENT

4.17 Each recent change which is transmitted into the ESS receives an acknowledgment from the ESS. The acknowledgment is a brief output message from the ESS to inform the plant assignment office personnel what action resulted from the recent change.

4.18 The following acknowledgment messages are returned by the recent change program.

OK—The message was ***OK.*** It was accepted, and the work requested has been accomplished. If the message came from paper tape, the paper tape reader will be turned back on.

PF—The message was received and is being acted upon. A ***P***rintout will ***F***ollow. If the message came from paper tape, the paper tape reader will be turned back on.

RL—The message should be ***R***epeated ***L***ater. If the message came from paper tape, the tape reader will not be turned back on. This response may come for any of the following reasons.

(a) If an output was requested, the TTY waiting list may be full.

(b) The TTY program may have missed an input character due to a long scan time. All messages from paper tape are likely to obtain the same result at this time. Try only hand-typed messages if this response persists.

(c) Some other TTY is currently typing a recent change or verify message.

(d) Or a MLH group OUT was started but not completed because there is not enough room in recent change. The MLH group OUT must be completed before anything else will be allowed.

4.19 The following acknowledgment messages are returned by the program when an error is detected. They are typed immediately following the execute character (! or /). In every case below, the ***entire*** message, even if multiple line, will be aborted, and the paper tape reader will ***not*** be turned back on if this message came from paper tape.

?A—An error in the action field of the message has occurred. The paper tape reader will not be turned back on.

?C—The message appears to be a legal message, but it is not allowed from this channel. The paper tape reader will not be turned back on.

?D—An error in the data field of the message has occurred. The paper tape reader will not be turned back on unless the message is linked. In this case, only the current line input is aborted.

?F—A format error has occurred. The correct characters were not typed. The paper tape reader will not be turned back on.

?I—The first two fields of the message were not legal. The paper tape reader will not be turned back on.

?O—This channel is marked out of service. It must be restored to service before being used (see paragraph 3.35). The paper tape reader will not be turned on.

?P—A TTY parity error occurred during the input message. This message was not accepted by the system. Request TTY diagnostics on the channel being used (see paragraph 3.35). The paper tape reader will not be turned back on (see paragraph 3.27).

?T—A time-out occurred while waiting for more input characters. This time-out is about 45 seconds. See paragraph 3.11 for information on how to avoid timing out. The paper tape reader will not be turned back on.

?X—This response is for a No. 2 ESS only. The channel is in the paper tape mode, and the message does not contain the necessary paper tape control characters. The control characters X OFF and ETX must be used to take the channel out of the current mode.

??—Either a system initialization of some degree occurred during the execution of this message (but not necessarily because of it) or the system has been forced into the digit mode (which could cause the loss of a character). The system cannot tell if the message is complete. The user must investigate and possibly repeat the message if not completed. The paper tape reader will not be turned back on.

Caution: Do not reenter the input messages repeatedly without determining the reason for the response. The paper tape reader will not be turned back on.

NA—Control of message processing has been lost and correct acknowledgment is not possible. The user must investigate and possibly repeat the message if not completed. The paper tape reader will not be turned back on.

NB—The entire No. 2B ESS TTY buffer area is currently full. The message should be repeated after waiting a few seconds.

NG—The message was not accepted (***N***o ***G***ood). The action or data fields were not accepted. If the message came from paper tape, the X OFF character may not have preceded the execute (! or /) or abandon (&) character. If the message came from paper tape, the paper tape reader will not be turned on. The message must be retyped correctly from the beginning. An error message AR RC ERR bbbbbb or AR VY ERR bbbbbb will follow giving the exact reason, as shown below and described in paragraph 4.23.

END! NG

tt AR RC ERR bbbbbb

tt AR VY ERR bbbbbb

PROGRAM MESSAGE HANDLING TECHNIQUES

4.20 The series of messages that make up a service order through a recent change (RC) area in the call store is handled by several data administration programs. After the complete message is inputted and the execute character processed, the program formats into the RC area all the information currently in the call store regarding this line. The new information is then overlaid onto this RC area. The modified line information is then placed into the RC buffers at the proper locations.

4.21 By using the overlay technique, it is not necessary to input all the previously defined information about a line. The only information required on a service order is the new information and sufficient information about the line to uniquely identify it.

4.22 The first step of the program store (No. 2 ESS) or main store (No. 2B ESS) update procedure is to freeze the RC buffer areas in call store. The only items updated into program store or main store are the frozen entries. If the RC buffers are not full, new service orders may be inputted without interfering with the update. When the update is complete, only the frozen entries are erased from the buffer area.

ERROR RESPONSE MESSAGES

4.23 If for any reason a service order cannot be processed, an error message is printed out with an error number to indicate the reason for the difficulty as shown in the following:

tt AR RC ERR bbbbbb

tt AR VY ERR bbbbbb

tt = Number indicating minutes after the hour.

AR RC ERR
AR VY ERR = This indicates that this is an error message, and the number identifying the particular reason for rejection should be checked.

bbbbbb = Number identifying particular reason for rejection, refer to OM-2H200-04 or OM-2H200-05.

The following is an example of an ESS order that was rejected and the reason it was rejected:

A RC:L/
ORD 1234/
TYP OUT/
OE 00 5223/
TN 554 9971
END! NG (Note 1)

21 AR RC ERR 324300 (Note 2)

Note 1: NG is system response indicating that the ESS order was rejected and is not part of the input message.

Note 2: The number 324300 indicates that telephone number 554 9971 is currently unassigned, but available for assignment, and can only be used in a NEW type ESS order.

4.24 Three general error responses are of particular interest. If the response indicates the RC areas are full, an RC Update Procedure must be performed before any further changes are made. If the error message indicates that no additional program store or main store translation tables are available, an office data administration (ODA) run must be made to allocate more tables for this function before any further inputs of this type are made.

4.25 If a translation error message is printed for the data that was to be changed or verified, it is strongly recommended that the source of the error be determined. The translation error should then be handled by local operating company practices.

DELAYED RECENT CHANGE MESSAGES

4.26 The No. 2/2B ESS has no capability for delayed RC messages. The definition of a delayed recent change is a change that is inputted into the RC buffers but not activated until another input request is made.

4.27 Table A shows when each of the messages is activated. The junctor reassignment flags and program store copy of the traffic work table require the changes to be placed in program store before they are effective and activated.

TABLE A

RECENT CHANGE ACTIVATION

MESSAGE	WHEN MESSAGE IS ACTIVATED	
	AT SUCCESSFUL COMPLETION OF MESSAGE	AT RC UPDATE
A AU:INH	X	
A AU:RC	X	
A AU:RST	X	
A RC:ALM		X
A RC:ATT	X	
A RC:CAC	X	
A RC:CF	X	
A RC:CGA	X	
A RC:CGP	X	
A RC:CR	X	
A RC:CRI	X	
A RC:CST	X	
A RC:CTX		X
A RC:DAY	X	
A RC:DIG	X	
A RC:DIT		X
A RC:DTB		X
A RC:FHG		X
A RC:GRP	WORD 0 ONLY	WORDS 1-7
A RC:HRI	X	
A RC:L	X	
A RC:LMP		X
A RC:MLH	All except key number specifications	Key number specifications
A RC:NCG	X	
A RC:PRF	X	
A RC:PST	X	
A RC:PUN	X	
A RC:RCH	X	
A RC:RI	X	
A RC:SC	X	

TABLE A (Contd)

RECENT CHANGE ACTIVATION

MESSAGE	WHEN MESSAGE IS ACTIVATED	
	AT SUCCESSFUL COMPLETION OF MESSAGE	AT RC UPDATE
A RC:SCA		X
A RC:SIM	WORD 0 ONLY	WORDS 1-3
A RC:SVC	X	
A RC:TMB	X	
A RC:TRK	X	
A RC:VTN	X	
A RC:ZRO	X	
A TC:FSH	X	
A TC:LSC		X
A TC:MLH	X	
A TC:PRC	X	
A TC:SVC	X	
A TC:TRK	X	

RECENT CHANGE AUDITS

4.28 The No. 2/2B ESS programs will normally run an audit check over all RC buffers every 2 hours. These audits are run on the even numbered hours. If no errors are detected, no message is printed.

4.29 The RC audit checks the validity of the RC tables in call store; it does ***not*** check the validity of the translation data stored in the tables. For example, if a change is made in an OE translator, the new word in the RC buffers is checked for correct parity, but the data is not translated to check if it properly defines a line. The audit also checks all pointers to data words and the number of entries in the data tables for consistency.

4.30 If audit failures are detected in the RC buffers, an RC update should ***not*** be made as this will place bad data into the translation memory. The error condition should be corrected as soon as possible since system failures can occur if bad data is accessed from the RC buffers by the program. Contact the central office personnel, and do not insert further recent change or verify messages until instructed by them.

4.31 An immediate RC buffer audit can be requested at any time if the audits are not inhibited. The input message

A AU:RC!

will cause the RC buffer audits to be immediately run and generate a response indicating the results. The responses are described in OM-2H200-04 or OM-2H200-05.

LISTING OF KEYWORDS IN AN ESS ORDER

4.32 With the advent of EF-2 and 2B-EF-2 generic programs, several new keywords are now available. In addition many keywords have been revised to use the USOC standard keywords. The results of these changes and additions are referred to as conventional (new) keywords. The keywords

used in No. 2 ESS prior to the EF-2 and 2B-EF-2 generic programs are referred to as the No. 2 ESS unique (old) keywords. The conventional (new) keywords are cross-referenced to the equivalent No. 2 ESS unique (old) keywords in Table B. Table C cross-references the No. 2 ESS unique (old) keywords to the equivalent conventional (new) keyword. Illustrations and examples throughout this section are composed of formats using the conventional (new) keywords. The use of one set of keywords or the other is an office option.

TABLE B

CONVENTIONAL (NEW) KEYWORDS CROSS-REFERENCED TO NO. 2 ESS UNIQUE (OLD) KEYWORDS

CONVENTIONAL (NEW) KEYWORDS	NO. 2 ESS UNIQUE (OLD) KEYWORDS)	CONVENTIONAL (NEW) KEYWORDS	NO. 2 ESS UNIQUE (OLD) KEYWORDS
ACC	—	DGE	DGE
ADND	—	DGS	—
AFO	—	DGT	DGT
AFRI	—	DISP	—
AOSL	—	DLT	—
AOUT	—	DLY	—
ARI	ARI	DMA	DPU
ATC	ATC	DP	SLL
ATF	ATF	DPLR	—
ATOT	—	DPM	MSG
ATS	ATS	DPO	ROR
BASE	—	DPP	—
BGP	BP	DRI	DRI
BHT	FHM	DSPT	—
BLC	BLN	DSP0	—
BLN	STB	DSP1	—
BSY	BSY	DSP2	—
BTN	BTN	DSP3	—
BV	BV	DTP	DTP
CAC	COA	EAB	CHD
CAT	CAT	EAN	DCC
CD	—	EHT	SHM
CDRN	—	END	END
CFBA	—	ESC	TW
CFBN	—	ESF	SC
CFDA	—	ESL	SC
CFDN	—	ESM	CFV
CFN	—	ESX	CWT
CFO	—	E2H	TW
CGRP	—	E6G	CFB
CHI	CHI	E9G	CFD
CIL	ICI	FFG	—
CLO	CLO	FFHM	—
CMP	CMP	FL	RCL
CNF	—	FLHM	—
CNR	—	FNHM	—
CNRG	—	FOFG	—
COB	COB	FSH	—
COFL	—	FSHM	—
CPG	CPU	GRP	—
CR	—	GST	GND
CSL	CH	GSZ	PSZ
CTG	CTG	HML	GRP
CTX	CTX	HSZ	—
CWOR	—	HTY	—
CWTA	—	ICG	ICG
ICTA	—	RAX	RA

TABLE B (Contd)

CONVENTIONAL (NEW) KEYWORDS CROSS-REFERENCED TO NO. 2 ESS UNIQUE (OLD) KEYWORDS

CONVENTIONAL (NEW) KEYWORDS	NO. 2 ESS UNIQUE (OLD) KEYWORDS)	CONVENTIONAL (NEW) KEYWORDS	NO. 2 ESS UNIQUE (OLD) KEYWORDS
IOE	NTE	REC	—
ISG	—	RES	—
LAMP	—	RLMP	—
LBRI	—	RMB	RMB
LCC	LCC	ROH	—
LDS	—	RPT	—
LHT	LHM	RTI	RI
LIST	—	RTIM	—
LS	LS	SAT	—
MN	MN	SBAC	—
MBR	—	SBGP	—
MRI	—	SBR	—
MXDE	—	SCA	—
NCT	NCT	SCCW	—
NDE	—	SDND	—
NDT	NDT	SDT	SDT
NFD	—	SER	SER
NHM	NHM	SFG	SFG
NHT	—	SIEP	—
NIQ	—	SKEY	KEY
NNX	NNX	SO	SO
NSN	NSN	SPLR	—
NST	NHM	SP	SPN
NTN	NTN	SSC	SSC
OE	TEN	SSR	—
OFD	—	STRI	—
OGP	—	SUBB	—
OMB	—	SUBG	—
OP	OA	TAS	—
ORD	ORD	TBL	—
OVM	—	TBM	—
PBD	—	TCG	TCG
PDA	—	TDG	TDG
PDB	—	TDP	TDP
PFX	PFX	TER	MBR
PLIT	PLI	THD	THD
PLM	—	TLT	TLT
POS	—	TMB	—
POSD	—	TN	TN
PRFL	—	TOP	TOP
PSG	—	TP	TDP
PTN	—	TRC	TRC
PTY	PTY	TTC	TTC
TTT	TTT	VTI	—
TWI	TW	WD	—
TW2	TW	WMC	—
TYP	TYP		

TABLE C

NO. 2 ESS UNIQUE (OLD) KEYWORDS CROSS-REFERENCED TO CONVENTIONAL (NEW) KEYWORDS

NO. 2 ESS UNIQUE (OLD) KEYWORDS	CONVENTIONAL (NEW) KEYWORDS)	NO. 2 ESS UNIQUE (OLD) KEYWORDS	CONVENTIONAL (NEW) KEYWORDS
ARI	ARI	NHM	NST
ATC	ATC	NNX	NNX
ATF	ATF	NSN	NSN
ATS	ATS	NTE	IOE
BLN	BLC	NTN	NTN
BP	BGP	OA	OP
BSY	BSY	ORD	ORD
BTN	BTN	PFX	PFX
BV	BV	PLI	PLIT
CAT	CAT	PSZ	GSZ
CFB	E6G	PTY	PTY
CFD	E9G	RA	RAX
CFV	ESM	RCL	FL
CH	CSL	RI	RTI
CHD	EAB	RMB	RMB
CHI	CHI	ROR	DPO
CLO	CLO	SC	ESL
CMP	CMP	SC	ESF
COA	CAC	SDT	SDT
COB	COB	SER	SER
CPU	CPG	SFG	SFG
CTG	CTG	SHM	EHT
CTX	CTX	SLL	DP
CWT	ESX	SO	SO
DCC	EAN	SPN	SP
DGE	DGE	SSC	SSC
DGT	DGT	STB	BLN
DPU	DMA	TCG	TCG
DTP	DTP	TDG	TDG
DRI	DRI	TDP	TDP
END	END	TDP	TP
FHM	BHT	TEN	OE
GND	GST	THD	THD
GRP	HML	TLT	TLT
ICI	CIL	TN	TN
ICG	ICG	TOP	TOP
KEY	SKEY	TRC	TRC
LCC	LCC	TTC	TTC
LHM	LHT	TTT	TTT
LS	LS	TW	ESC
MBR	TER	TW	TW1
MBR	MBR	TW	TW2
MHM	NHM	TW	E2H
MN	MN	TYP	TYP
MSH	DPM		
NCT	NCT		
NDT	NDT		

4.33 The following is a description of the keywords, keyword modifiers, and message types used in an ESS order.

ACC One-digit code to be changed in the speed calling list.

ADD Add: Indicates that a feature or an equipment is added to the ESS order. A feature or equipment may be added (one or all of them at the same time) when basic service is established on a NEW type ESS order or added on a CHG type ESS order by use of the keyword ADD following the feature.

ADND Attendant Do Not Disturb

AFO Attendant Call Forward Outside

AFRI Attendant Call Forward Route Index

AOSL Automatic Line Insulation Test

AOUT Attendant Outward Restriction

ARI ACOF (Attendant Control of Facilities) Route Index: If ACOF is in effect, trunks so affected, go to either the attendant (if ACOF route index = 0), or to a specified route index.

ATC Attendant Type Code

ATF Attendant Speed Calling First List

ATOT Attendant Total Restriction

ATS Attendant Speed Calling Second Test

BASE Bulk Service Orders: Used after keywords that will be held constant for all of the bulk service orders and is used with keyword RPT.

BGP Barge-In Permitted

BHT First Hunt Member

BLC Bill Listed Number

BLN Special Toll Billing

BSY Busy Tone Feature

BTN Bill to Number: Use when a customer requests service be billed to a telephone number other than listed telephone number.

BV Busy Verify

CAC Access Central Office trunk for country access code tables. This keyword provides for the implementation of the International Direct Distance Dialing feature.

CAT Centrex Access Treatment Code Number

CD Customer Account Recording

CDRN Customer Dialed Account Recording

CFBA Call Forwarding—Busy Line All Calls

CFBN Call Forwarding—Busy Line Telephone Number

CFDA Call Forwarding—Don't Answer All Calls

CFDN Call Forwarding—Don't Answer Telephone Number

CFO Call Forwarding—Outside the Centrex Group

CGRP Do Not Disturb Control Group

CHI Charge Index

CIL Incoming Call Identification Lamp

CLO Customer Line Overflow Counter Number

CMP Camp-On Feature

CNF Conference Key

CNR Control Restrict Other Lines for FSH

COB Complaint Observing

COFL Allow Calls on Forwarded Line

CPG Call Pickup Group Number Feature

CR Control Restriction Code

CSL Change Speed Calling

CTG 6-Port Conference Group Number

CTX Centrex Group Number

CWOR Call Waiting Originating

CWTA Call Waiting Terminating All Calls

DGE Number of Digits Expected

DGS Digits to be associated with speed calling dial code divided into a maximum of five fields.

DGT The Digits which point to the terminal entry to be changed.

DISP Controlled Restriction Disposition code

DIT A terminal entry in the digit interpreter table.

DLT Delete: Indicates that a feature or an equipment is deleted from an ESS order.

DLY Provide 800-ms Delay After Sleeve Is operated

DMA Directed Pickup Feature

DP Sleeve Lead Enable Number: This keyword specifies the peripheral decoder point used to operate an auxiliary line circuit for service observing fire, police, noise suppression, etc.

DPLR Destination Port Lamp Rate

DPM Message Register Enable Number: This keyword is used when a peripheral decoder buffer (PDB) must be assigned to obtain a message register.

DPO Remote Overflow Register Number: This keyword specifies the peripheral decoder point to be used when overflow from the PBX is to be registered remotely.

DPP Open Switch Interval Protection Enable Number: This keyword specifies the PD point used to operate or release the OSIP circuit.

DRI Dialing Error Route Index

DSP0 Disposition of DID calls to this station when total or DND restrictions are in effect.

DSP1 Disposition of non-DID calls to this station when total or DND restrictions are in effect.

DSP2 Disposition of DIAL 9 calls from this station when outward restriction is in effect.

DSP3 Disposition of originations from this station when total restriction is in effect.

DSPT Disposition Telephone Number or Route Index

DTP The Data Type presently stored in the terminal entry.

EAB Dial Call Hold

EAN Dialed Controlled Conference

EHT Stop Hunt Member

ESC Threeway Calling Add-on

ESF Two Digit 30-code Speed Calling

ESL One Digit 8-code Speed Calling

ESM Call Forwarding Variable

ESX Call Waiting

E2H Threeway Call Transfer Individual All Calls: This feature permits the centrex customer to place any existing call on hold, call another party in or out of the centrex group, and add the original party to a 3-way call set-up or a call transfer to the second party (only one party may be outside centrex group).

E6G Call Forwarding—Busy Line

E9G Call Forwarding—Don't Answer

FFG Call Forward Simulated Facility Group

FFHM The FSH group First Hunt Member

FL Recall

FLHM FSH group Last Hunt Member

FNHM FSH group Night Hunt Member

FOFG Call Forward Outside Simulated Facility Group

FSH Flexible Station Hunting: This keyboard places the line on the FSH group.

FSHM FSH Group Stop Hunt Member

GRP Group Number

GST Ground Start

GSZ Group Size: This keyword specifies the maximum number of members (terminals) 2-way and out-dial only that the group may have. The number may be less than or equal to the maximum predefined size of the group, from the ODA input forms.

HML Multiline Hunt Group Number

HSZ Hunt Size: This keyword specifies the maximum number of members in the member list that can be hunted over when a call comes into the office in an attempt to find an idle number. The number may be less than or equal to the GSZ.

HTY Hunt Type

ICG Intercentrex Calling Group

ICTA Intercentrex (within ICCG) Call Transfer Allowed

IOE New Originating Equipment Number

ISG Intercom SIM Group

LAMP The keyword specifies the particular lamp in the lamp table being changed. Each lamp is associated with a PDB.

LBRI Loop Back Route Index

LCC Line Class Code: The LCCs are codes for all items of service. Each of the codes consists of three characters, each of which may be either a number or a letter. These characters indicate the major class of service of the customer.

LDS Simulated Trunk Facilities Group Number for Incoming Calls (Listed Directory Number)

LHT Last Hunt Member: This keyword specifies the last number hunted for a given directory number. The number may be less than or equal to the HSZ.

LIST The centrex list of the speed call change.

LS Look for Sharp (#): Indicates that the next digit dialed may be a sharp. It may be used to add or delete LS.

MBR Trunk Group Member Number

MN Manual Trunk Group: This keyword is used to indicate a manual tie trunk group.

MXDE Maximum Digits Expected

NCT Data Restriction

NDE Minimum Number of Digits Expected

NDT The New Data Tape to be stored in the terminal entry (See keyword DTP).

NFD New Frame Data Link and Console Number This keyword is the new frame data link and console number to which an attendant is to be changed.

NHT Night Service

NIQ No idle list or call waiting queue.

NNX The office code to be prefixed.

NSN Night Service Number

NST Night Hunt Member: This keyword specifies the last member to be hunted when night service is in effect. The number may be less than or equal to the hunt group size (HSZ).

NTN New Telephone Number: Used when changing the TN.

ODT Optional Second Dial Tone

OE Originating Equipment Number

OFD Old Frame Data Link and Console Number: This keyword is the number combination for the old frame data link and console number to which the attendant was assigned.

OGP Old Service Circuit Group Number

OMB Old Service Circuit Member Number

OP Outpulse Access Code: This keyword indicates when the dialed access code is to be outpulsed.

ORD ESS Order Number: The ESS order number from 0 to 9999 is required on every ESS order.

OVM Hunt List Overflow Member: This keyword is the member to which hunting overflows if all hunt members are busy.

PBD Position Busy Data

PDA Peripheral Decoder Buffer Address: This keyword is used to specify the peripheral decoder buffer address used for trunk member.

PDB Peripheral Decoder Buffer: This keyword specifies the PD buffer point used to operate the trunk busy or ACOF lamps.

PLIT Prohibit Line Insulation Test: This message type is used to prohibit automatic insulation test (ALIT) from being performed except restore verify.

PLM Prohibit Line Maintenance: This message prohibits ALIT, NETFAB and JASINT programs from performing maintenance tests.

POSD Position Status Data

PSG 3-Port SIM Group

PTY Party Ringing Code Number

RAX Rate Area: The geographical area served by the ESS.

RC Recent Charge Input Message

REC Record the centrex group peg usage and overflow for 3-port SIM group and intercom SIM group or AMA every hour.

RES Restriction code

RLMP Register or lamp for overflow

RMB Remote Make Busy: This keyword specifies what remote make busy key a given number is to be assigned.

ROH Carrier Line

RPT This keyword is used when doing bulk service orders. It is placed at the end of each individual order of a bulk service order. When ***RPT*** is used that order will be executed using the ***BASE*** keyword along with those preceding the RPT.

RTI Route Index: Used to indicate the type of intercepting and special routing information to be provided for different call types.

RTIM Manual Line Route Index: This keyword places an originating route index on manual line.

SAT Satellite Transfer

SBAC Source Billing on Attendant handled calls

SBGP SCA subgroup number that indicates a FSH first and last hunt member.

SBR Short Burst of Ring on line that is call forwarded.

SCA Simplified Console Attendant

SCCW Six seconds of audible ringing followed by silence on call waiting originating.

SDND Station Do Not Disturb

SDT Second Dial Tone returned: This keyword indicates whether or not second dial tone should be returned to the calling party after the specified access code is dialed.

SER Series Completion: This service is used to hunt telephone numbers in series and may be assigned only to one-party class of service.

SFG The Simulated Facilities Group number

SIEP Stable Information Entry provided for centrex group.

SIM Simulated Trunk Group

SKEY Key Number: This keyword specifies the key number that is associated with a scan point number.

SO Seven-digit CCSA dialing only. If a centrex group has only 7-digit CCSA dialing, the information for the trunk group is stored in the terminal entry.

SP Scan Point

SPLR Source Port Lamp Rate

SSC Special Service Code

SSR Special Service Register

STRI Satellite Transfer Route Index

SUBB This keyword takes an octal miscellaneous subtranslator base address and finds an empty entry.

SUBG Subset of a Flexible Station Hunting Group: This keyword designates a BHT through an LHT.

TBL Table and entry pointer

TBM Trunk Busy Memory

TCG Two common controlled switching access (CCSA) groups. If this centrex group has two CCSA groups (both 7 and 7/10 digit dialing), the information for the 7-digit only group is contained in terminal entry. Information for

the 7/10 group is contained in the centrex group information.

TDG Ten-Digit CCSA Group Number

TDP Ten-Digit CCSA Dialing Permitted

TER Member terminal number

THD Through Dial feature

TN Telephone Number: The customer telephone number must be entered as all numbers; prefix letters are not accepted.

TOP Time-Out for speed calling

TP One-digit CCSA dialing permitted

TRC Trace (Calling Line Identification): This service traces all incoming calls to the customer telephone number and types a record on the maintenance TTY.

TTC TOUCH-TONE Calling. This service allows the customer to tap out the called number, triggering electronic impulses to speed the call.

TTT Tie Trunk Type

TW 1 Call Transfer—Attendant feature: This feature permits the centrex customer to transfer an incoming call to the attendant.

TW 2 Call Transfer—Individual: This feature permits the centrex customer to place an existing incoming call on hold, call another party in or out of the centrex group, and to add the original party to a 3-way call setup or a call transfer to the second party (only one party may be outside the centrex group).

TYP Type: The ESS must know what type of centrex customer in order to place an existing incoming call on hold, call another party in or out of the centrex group, and to add the original party to a 3-way call setup or a call transfer to the second party (only one party may be outside the centrex group).

TYP Type: The ESS must know what type of order it is processing. One of the following codes must be associated with the TYP keyword in the ESS order.

(a) NEW (New Customer)—This code is used when telephone service is given to a new customer.

(b) CHG (Change)—This code is used when the data information stored in the ESS for an existing customer is to be changed.

(c) OUT (Disconnect Service)—This code is used when a customer service is to be disconnected and placed on machine intercept.

(d) ICP (Intercept)—This code is used when a customer service is to be disconnected and placed on operator intercept.

Note: Before a telephone number on ICP can be made available for unassignment, an OUT order must be prepared and transmitted.

VTI Variable Timing Index number

WD Change Word of Route Index

EXAMPLE TTY INPUT MESSAGES

A. New Line Installation Message

4.34 The following is an example of the use of some of the keywords in a NEW type ESS order for noncentrex. One or all of the features and equipment may be added depending on customer requirements.

```
A RC:L/
ORD 0002/
TYP NEW/
OE 00 3060/
```

TN 554 1111/
LCC 1FR/
BTN 554 1135/
TTC ADD/
PLIT ADD/
ESL ADD/
CSL ADD 1/
ESX ADD/
E2H ADD/
COB ADD/
TRC ADD/
END!

B. Change to Line Message

4.35 The following is an example of the use of some of the keywords in a CHG-type ESS order for noncentrex. One or all of the features or equipment may be added, changed, or deleted depending on customer requirements.

A RC:L/
ORD 0011/
TYP CHG/
OE 00 1260/
TN 554 2211/
TTC ADD/
PLIT DLT/
ESL ADD/
CSL ADD 1/
ESX DLT/
E2H DLT/
COB ADD/
TRC ADD/
END!

C. Terminate Service Message

4.36 The following is an example of the use of keywords in an OUT type ESS order:

A RC:L/
ORD 0010/
TYP OUT/
OE 00 2160/
TN 554 1201/
END!

5. SERVICE ORDER VERIFICATION PROCEDURES

VERIFICATION REQUEST MESSAGES—INDIVIDUAL LINE

5.01 All verify procedures given in this section are allowed from all TTY channels. The RC procedures are allowed from channels 0, 1, and 3 only.

5.02 The following verification request messages can be used to verify line translation information. Reference should be made to Input Message Manuals IM-2H200-04 or IM-2H200-05 and Output Message Manuals OM-2H200-04 or OM-2H200-05 for additional information.

A. Verify Telephone Number Information

5.03 Use this format.

A VY:L/
TN 554 1201/
END!

nnx abcd = Telephone number.

5.04 The system response should be PF (printout follows) and an output message with the information. Reference should be made to paragraph 4.18 and OM-2H200-04 or OM-2H200-05 for more information.

5.05 If the system response is NG, indicating that the verification request was rejected, see paragraph 4.19 for more information.

5.06 If the system response is RL (repeat later), the verification request should be repeated at a later time.

5.07 The following is an example of how an input verification request message, system response, and output message may appear on the service order TTY. The verification is for telephone number 554 9382 which has 1FR service, TOUCH-TONE and is associated with originating equipment number 00 3371.

A VY:L/
TN 554 9382/
END! PF (Note 1)

```
47 AR VY L
TN 554 9382
OE 00 3371
BTN 554 9382
LCC 1FR          (Note 2)
RAX 0
TTC
END!
```

Note 1: PF (printout follows) is the system response and is not part of the input message. An output message will follow.

Note 2: In this example and throughout this section, the LCC for your office must be used. Refer to local LCC Table, Form ESS 2306.

B. Verifying a Trunk, Service Circuit, or Attendant (Frame, Data Link, Console) Originating Equipment Number (OE)

5.08 To verify an OE:

```
A VY:L/
OE 01 0232/
END!
```

The information returned is that which would have been returned had the trunk or service circuit been verified by group and member, or had the attendant been verified by FDC (frame, data link, console). See the following messages in IM/OM-2H200-04 or 2H200-05 for more details:

```
AR VY TRK
AR VY SVC
AR VY ATT.
```

C. Verify Speed Calling List Information

5.09 Use one of the following formats:

```
A VY:SC/
TN 554 9382/
END!
```

or

```
A VY:SC/
OE 00 3371/
END!
```

or

```
A VY:SC/
CTX 101/
LIST 123 1/
END!
```

The system response should be PF and an output message with the information.

VERIFICATION REQUEST MESSAGES—MULTILINE HUNTING GROUP

5.10 The following verification request messages can be used to verify MLHG information. Reference should be made to IM/OM 2H200-04 or 2H200-05 for additional information.

A. Verify Entire MLHG

5.11 Use the following format:

A VY:MLH:213!

213 = MLHG number.

The system response should be a PF and an output message with the information.

B. Verify Specific Member of MLHG

5.12 Verification of a specific member of an MLHG may be performed by group and member number by use of the following format:

A VY:MLH:213 107!

213 = MLHG group number

107 = Member number.

The system response should be a PF and an output message with the information.

5.13 If the OE is known (eg, 01 0233), it may be verified by using the line verification message:

```
A VY:L/
OE 01 0233/
END!
```

The system response should be a PF and an output message with the information.

5.14 If the member has the optional TN and it is known (eg, 555 2883), it may be verified by using the line verification message:

```
A VY:L/
TN 555 2883/
END!
```

The system response should be a PF and an output message with the information.

C. Verify Hunt Group Data

5.15 To verify a specific hunt group within an MLHG (eg, hunt group with TN 555 1212), use the input message:

```
A VY:L/
TN 555 1212/
END!
```

The system response should be a PF and an output message with the information.

MISCELLANEOUS VERIFICATION

A. Verify All OEs Sharing the Same Billing Number

5.16 This message is used to find and print out all originating equipment numbers associated with the specified billing number.

```
A VY:BTN/
BTN 727 3962/
END!
```

727 3962 = Billing number.

Note: Refer to the IM-2H200-04 or IM-2H200-05 for more information about this message.

The system response should be a PF and an output message with the information.

B. Verify All OEs Sharing the Same Message Register

5.17 This message is used to find and print out all originating equipment numbers associated with the specified message register.

```
A VY:MSG/
DPM 5432 11/
END!
```

5432 11 = Message register enable number.

Note: Refer to IM-2H200-04 or IM-2H200-05 for more information about this message.

The system response should be a PF and an output message with the information.

C. Verify All OEs Sharing the Same Sleeve Lead

5.18 This message is used to find and print out all originating equipment numbers associated with the specified sleeve lead.

```
A VY:SLL/
DP 4521 32/
END!
```

4521 32 = Sleeve lead enable number.

Note: Refer to IM-2H200-04 or IM-2H200-05 for more information about this message.

The system response is a PF and an output message with the information.

D. Verify All OEs Sharing the Same Open Switching Interval Protection

5.19 To verify an open switching interval protection feature:

```
A VY:OSI/
DPP 0512 11/
END!
```

E. Verify Centrex Station Lines Sharing Speed Call List

5.20 Any number of centrex station lines may share a given 1-digit or 2-digit speed call list. The only restriction is that the station be part of the same centrex group.

5.21 To verify which stations have access to 1-digit speed call list 12 for centrex group 7:

```
A VY:SCL/
SC 12 1/
CTX 7/
END!
```

Note: The output message will be SC 1 12.

All station lines (telephone numbers) which have access to 1-digit speed call list 12 will be printed out. If 0 inputted for the list number, all stations for the given centrex group which have 1-digit speed calling will be printed out with their respective 1-digit speed call list number.

5.22 To verify which stations have access to 2-digit speed call list 3 for centrex group 7:

```
A VY:SCL/
SC 3 2/
CTX 7/
END!
```

Note: The output message will list SC 2 3.

All stations which have access to 2-digit speed call list 3 will have their telephone numbers printed out. If 0 is inputted to the list number, all stations for the given centrex group which have 2-digit speed calling will be printed out with their respective 2-digit speed call list number.

5.23 To verify which stations have access to either 1-digit speed call list 12 or 2-digit speed call list 3:

```
A VY:SCL/
CTX 7/
SC 12 1/
SC 3 2/
END!
```

Note: The output message will list SC 1 12 and SC 2 3.

All station lines which have access to 1-digit speed call list 12 or to 2-digit speed call list 3 will have their telephone numbers printed out.

F. Verification of Station Lines in a Call Pickup Group

5.24 Any number of centrex extensions may be part of a given call pickup group. To verify which extensions belong to a given group:

```
A VY:CPU/
CTX 2/
CPG 5/    (Note)
END!
```

Note: Variable field represents the call pickup group. The range of the variable field is 1 through whatever is the maximum call pickup group number defined for the centrex group.

All extensions which have access to this call pickup group will have their telephone numbers printed out. If 0 is inputted for the call pickup group, all extensions for the given centrex group which do ***not*** have the call pickup feature are printed out.

G. Verify Centrex Digit Interpreter Table

5.25 To verify a centrex digit interpreter table:

```
A VY:DIT:1/
CTX 001/
DGT 3/    (Note)
END!
```

Note: The variable field represents the digit that points to the terminal entry to be verified. It may be from 1 to 4 digits in length. The allowable digits are 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0.

H. Verify Simplified Console Attendant Block

5.26 To verify a simplified console attendant (SCA) block:

```
A VY:SCA:007 014 0!
```

where 007 is the centrex group number, 014 is the SCA number, and 0 means the data is to be from program store. A 1 means the data is to be from recent change.

I. Verify Simplified Console Attendant Lamp Data for a Centrex Group

5.27 To verify the data contained in the SCA lamp table for a centrex group:

```
A VY:LMP:007 0!
```

where 007 is the centrex group number and 0 means the data is to be from program store. A 1 means the data is to be from recent change.

J. Verify Flexible Station Hunt (FSH) Member

5.28 To verify a flexible station hunt (FSH) member prior to any recent change activities:

A VY:FHM:1 7!

This request will verify member 7 of FSH group 1. If the member number is ***not*** known, but the TN or OE number is known, one of the following requests may be used:

A VY:L/
TN 255 2105/
END!

or

A VY:L/
OE 01 0223/
END!

Each of these two input messages will verify all the features on the line including its FHG group and member number and all other FSH features associated with that line.

K. Verify a Flexible Station Hunt (FSH) List

5.29 To verify a flexible station hunt (FSH) group:

A VY:FHG:123 0!

This message will verify the group data for FSH group 123. The 0 indicates program store is verified. If a 1 is used, the message will verify recent change data.

L. Verify a Flexible Station Hunt (FSH) Group Preferential Hunt List

5.30 Preferential lists are assigned to a FSH group which allows preferential hunting. To verify the contents of a particular preferential list:

A VY:PRF:2 15!

This message will verify List 15 of FSH group 2.

M. Verify a Country Access Code (CAC) for International Direct Distance Dialing

5.31 To verify a country access code (CAC) for international direct distance dialing:

A VY:CAC:321!

6. NONCENTREX LINE

NEW LINE ASSIGNMENTS (EXAMPLES)

6.01 The following information should be considered when any ESS order is being prepared:

(a) Complete and accurate information must be recorded on the ESS 2100 series forms as specified in the Translation Guide, TG-2H prior to executing any TTY input messages.

(b) If the office is equipped with range extension, caution must be exercised in selecting the OE to be used. If a line requires range extension (line resistance greater than 1300 ohms), it ***must*** be assigned to an OE within a network concentrator equipped for range extension. If the line does not require range extension, it ***must not*** be assigned to a range extended network concentrator.

(c) If only one rate area is defined within an office, it is always assumed by the program to be rate area 0, and no input information is required. If a line must be defined as in other than rate area 0, the following additional input line is required in the ESS order to specify the rate area:

RAX a/

a = Rate area number.

(d) On all party line ESS orders (NEW, CHG, ICP, or OUT), the party number is needed to identify the line.

A. Individual Party Flat Rate—Residential Service (1FR)

6.02 To establish flat rate billing for individual party residential service, use the following format:

```
A RC:L/
ORD 0001/
TYP NEW/
OE 00 3060/
TN 554 1111/
LCC 1FR/
RAX 1/
END!
```

B. Individual Party Flat Rate—Business Service (1FB)

6.03 To establish flat rate billing for individual party business service, use the following format:

```
A RC:L/
ORD 0002/
TYP NEW/
OE 01 1060/
TN 554 1135/
LCC 1FB/
RAX 1/
END!
```

C. Two-Party Flat Rate—Residential Service (2FR)—Ring Party

6.04 To establish flat rate billing for 2-party (ring) residential service, use the following format:

```
A RC:L/
ORD 0004/
TYP NEW/
OE 01 2160/
TN 554 3051/
LCC 2FR/     (Note 1)
PTY 1/     (Note 2)
RAX 1/
END!
```

Note 1: On all party line ESS orders (NEW, CHG, ICP, or OUT), the party number is needed to identify the line.

Note 2: Not all features or equipment are available to party line customers. Refer to paragraphs associated with the individual feature or equipment.

D. Two-Party Flat Rate—Residential Service (2FR)—Tip Party

6.05 To establish flat rate billing for 2-party (tip) residential service, use the following format:

```
A RC:L/
ORD 0005/
TYP NEW/
OE 00 3260/
TN 554 3134/
LCC 2FR/
PTY 2/
RAX 1/
END!
```

E. Multiparty

6.06 To establish flat rate billing for multiparty lines, use the following format:

```
A RC:L/
ORD 0001/
TYP NEW/
OE 00 3060/
TN 554 1111/
LCC 4FR/
PTY 3/
RAX 1/
END!
```

F. Coin Service

6.07 To establish coin service, use the following format:

```
A RC:L/
ORD 0021/
TYP NEW/
OE 00 3460/
TN 554 8910/
LCC 1PC/
RAX 1/
END!
```

G. Mobile Radio

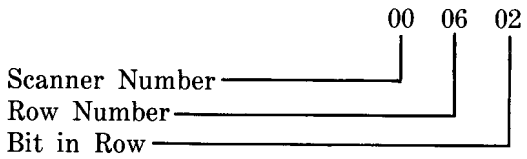
6.08 A scan point must be assigned with mobile radio to indicate that all channels are busy. Scan point assignments are obtained from the Network Administrator and are recorded on Scan

Point Assignment Record, form ESS 2576-2. Scan point assignments must be posted to the exchange customer cable records.

New Installation With Mobile Radio

```
A RC:L/
ORD 0129/
TYP NEW/
OE 00 3050/
TN 554 1111/
LCC MMT/
SP 00 0602/        (Note 1)
BSY ADD/           (Note 2)
END!
```

Note 1: A scan point must be assigned with the SP keyword. The following describes what the scan point means:



Note 2: BSY ADD/ causes busy tone to be returned when all mobile radio channels are busy. BSY DLT/ causes reorder to be returned when all mobile radio channels are busy. Either BSY ADD/ or BSY DLT/ is used. This keyword is not required on a TYP NEW.

H. Outward WATS (Wide Area Telecommunication Service)

6.09 Outward Wide Area Telephone Service is an originating feature that provides for billing the originating customer for calls on a **measured** or **full time** basis. **Measured** time is usage sensitive where **full time** allows an unrestricted number of calls.

New Installation With Outward WATS (Measured or Full Time)—Provided With LCC

```
A RC:L/
ORD 0010/
TYP NEW/
OE 00 2160/
TN 554 1201/
LCC WMJ/
RAX 1/
END!
```

I. 800 Service

New Installation With Full Business Day

6.10 The 800 Service is a terminating feature that provides for billing calls to a terminating party instead of the originating party. The full business day line allows the customer an unrestricted number of incoming calls made per line. To implement this feature, a simulated facilities group number must be assigned to the line:

```
A RC:L/
ORD 0014/
TYP NEW/
OE 00 3060/
TN 554 1234/
SFG 2/
LCC WFI/
RAX 1/
END!
```

New Installation With Measured Time 800 Service

6.11 Measured Time 800 Service is identical to Full Business Day 800 Service except that measured time 800 Service allows the customer to pay for the line based on the amount of time the line is used. To assign this feature to a line:

```
A RC:L/
ORD 1234/
TYP NEW/
OE 00 3060/
TN 554 1234/
SFG 3/
LCC WM3/
RAX 1/
END!
```

J. Free Terminating Service

6.12 Free terminating service is provided by the assignment of the line class code (LCC) to a line.

Note: Party lines are not permitted to have free terminating service.

New Installation With Free Terminating Service

```
A RC:L/
ORD 0142/
TYP NEW/
```

```
OE 00 3060/
TN 554 1111/
LCC 1FT/
RAX 1/
END!
```

Adding Free Terminating Service

```
A RC:L/
ORD 0143/
TYP CHG/
OE 01 1060/
TN 554 1135/
LCC 1FT/
RAX 1/
END!
```

Removing Free Terminating Service

```
A RC:L/
ORD 0144/
TYP CHG/
OE 00 3060/
TN 554 1111/
LCC 1FR/          (Note)
RAX 1/
END!
```

Note: Change to nonfree LCC.

K. Manual Line Service

6.13 A manual line is a line that cannot originate calls without the aid of an operator. Terminations are not affected. A manual line is defined on a type NEW service order only by typing a line class code which has a major originating class of 10. A route index may also be specified which indicates how the call is to be routed. The default value is zero. To assign manual line service to a line (assuming MAN is the assigned LCC):

```
A RC:L/
ORD 0001/
TN 554 1234/
OE 00 3261/
LCC MAN
RTIM 46/ (optional)
END!
```

REMOVING FROM OR SUSPENDING SERVICE (EXAMPLES)

A. Temporary Suspension of Service

6.14 In order to suspend service, an LCC is used whose expansion yields a major class of denied service. This LCC must be recorded on the Line Class Code Table, form ESS 2306 (Fig. 12).

(a) For a party line, the party number is needed to identify the line. The 4- and 8-party lines can only have terminating service suspended.

(b) When suspending terminating or suspending originating and terminating service, a route index (RTI) is needed; but if a RTI is not typed, the RTI on ESS 2303-R output form or a default value of 008 will be used.

(c) A separate LCC in each rate area (RAX) must be defined for each type of suspension (deny termination, deny origination, or deny both) for each party of 2-party lines. A separate LCC for terminating only suspension in each RAX must be defined for each party of 4- and 8-party lines.

(d) For party lines, the 2-bit code in the deny LCC must be the same as the 2-bit number for the other parties; otherwise, the unchanged parties will not verify correctly (the 2-bit number is associated with the TGN, not the TN).

Suspending Originating Service Only

```
A RC:L/
ORD 0023/
TYP CHG/
OE 00 3260/
TN 554 3485/
LCC DOG/
RAX 1/
END!
```

Suspending Terminating Service Only

```
A RC:L/
ORD 0004/
TYP CHG/
OE 01 2160/
TN 554 3051/
LCC DTR/
```

```
RTI 009/
RAX 1/
END!
```

Suspending Originating And Terminating Service

```
A RC:L/
ORD 1000/
TYP CHG/
OE 00 3260/
TN 554 3485/
LCC DBW/
RTI 009/
RAX 1/
END!
```

B. Restoring Temporarily Suspended Service

6.15 All lines that have been denied service, regardless of the class of service, require the same ESS order format to restore service. The only difference in the ESS order format is the LCC that is used.

Caution: Extreme care should be taken to use the original LCC in the ESS order when restoring service to a suspended line. The use of an incorrect LCC can cause translation problems.

Use this format.

```
A RC:L/
ORD 1000/
TYP CHG/
OE 00 3260/
TN 554 3485/
LCC 1FR/
RAX 1/
END!
```

C. Removal to Intercept (Disconnected Number Treatment)

6.16 All ICP type orders will be routed to an intercept as specified by the route index code associated with the ESS order. Route index codes may vary by office. Consult the table of route index codes for each individual office.

```
A RC:L/
ORD 0006/
TYP ICP/
OE 00 3060/          (Note 1)
TN 554 1111/         (Note 2)
RTI 009/         (Note 3)
END!
```

Note 1: The OE is now available for reassignment.

Note 2: Telephone numbers (TNs) placed on intercept cannot be reassigned until removed by an OUT order.

Note 3: If the route index is not typed, the route index which is shown on the ESS 2303-R output form for the particular office code is used. If no route index is specified, a default value of 008 will be inserted by the program.

The party number is required for party lines to identify the correct line.

D. Removing a TN From Operator Intercept to Machine Intercept (Unassigned Condition)

6.17 Calls to unassigned TNs are given the blank number treatment specified for the hundreds group of telephone numbers (see paragraph 13.01). To remove a TN from operator intercept to machine intercept:

```
A RC:L/
ORD 0001/
TYP OUT/
TN 555 1212/
END!
```

E. Removal of Active Line—TN to Machine Intercept (Unassigned Condition)

6.18 To completely remove a line from service, unassign both TN and OE.

```
A RC:L/
ORD 0001/
TYP OUT/
OE 01 1060/          (Note)
TN 554 1135/         (Note)
END!
```

Note: The OE and TN are now available for reassignment. All calls to the TN while in this unassigned condition will be given the

blank number treatment specified for the hundreds group of telephone numbers.

The party number is required for party lines to identify the correct line.

CHANGING A TELEPHONE NUMBER THAT IS ON MACHINE INTERCEPT (BLANK NUMBER) TO OPERATOR INTERCEPT

6.19 An intercepting route index code routes machine intercept (blank number) calls to operator intercept or any other special treatment. Two ESS orders are required. The first order is a NEW type to assign the telephone number that was on machine intercept. The second order is an ICP type order to place the telephone number on operator intercept. All ICP type orders must have a route index code associated with the ESS order if other than 008. Route index codes may vary by office. Consult the table of route index codes for each individual office.

6.20 Use this format for the first order:

```
A RC:L/
ORD 1003/
TYP NEW/
OE 01 1060/          (Note 1)
TN 554 1135/
LCC 1FR/          (Note 2)
END!
```

Note 1: Select any vacant OE.

Note 2: The LCC can ***not*** be one for special routing (major terminating class = 32). (See paragraph 6.22.)

6.21 Use this format for the second order:

```
A RC:L/
ORD 1004/
TYP ICP/
OE 01 1060/          (Note 1)
TN 554 1135/
RTI 009/          (Note 2)
END!
```

Note 1: The OE is now available for reassignment.

Note 2: If the route index is not typed, the route index which is shown on the ESS 2303-R output form for the particular office code is used. If no route index is specified, a default value of 008 will be inserted by the program.

PLACING A TELEPHONE NUMBER ON SPECIAL ROUTING

6.22 To place a TN on special routing (such as an MW test line, code conversion, etc), follow the procedure in paragraphs 6.19 through 6.21. Use the proper route index to get the routing desired. It is ***not*** correct to enter a NEW line with the special routing LCC (major terminating class = 32).

CHANGING ORIGINATING EQUIPMENT NUMBER—USE THE SAME TELEPHONE NUMBER

6.23 Changing the originating equipment number (OE) requires coordination between the assignment office and frame personnel. After the new OE is selected, the OE assignments are forwarded to the frame personnel. The frame personnel will attempt to place a call from the new OE. This is necessary to ensure that the OE is spare and to condition it for the new OE order. If dial tone is present on the new OE, the frame personnel will notify the assignment personnel so that an investigation can be made. If OE is spare, the frame personnel will back tap a cross-connect from the cable pair to the new OE. The assignment personnel will then be notified to input the message to establish the new OE in translation. After the order is entered in translation, the back tap to the old OE may be removed.

6.24 Use this format:

```
A RC:L/
ORD 0130/
TYP CHG/
OE 01 1060/          (Note 1)
TN 554 1135/
IOE 01 1001/          (Note 2)
END!               (Note 3)
```

Note 1: Old originating equipment number.

Note 2: New originating equipment number.

Note 3: When changing the OE of a party line, each party assigned must be moved by a separate ESS order. The party number is needed to identify the line.

CHANGING TELEPHONE NUMBER—USE THE SAME ORIGINATING EQUIPMENT NUMBER

6.25 Before preparing the ESS order, determine if calls to the old telephone number are to be given the unassigned or intercept treatment. If the calls to the old telephone number are to be given unassigned treatment, use ***Procedure A.*** If the calls to the old telephone number are to be given intercept treatment, use ***Procedure B.***

A. Old Telephone Number to Unassigned

```
A RC:L/
ORD 0101/
TYP CHG/
OE 01 1060/
TN 554 1135/          (Note 1)
NTN 554 1162/         (Note 2)
END!
```

Note 1: Old telephone number 554 1135 is now unassigned (blank number) and calls will be given the blank number treatment specified for this hundreds group of telephone numbers.

Note 2: New telephone number.

B. Old Telephone Number to Intercept

6.26 Two ESS orders are required. The first ESS order uses the format in paragraph 6.15 to reassign the old telephone number to the desired intercept treatment and free the OE to reassignment. The second ESS order uses the format in paragraph 6.01 to assign the new TN and the old OE in a new type ESS order.

CHANGING TYPE OF SERVICE

6.27 No. 2 ESS types of service are: 1-party, 2-party, multiparty, multiline hunting group, centrex line, and centrex universal attendant console.

A. Changing 2-Party Flat Rate Residential Service (2FR) to Individual Party Residential Service (1FR)

6.28 Two ESS orders are required to change from one type of service to another type of service. The first order is an OUT-type order to take out the entire service (PTY 2). The second order is a NEW-type order to establish the new class of service with the appropriate LCC (1FR).

Note: It is necessary that, before typing the first order, the information associated with the telephone number be verified (see paragraph 5.06). The verified information should be used as reference when typing the second order.

6.29 Use this format for the first order:

```
A RC:L/
ORD 0016/
TYP OUT/
OE 00 3260/
TN 554 3485/
PTY 2/
END!
```

6.30 Use this format for the second order:

```
A RC:L/
ORD 0017/
TYP NEW/
OE 01 1260/
TN 554 3485/
LCC 1FR/
RAX 1/
END!
```

B. Changing Ringing Code of a 2-Party TN

Note 1: It is not required to maintain 2-party service. There can just be service on the ring side or the tip side.

Note 2: On all party line ESS orders, the party number is needed to identify the line.

6.31 The following procedure is used to change the tip party to the ring party or the ring party to the tip party. Two ESS orders are required. The first order is an OUT-type order to take out the entire service. The second order is a NEW-type order to reestablish the entire service and change the tip party to the ring side. These orders should not be inputted until instructions are received from the installation or repair personnel that the field work has been or is about to be completed.

Note: It is necessary that, before typing the first order, the information associated with the telephone number is verified (see paragraph 5.06). The verified information should be

used as reference when typing the second order.

6.32 Use this format for the first order:

```
A RC:L/
ORD 0017/
TYP OUT/
OE 01 2160/
TN 554 3051/
PTY 2/
END!
```

6.33 Use this format for the second order:

```
A RC:L/
ORD 0020/
TYP NEW/
OE 01 2160/
TN 554 3051/
LCC 2FR/
PTY 1/
RAX 1/
END!
```

6.34 The following procedure assigns a new originating equipment number and changes the ring party to the tip side. Two ESS orders are required. The first order is an OUT-type order to take out the entire service. The second order is a NEW-type order to reestablish the entire service, change the terminal equipment number, and change the ring party to the tip side.

Note: It is recommended that, before typing the first ESS order, the information associated with the telephone number be verified. (See paragraph 5.06.) The verified information should be used as reference when typing the second ESS order.

6.35 Use this format for the first order:

```
A RC:L/
ORD 0019/
TYP OUT/
OE 01 2160/
TN 554 3051/
PTY 1/
END!
```

6.36 Use this format for the second order:

```
A RC:L/
ORD 0020/
TYP NEW/
OE 01 1360/
TN 554 3051/          (Note)
LCC 2FR/
RAX 1/
PTY 2/
END!
```

Note: The TN 554 3051 is the same as the TN in the first order.

LINE FEATURES

6.37 Each example listed below performs only the one desired task. It is not necessary to make up a separate service order for each individual change to a line.

A. Bill to Number (BTN)

6.38 The bill to number (BTN) is a telephone number to which customer calls are billed. The BTN must be an office code defined in that office (see form ESS 2303-R).

Note: For a party line, the party number is needed to identify the line.

New Installation With Bill to Number

```
A RC:L/
ORD 0030/
TYP NEW/
OE 00 3060/
TN 554 1111/
LCC 10B/
RAX 1/
BTN 554 1135/
END!
```

Adding or Changing Bill to Number

```
A RC:L/
ORD 0031/
TYP CHG/
OE 00 2160/
TN 554 1201/
BTN 554 1111/
END!
```

Changing Bill to Number to the Listed TN

```
A RC:L/
ORD 0032/
TYP CHG/
OE 00 2160/
TN 554 1201/
BTN 554 1201/          (Note)
END!
```

Note: The telephone number associated with the BTN keyword is the same as the telephone number associated with the TN keyword.

B. One-Digit Speed Calling (ESL)

6.39 To assign the 1-digit speed calling (8-number repertory) feature to an existing line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0233/
TN 555 1212/
ESL ADD/      (Note)
END!
```

Note: Speed calling features cannot be assigned to party lines, manual lines, or coin lines.

6.40 The numbers are stored in the list either by customer action or by the operating company as shown below. These numbers are accessed by dialing the single speed calling digit (2 through 9) and then either the # digit or waiting for a 4-second time-out.

6.41 To remove the 1-digit speed calling feature from an existing line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0233/
TN 555 1212/
ESL DLT/
CSL DLT 1/
END!
```

C. Two-Digit Speed Calling (ESF)

6.42 To assign the 2-digit speed calling feature (30-number repertory) to an existing line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0233/
TN 555 1212/
ESF ADD/      (Note)
END!
```

Note: Speed calling features cannot be assigned to party lines, manual lines, or coin lines.

6.43 The numbers are stored in the list either by customer action or by the operating company as shown below. These numbers are accessed by dialing the 2-digit speed calling code (20 through 49) and then either the # digit or waiting for a 4-second time-out.

6.44 To remove the 2-digit speed calling feature from an existing line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0233/
TN 555 1212/
ESF DLT/
CSL DLT 2/
END!
```

D. Customer Dialed Changes to Speed Calling Lists

6.45 To provide a customer with the ability to directly dial changes to a 1-digit speed calling list:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0233/
TN 555 1212/
CSL ADD 1/
END!
```

6.46 The customer dialed change feature for a 2-digit speed calling list may be assigned exactly as above except by using CSL ADD 2/ instead of CSL ADD 1/.

6.47 Customer dialed change ability can be assigned to a line; however, the line must have the speed calling feature.

6.48 The speed calling change feature allows a customer to directly dial changes into the customer speed call lists. This is performed by going off-hook and dialing 74 and then the # digit or waiting for a 4-second time-out for a 1-digit speed calling list change; dial 75 and then the # digit or waiting for a 4-second time-out for a 2-digit speed calling list change. Upon receipt of a second dial tone, the dial code to be changed is dialed (one or two digits) and then the number to be associated with this code. The range of the 1-digit codes is 2 through 9, and 20 through 49 for the 2-digit codes. The number may be 7, 8, 10, or 11 digits in length, plus a prefix. After dialing is completed, a confirmation is returned of 100 milliseconds of dial tone, 100 milliseconds of silence, and then 300 milliseconds of dial tone. Examples of this dial sequence are shown below.

For 1-digit speed calling:

74-2-1-201-555-1212	Example for a TN of 11 digits
74-4-201-555-1212	Example for a TN of 10 digits
74-6-1-555-1212	Example for a TN of 8 digits
74-8-555-1212	Example for a TN of 7 digits

For 2-digit speed calling:

75-20-1-201-555-1212	Example for a TN of 11 digits
75-36-201-555-1212	Example for a TN of 10 digits
75-40-1-555-1212	Example for a TN of 8 digits
75-48-555-1212	Example for a TN of 7 digits

6.49 The dialed changes are checked by the program to determine if the number of digits is correct. A non-MLHG customer may remove an entry from the list and not insert another by dialing the customer's own telephone number as the new number for that dial code being changed.

6.50 The customer dialed changes to speed calling lists enter the recent change buffers exactly as other service orders. ***A paper tape TTY record of all changes should be generated as they are inputted by the customer.*** The input message to cause these tapes to be created by the TTY as the changes are dialed in is:

A RC:PUN:1!

These tapes provide a record of speed calling changes and are perforated in standard service order format so that they may be directly inputted through the service order channel, in the same sequence as received, should recent change areas be destroyed before the changes are updated in permanent memory. The input message to instruct the machine to no longer produce tapes from customer dialed changes is:

A RC:PUN:0!

6.51 To remove the customer change feature on a 1-digit calling list:

A RC:L/
ORD 0001/
TYP CHG/
OE 01 0233/
TN 555 1212/
CSL DLT 1/
END!

6.52 The customer dialed change feature for a 2-digit speed calling list may be removed exactly as above, except CSL DLT 2/ must be used instead of CSL DLT 1/.

E. Service Order Inserted Changes to Speed Calling Lists

6.53 Examples are shown below of service orders to assign a number to a code on a customer speed calling list or to change the number associated speed with a code. The first field after ACC is the speed calling code to which the number is being assigned.

Note: The TN is the number being entered into a speed calling list. The OE is the line which is to have its speed calling list changed.

For 1-digit speed calling:

```
A RC:SC:1/
ACC 2/
DGS 1 201 555 1212/
OE 01 0233/
END!

A RC:SC:1/
ACC 4/
DGS 201 555 1213/
OE 01 0233/
END!

A RC:SC:1/
ACC 8/
DGS 555 1215/
OE 01 0233/
END!
```

For 2-digit speed calling:

```
A RC:SC:2/
ACC 20/
DGS 1 201 555 1216/
OE 01 0233/
END!

A RC:SC:2/
ACC 36/
DGS 201 555 1217/
OE 01 0233/
END!

A RC:SC:2/
ACC 40/
DGS 555 1218/
OE 01 0233/
END!
```

6.54 The new number to be placed on the list is checked by the program to determine if the number of digits is valid. An entry may be removed from the list and no new entry inserted for the dial code by inserting the telephone number of the customer as the new entry (non-MLHG line only) or by inserting the number of the busy tone test line in the office. For the keyword DGS—to enter the symbol #, type a - and to enter * , type a +.

F. Call Forwarding Variable

6.55 Call forwarding variable allows a customer to have all incoming calls routed to another telephone number. To use this feature, the customer dials the access code 72. Upon hearing second dial tone, the customer dials the 7-digit or 10-digit number to which calls are to be transferred if the trunk group is marked to indicate that call forwarding is allowed. The number dialed will then be rung. If it is answered, the forwarding is established. If the number is not answered, the forwarding will not be established unless the customer repeats the dialing procedures within 2 minutes of the first procedure. The customer will hear two bursts of tone, and the number dialed will again be rung. This establishes the forwarding even though the number dialed is not answered. To cancel the call forwarding, the customer must dial the access code 73 and wait for a 4-second time-out. A # symbol may be substituted for the 4-second time-out on 12-button TOUCH-TONE sets. While forwarding is in effect, calls may be originated from the line normally, but all incoming calls are routed to the line which is forwarded.

Note: Party lines, manual lines, coin lines, and measured rate lines cannot have the call forwarding feature.

New Installation With Call Forwarding Variable

```
A RC:L/
ORD 0100/
TYP NEW/
OE 00 3060/
TN 554 1111/
LCC 10B/
ESM ADD/
END!
```

Adding Call Forwarding Variable

```
A RC:L/
ORD 0101/
TYP CHG/
OE 01 1060/
TN 554 1135/
ESM ADD/
END!
```

Removing Call Forwarding Variable

```
A RC:L/
ORD 0102/
TYP CHG/
OE 01 1060/
TN 554 1135/
ESM DLT/
END!
```

G. Call Waiting

6.56 Call waiting is a feature that informs a customer who is talking on the line that an incoming call is waiting and allows the customer to hold the existing connection to answer the new call. A call waiting tone indicates to the customer that a call is waiting. If the customer takes no action, the tone is repeated once 10 seconds later. To answer the incoming call, the customer depresses the switchhook momentarily. This puts the existing party on hold and answers the incoming call. By depressing the switchhook again, the customer can place the new call on hold and return to the original call. Note that all three cannot be brought together in a conference state. If the customer with ESX hangs up with a party on hold or on call waiting, the customer is rung and is connected to the held call upon answer. If a party on hold or on call waiting hangs up, the line is disconnected. If the party being talked to hangs up, the customer can talk to another party on hold or on call waiting by momentarily depressing the switchhook.

Note: Party lines, manual lines, and coin lines cannot have the call waiting feature.

New Installation With Call Waiting

```
A RC:L/
ORD 0103/
TYP NEW/
OE 01 2160/
TN 554 3051/
LCC 1OB/
RAX 1/
ESX ADD/
END!
```

Adding Call Waiting

```
A RC:L/
ORD 0104/
TYP CHG/
OE 01 2160/
TN 554 3051/
ESX ADD/
END!
```

Removing Call Waiting

```
A RC:L/
ORD 0105/
TYP CHG/
OE 01 2160/
TN 554 3051/
ESX DLT/
END!
```

H. Threeway Calling Add-on

6.57 The threeway calling add-on feature allows a customer to add another party to a call already established. To use this feature, the customer depresses the switchhook momentarily while talking to another party. This will give the customer dial tone so that the second number may be dialed. The customer may now talk to this party privately. The original party is on hold until the customer operates the switchhook to connect all three in the conference mode. This may be accomplished before or after the second party answers. If the party to be added on does not answer, operation of the switchhook will add-on the original party and a second operation of the switchhook will disconnect the second party. If either of the two parties the customer is talking with hangs up, the remaining line will still be connected. If the customer hangs up, all three lines will be disconnected.

Note: Party lines, manual lines, and coin lines cannot have the add-on conference feature.

New Installation With Threeway Calling Add-on

```
A RC:L/
ORD 0129/
TYP NEW/
OE 00 3060/
TN 554 1111/
LCC 1FR/
RAX 1/
ESC ADD/
END!
```

Adding Threeway Calling Add-on

```
A RC:L/
ORD 0130/
TYP CHG/
OE 01 1060/
TN 554 1135/
ESC ADD/
END!
```

Removing Threeway Calling Add-on

```
A RC:L/
ORD 0131/
TYP CHG/
OE 01 1060/
TN 554 1135/
ESC DLT/
END!
```

I. Complaint Observing (COB)

6.58 The complaint observing feature allows all message rate calls from a line to be detail billed on the AMA tape. The purpose of this feature is to provide detailed information regarding all charges made for toll calls.

> ***Note:*** For a party line, the party number is needed to identify the line.

New Installation With Complaint Observing

```
A RC:L/
ORD 0129/
TYP NEW/
OE 00 3060/
TN 554 1111/
LCC 1FR/
RAX 1/
COB ADD/
END!
```

Adding Complaint Observing

```
A RC:L/
ORD 0010/
TYP CHG/
OE 01 1060/
TN 554 1135/
COB ADD/
END!
```

Removing Complaint Observing

```
A RC:L/
ORD 0102/
TYP CHG/
OE 01 1060/
TN 554 1135/
COB DLT/
END!
```

6.59 The following input message must be used to cause all message rate calls from lines with the complaint observing feature to be detail billed on the AMA:

```
M AM:OBS:fg hi 4!
```

(See paragraph 18.64 for explanation of variable fields.)

All message rate calls normally recorded on the AMA will be detail billed until the message is canceled or the call store is cleared by a stable clear maintenance action caused by a system failure.

J. TOUCH-TONE Calling (TTC)

6.60 The TOUCH-TONE calling feature offers greater speed and convenience in dialing at the customer premises through the use of pushbuttons, intead of rotary dial.

> ***Note:*** For a party line, the party number is needed to identify the line.

New Installation With TOUCH-TONE Calling

```
A RC:L/
ORD 0132/
TYP NEW/
OE 00 2160/
TN 554 1201/
LCC 1FR/
RAX 1/
TTC ADD/
END!
```

Adding TOUCH-TONE Calling

```
A RC:L/
ORD 0133/
TYP CHG/
OE 01 1060/
TN 554 1135/
```

TTC ADD/
END!

Removing TOUCH-TONE Calling

A RC:L/
ORD 0134/
TYP CHG/
OE 00 2160/
TN 554 1201/
TTC DLT/
END!

K. Call Trace (Calling Line Identification) (TRC)

6.61 There are two types of call tracing available in the No. 2/2B ESS. The first type of trace identifies calls that are currently in progress on a one-shot basis, and the other type identifies either all calls to a given line in the office or for a given number outside the office. Call tracing is covered in detail in Section 232-110-301 (Calling Line Identification).

Note: For a party line, the party number is needed to identify the line.

New Installation With Call Trace

A RC:L/
ORD 0150/
TYP NEW/
OE 00 3060/
TN 554 1111/
LCC 1FR/
RAX 1/
TRC ADD/
END!

Adding Call Trace

A RC:L/
ORD 0151/
TYP CHG/
OE 01 2160/
TN 554 1135/
TRC ADD/
END!

Removing Call Trace

A RC:L/
ORD 0152/
TYP CHG/
OE 00 3060/
TN 554 1111/
TRC DLT/
END!

6.62 When the trace feature is assigned to a telephone number, the Network Administrator should be notified to have the trace recorded on forms ESS 2100-R and ESS 2105-R for that number and MLHG.

6.63 Whenever a call attempt is made to a telephone number which has the trace feature applied, a TTY message is printed whether or not the call is completed.

L. Series Completion (SER)

6.64 Series completion is a form of hunting which allows calls to be routed to another telephone number if the called line is busy. Any telephone number assigned to the office may be used as the series completion number. Series completion lines must be added on separate ESS orders. The lines must be entered in reverse order (last line first, etc). The series completion TN must be a working number, translations must already exist for it, and the lines with SER cannot have customer line overflow (CLO). The various types of series completion assignments are as follows:

(a) New Installation With Series Completion

(b) Adding a New Installation to First Line in an Existing Series Completion Group

(c) Adding a New Installation to Last Line in an Existing Series Completion Group

(d) Adding an Existing Line to Last Line in an Existing Series Completion Group

(e) Adding an Existing Line to First Line in an Existing Series Completion Group

(f) Exchanging First Line in an Existing Series Completion Group With an Existing Line

(g) Exchanging Last Line in an Existing Completion Group With an Existing Line

(h) Exchanging Any Line (Except First Line or Last Line) in an Existing Series Completion Group With an Existing Line

(i) Removing First Line in an Existing Series Completion Group

(j) Removing Last Line in an Existing Series Completion Group

(k) Removing Middle Line in an Existing Series Completion Group.

Note: For a party line, the party number is needed to identify the line. SER cannot be added to a line with CLO.

New Installation With Series Completion

6.65 Three ESS orders are needed to connect the following three lines in series completion.

- 5548151—First line in series completion group
- 5543485—Middle line in series completion group
- 5543379—Last line in series completion group.

6.66 The lines must be entered in reverse order (last line first, etc). The format for entering the three orders is as follows:

(a) Use this format for the first order which is the last line in the series completion group.

```
A RC:L/
ORD 0106/
TYP NEW/
OE 01 1160/
TN 554 3379/
LCC 1OB/
END!
```

(b) Use this format for the second order which is for the middle line in the series completion group:

```
A RC:L/
ORD 0107/
TYP NEW/
OE 00 2360/
TN 554 3485/
LC 1OB/
SER 554 3379/
END!
```

Note: SER telephone number is the same as TN number in first order.

(c) Use this format for the third order which is for the first line in the series completion group.

```
A RC:L/
ORD 0108/
TYP NEW/
OE 01 1260/
TN 554 8151/
LCC 1OB/
SER 554 3485/
END!
```

Note: SER telephone number is the same as TN Number in second order.

Adding a New Installation to the First Line in an Existing Series Completion Group

6.67 In the following example, telephone number 5548379 (a new line) is series completed to telephone number 5548151 (the first line in the series completion group covered in paragraph 6.65).

```
A RC:L/
ORD 0109/
TYP NEW/
OE 00 3460/
TN 554 8379/
LCC 1OB/
SER 554 8151/
END!
```

Adding a New Installation to the Last Line in an Existing Series Completion Group

6.68 In the following example, telephone number 5543379 (the last line in the series completion group covered in paragraph 6.65) is series completed to telephone number 5548784 (a new line).

6.69 Two ESS orders are needed. The first order is to install the new line 5548784, and the second order is to change the last line 5543379 so that the last line is series completed to the new line 5548784.

(a) Use this format for the first order.

```
A RC:L/
ORD 0110/
TYP NEW/
OE 01 1360/
TN 554 8784/
LCC 1OB/
END!
```

(b) Use this format for the second order.

```
A RC:L/
ORD 0111/
TYP CHG/
OE 01 1160/
TN 554 3379/
SER 554 8784/
END!
```

Adding an Existing Line to the Last Line in an Existing Series Completion Group

6.70 In the following example, telephone number 5543379 (the last line in the series completion group covered in paragraph 6.65) is series completed to telephone number 5541111 (and existing line).

```
A RC:L/
ORD 0112/
TYP CHG/
OE 01 1360/
TN 554 3379/
SER 554 1111/
END!
```

Adding an Existing Line to the First Line in an Existing Series Completion Group

6.71 In the following example, telephone number 5541135 (an existing line) is series completed to telephone number 5548151 (the first line in the series completion group covered in paragraph 6.65).

```
A RC:L/
ORD 0113/
TYP CHG/
OE 01 1060/
TN 554 1135/
SER 554 8151/
END!
```

Exchanging the First Line in an Existing Series Completion Group With an Existing Line

6.72 In the following example, telephone number 5548151 (the first line in the series completion group covered in paragraph 6.65) is exchanged with 5541201 (an existing line). Two ESS orders are needed. The first order is to remove the first line 5548151 from the series completion group, and the second order is to install the existing line 5541201 in the series completion group.

(a) Use this format for the first order.

```
A RC:L/
ORD 0114/
TYP CHG/
OE 01 1260/
TN 554 8151/
SER/
END!
```

(b) Use this format for the second order.

```
A RC:L/
ORD 0115/
TYP CHG/
OE 00 2160/
TN 554 1201/
SER 554 3845/
END!
```

Exchanging the Last Line in an Existing Series Completion Group With an Existing Line

6.73 In the following example, telephone number 5543379 (the last line in the series completion group covered in paragraph 6.65) is exchanged with 5543134 (an existing line).

Note: The change is made on line 5543485 which series completes to last line 5543379.

```
A RC:L/
ORD 0117/
TYP CHG/
OE 00 2360/
TN 554 3485/
SER 554 3134/
END!
```

Exchanging Any Line (Except the First Line or the Last Line) in an Existing Series Completion Group With an Existing Line

6.74 In the following example, telephone number 5543485 (the middle line in the series completion group covered in paragraph 6.65) is exchanged with 5543051 (an existing line).

6.75 Three ESS orders are needed. The first order is to remove the middle line 5543485 from the series completion group, the second order is to install the existing line 5543051 in the middle line position and to have the new middle line series completed to the last line 5543379, and the third order is to have the first line 5548151 series completed to the new middle line 5543051.

(a) Use this format for the first order.

```
A RC:L/
ORD 0118/
TYP CHG/
OE 00 2360/
TN 554 3485/
SER/
END!
```

(b) Use this format for the second order.

```
A RC:L/
ORD 0119/
TYP CHG/
OE 01 2160/
TN 554 3051/
SER 554 3379/
END!
```

(c) Use this format for the third order.

```
A RC:L/
ORD 0120/
TYP CHG/
OE 01 1260/
TN 554 8151/
SER 554 3051/
END!
```

Removing the First Line in an Existing Series Completion Group

6.76 In the following example, telephone number 5548151 (the first in the series completion group covered in paragraph 6.65) is removed from the group.

```
A RC:L/
ORD 0122/
TYP CHG/
OE 01 1260/
TN 554 8151/
SER/
END!
```

Removing the Last Line in an Existing Series Completion Group

6.77 In the following example, telephone number 5543379 (the last line in series completion group covered in paragraph 6.65) is removed from the group.

Note: The change is made to the middle line 5543485 which series completes to the last line 5543379.

```
A RC:L/
ORD 0123/
TYP CHG/
OE 00 2360/
TN 554 3485/
SER/
END!
```

Removing the Middle Line in an Existing Series Completion Group

6.78 In the following example, telephone number 5543485 (the middle line in series completion group covered in paragraph 6.65) is removed from the group.

Note: Removal of the middle line 5543485 breaks the series completion chain. The series completion chain must be reestablished by series completing the first line 5548151 to the last line 5543379.

6.79 Two ESS orders are needed. The first order is to change the first line 5548151 to series complete to the last line 5543379, and the second order is to remove the middle line 5543485 from the group.

(a) Use this format for the first order.

```
A RC:L/
ORD 0125/
TYP CHG/
OE 01 1260/
TN 554 8151/
SER 554 3379/
END!
```

(b) Use this format for the second order.

```
A RC:L/
ORD 0124/
TYP CHG/
OE 00 2360/
TN 554 3485/
SER/
END!
```

M. Sleeve Lead

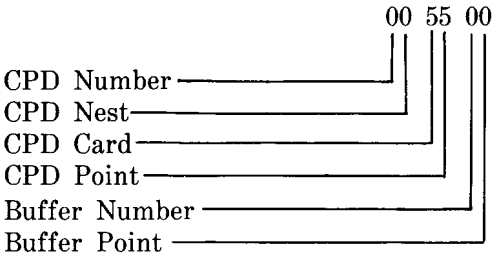
6.80 Sleeve leads are required to pass data from the ESS to remote equipment. Sleeve leads require cable facility assignments. Sleeve lead assignments must be obtained from the Network Administrator, and they must be posted to the Exchange Customer Cable Records or Dedicated Plant Assignment Card in the same manner as other miscellaneous equipment.

Note: For a party line, the party number is needed to identify the line.

New Installation With Sleeve Lead

```
A RC:L/
ORD 0138/
TYP NEW/
OE 00 3060/
TN 554 1111/
LCC 1OB/
DP 0055 00/          (Note)
END!
```

Note: A peripheral decoder point must be assigned with the DP identifier. The following describes what the peripheral decoder point means to central office personnel:



Adding or Changing Sleeve Lead

```
A RC:L/
ORD 140/
TYP CHG/
OE 01 1060/
TN 554 1135/
DP 0055 00/
END!
```

Removing Sleeve Lead

```
A RC:L/
ORD 0141/
TYP CHG/
OE 01 1060/
TN 554 1135/
DP/
END!
```

Note: When DP is removed AOSL and DLY are also removed.

N. Message Register

6.81 The message register keyword (DPM) precedes the peripheral decoder point that is associated with the message register. A cable facility assignment is required to connect the peripheral decoder to the remote message register. The peripheral decoder must be posted in the assignment records (ECCR or DPAC). The peripheral decoder assignment is obtained from the Network Administrator.

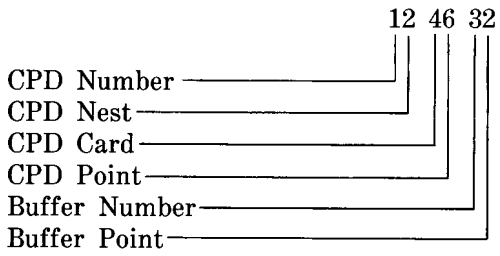
Note: Party lines, mobile radio lines, and coin lines are not permitted to be equipped with a message register.

New Installation With Message Register

```
A RC:L/
ORD 0103/
TYP NEW/
OE 01 2160/
TN 554 3051/
LCC 1OB/
DPM 1246 32/         (Note)
END!
```

Note: A peripheral decoder point must be assigned with the message register identifier.

The following describes what the peripheral decoder point means to central office personnel.



Adding or Changing Message Register

A RC:L/
ORD 0104/
TYP CHG/
OE 01 2160/
TN 554 3051/
DPM 1246 32/
END!

Removing Message Register

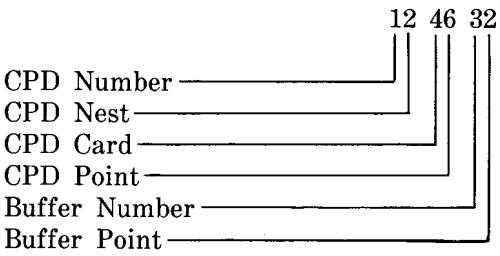
A RC:L/
ORD 0105/
TYP CHG/
OE 01 2160/
TN 554 3051/
DPM/
END!

O. Open Switching Interval Protection (DPP)

6.82 The open switching interval protection feature eliminates the open circuit to the central office battery during a switching sequence. This is accomplished by a software change which connects battery through the open switching interval protection circuit during what would have been the open interval. To add this feature to a line:

A RC:L/
TYP CHG/
ORD 0001/
TN 562 2516/
OE 00 0422/
DPP 1246 32/
END!

Note: A peripheral decoder point must be assigned with the DPP identifier. The following describes what the peripheral decoder point means to central office personnel.



Removing Open Switching Interval Protection

A RC:L/
ORD 0001/
TYP CHG/
OE 01 0322/
TN 318 7238/
DPP/
END!

P. Customer Line Overflow (CLO)

6.83 The customer line overflow feature assigns an overflow counter to a line to determine the number of incoming calls that receive a busy tone. There are four possible counters (0 through 3) which may be assigned by the CLO feature. These are printed out on traffic H and C schedules. CLO cannot be added to a line with SER.

Adding Customer Line Overflow

A RC:L/
ORD 0210/
TYP CHG/
OE 01 2756/
TN 318 7238/
CLO 1/
END!

Removing Customer Line Overflow

A RC:L/
ORD 0211/
TYP CHG/
OE 01 2756/
TN 318 7238/
CLO/
END!

Q. Special Coded Ringing

6.84 A special ringing code may be assigned to an individual party or 2-party telephone.

The ring codes that may be used are the same as 8-party semiselective ringing.

Individual Party

6.85 Coded ringing may be assigned to an individual party by changing the LCC to a special LCC that has the desired ring code defined in the major terminating class.

Two-Party

6.86 One or both 2-party lines may have coded ringing assigned by changing the line(s) LCC to a special LCC(s) that has the desired ring code defined in the major terminating class. For special situations, both parties may be rung and billed as tip party or as ring party if the LCCs are defined with the appropriate major terminating classes.

R. Ground Start

6.87 To designate a line as ground start:

```
A RC:L/
ORD 0001/
TYP CHG/
TEN 01 0232/
TN 555 1212/
GST ADD/      (Note)
END!
```

Note: For party lines, the party number is also required to uniquely identify the line.

6.88 The service order must be coordinated with work in the office to restrap the line ferrod for ground start. The OE assignment rules specify that all ground start lines should appear on network levels 0 or 2.

6.89 To change a line to loop start:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0232/
TN 555 1212/
GST DLT/      (Note)
END!
```

Note: For party lines, the party number is also required to uniquely identify the line.

6.90 The service order must be coordinated with work in the office to restrap the line ferrod for loop start.

S. 800 Service

6.91 The 800 Service is a terminating feature that provides for billing all calls to a terminating party (called party) instead of the originating party (calling party). This feature may be implemented for centrex lines or noncentrex manual lines; however, the 800 Service feature is not applicable to coin lines, party lines, or mobile lines. Assigning the 800 Service feature is realized by assigning a simulated facilities group (SFG) to the line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 00 1202/
TN 562 2530/
SFG 2/
END!
```

Removing 800 Service

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0322/
TN 318 7238/
SFG 0/
END!
```

T. Recent Change a Manual Line With a Route Index

6.92 To recent change an originating route index to a manual line:

```
A RC:L/
TYP CHG/
ORD 0001/
TN 562 2547/
OE 01 5142/
RTIM 58/
END!
```

U. Automatic Line Insulation Test (AOSL)

6.93 The automatic line insulation test feature notifies the processor that the automatic line insulation test should operate the sleeve lead before

testing the line. To assign the automatic line insulation test to a line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 562 2547/
OE 00 4402/
AOSL ADD/    (Note)
END!
```

Note: This feature cannot be added if a sleeve lead is not defined for the line.

Removing Automatic Line Insulation Test

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0322/
TN 332 2310/
AOSL DLT/
END!
```

V. Prohibit Line Insulation Test (PLIT)

6.94 This feature prevents the automatic line insulation test (ALIT) program from performing all tests except ***restore verify.*** The PLIT is assigned on an individual line basis. For a party line, the party number is needed to identify the line. Rate area is necessary only if defined as other than 0.

New Installation With Prohibit Line Insulation Test

```
A RC:L/
ORD 0135/
TYP NEW/
OE 00 3060/
TN 554 1111/
LCC 10B/
RAX 1/
PLIT ADD/
END!
```

Adding Prohibit Line Insulation Test

```
A RC:L/
ORD 0136/
TYP CHG/
OE 00 3011/
TN 553 2121/
PLIT ADD/
END!
```

Removing Prohibit Line Insulation Test

```
A RC:L
ORD 0137/
TYP CHG/
OE 01 3011/
TN 553 2121/
PLIT DLT/
END!
```

W. Prohibit Line Maintenance Test (PLM)

6.95 This feature prevents the junctor reassignment (JASINT) and network fabric (NETFAB) programs from performing maintenance tests on an individual line. This feature also prevents the automatic line insulation test (ALIT) program from performing insulation tests. To add this feature to a line.

```
A RC:L/
ORD 0001/
TYP CHG/
TN 562 2547/
OE 00 4402/
PLM ADD/
END!
```

Removing Prohibit Line Maintenance Test

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0222/
TN 322 1345/
PLM DLT/
END!
```

X. Provide 800-ms Delay After Sleeve Lead Is Operated

6.96 Providing 800-ms delay after sleeve lead is operated feature ensures trunk to line assignments with concentrator switching systems. To assign this feature to a line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 562 2547/
OE 00 4402/
```

```
DLY ADD/
END!
```

Note: This feature cannot be used if a sleeve lead is not defined for the line.

Removing 800-ms Delay After Sleeve Lead Is Operated

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 3333/
TN 312 2456/
DLY DLT/
END!
```

Note: This feature cannot be used if a sleeve lead is not defined for the line.

Y. Carrier Line

6.97 The carrier line feature indicates that a particular line is a carrier line and should ***not*** be given receiver off-hook tone. To assign the carrier line feature to a line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 561 3312/
OE 00 3410/
ROH ADD/
END!
```

Removing Carrier Line

```
A RC:L/
ORD 0001/
TYP CHG/
OE 00 4402/
TN 562 2547/
ROH DLT/
END!
```

Z. Reduction of Service Order Input for Lines

6.98 Keywords BASE and RPT are used as a means of executing many recent changes in one service order. Bulk service order assignments are allowed for the following types of line messages:

- Line
- Speed Call
- Simplified Console Attendant
- Multiline Hunt Group Number.

Bulk service order messages are activated by first typing the keyword data that is common to all of the messages to be entered, followed by the special keyword ***BASE/.***

6.99 The keyword data that is unique to the first service order is then entered, followed by the special execute keyword ***RPT/.*** This keyword will appear to the EF-2 or 2B-EF-2 generic program to be the execute character (!).

6.100 Each subsequent service order may be executed by typing only the keywords whose data is unique to that particular message followed by the keyword ***RPT/.*** The string of service orders may be ended by using the keyword ***END!*** instead of ***RPT/*** at the end of the last message. An example of a bulk service order is as follows:

```
A RC:L/
ORD 0001/
TYP CHG/
TTC ADD/
ESL ADD/
BASE/
TN 555 2100/
OE 01 2100/
RPT/
TN 555 2101/
OE 01 2101/
RPT/
TN 555 2102/
OE 01 2102/
DP 0015 11/
RPT/
TN 555 2103/
OE 01 2103/
RPT/
TN 555 2104/
OE 01 1623/
END!
```

MULTILINE HUNTING GROUP

6.101 The main attribute of a multiline hunting group (MLHG) is that one telephone number may be associated with a number of members (lines) and the hunting is performed over terminal equipment numbers. In general, a PBX is served

by an MLHG, but some of the smaller PBXs are treated at the central office as a series completion group. Series completion is handled at the central office by attempting sequentially to connect to a series of telephone numbers. It is recommended that four or less members be handled by series completion if no hunt groups, etc, are required and the equipment is not ground start.

A. MLHG Keywords

6.102 The following keywords are associated with an MLHG ESS order:

A RC:MLH:1/ Order indicates to the ESS that a request will follow to establish, change, or remove an MLHG.

A RC:MLH:2/ Order indicates to the ESS that a request will follow to establish, change, or remove a member number associated with an MLHG.

AOSL Automatic Line Insulation Test

BHT First Hunt Member

BLN Special Toll Billing

DLY Provide 800-ms Delay After Sleeve Lead Is Operated

DP Sleeve Lead Enable Number

DPM Message Register Enable Number

DPO Remote Overflow Register (Lamp Indicator)

DPP Open Interval Switch Protection Enable Number

EHM Stop Hunt Member

ESM Call Forward Variable

GST Ground Start

GSZ Group Size (PBX Size)

HML MLHG Number

HSZ Number of Members Hunted (Hunt Size)

IOE New Originating Equipment Number

LHT Last Hunted Member

NST Night Hunt Member

PLIT Prohibit Line Insulation Test

PLM Prohibit Line Maintenance

RAX Rate Area

RLMP Remote Overflow Lamp/Register

RMB Remote Make Busy

ROH Carrier Line

RTI Route Index

SFG Simulated Facilities Group Number

SKEY Key Number

SP Scan Point Number

TER Member Terminal

TLT Test Line Terminal

B. Establishing an MLHG

Note: Complete and accurate information must be recorded on the ESS 2105 form as specified in the Translation Guide, TG-2H prior to executing any TTY input messages.

6.103 Before any MLHG ESS orders are entered, a skeleton MLHG with sufficient maximum size must have been entered on a previous Office Data Administration (ODA) run.

6.104 To establish an MLHG by recent change, two separate and distinct operations are required. The first operation establishes the basic MLHG, identifies the MLHG number, the line class code, the billing number, the total number of members (lines in the MLHG), the number of hunted and outdial-only (nonhunted) members, the night hunt member (if one exists), the stop hunt member (if one exists), and any features or equipment (common to entire group) such as

TOUCH-TONE calling, speed calling, etc. For example:

```
A RC:MLH:1/          (Note 1)
ORD 0001/
TYP NEW/          (Note 2)
HML 001/          (Note 3)
LCC PBX/          (Note 4)
BTN 554 9091/          (Note 5)
GSZ 007/          (Note 6)
HSZ 005/          (Note 7)
NHM 000/          (Note 8)
SP 0958 12/       (Notes 9 and 13)
SKEY ADD N/ (Notes 10 and 13)
TTC ADD/          (Note 11)
ESL ADD/          (Note 12)
END!
```

Note 1: The 1 informs the ESS that a request will follow to establish, change, or remove an MLHG. (In this example the request is to establish an MLHG and the TYP is new.) The 1 is not the MLHG number (Note 3).

Note 2: The TYP can be NEW, CHG, or OUT.

Note 3: The 001 is the MLHG number.

Note 4: This is the line class code.

Note 5: This is the MLHG billing number.

Note 6: Number of members [both hunted and outdial-only (nonhunted)] in the MLHG. GSZ starts with 000; therefore, 007 indicates that these are eight members. The number of members cannot be greater than the amount specified in the ODA run but may be less, providing for a future increase.

Note 7: Number of hunted members. In this example, there are six hunted members (000 through 005). The remaining two members (006 and 007) are outdial-only (nonhunted).

Note 8: The 000 is the night hunt member number. The night hunt member must be a hunted member and is associated with a scan point (Note 9).

Note 9: The 0958 12 is the scan point associated with the night hunt member. The scan point is controlled by a key on the customer equipment.

Note 10: This keyword specifies the key number that is associated with a scan point number. It may be used in TYP NEW service orders to add KEYS, or in TYP CHG service orders to add or delete KEYS. Either ADD or DLT is required if this keyword is used.

Notes 11 and 12: These indicate that TOUCH-TONE calling and speed calling 1-digit are added to the entire MLHG. A member cannot be restricted from using these features. The speed calling 1-digit list information is not entered at this time but is entered in the second operation.

Note 13: When recent change message A RC:MLH is used to change a scan point number or a key number, a recent change becomes active.

6.105 If only one rate area is defined within an office, it is always assumed by the program to be rate area 0 and no input information is required. If a line must be defined as in other than rate area 0, the following additional input line is required in the ESS order to specify the rate area:

```
RAX 1/
```

C. Establishing an MLHG Member

6.106 After an MLHG has been assigned, the lines may be assigned by assigning originating equipment numbers (OEs) to the member numbers of the MLHG. Those OEs assigned to the member numbers greater than the HSZ specified in the MLHG assignment order will be outdial-only lines. An individual service order is required to define each member line.

```
A RC:MLH:2/          (Note 1)
ORD 0002/
TYP NEW/
HML 002/          (Note 2)
TN 555-1212/
BHT 0/
LHT 5/
TER 000/          (Note 3)
OE 01 0233/          (Note 4)
END!
```

Note 1: The 2 informs the ESS that a request will follow to establish, change features of a member, or remove a member of an MLHG. In this example, the request is to establish a member and the TYP is NEW.

Note 2: The 002 is the MLHG number.

Note 3: Member number 000 (Note 6 of paragraph 6.104). Seven more ESS orders are required to enter member numbers 001 through 007.

Note 4: The 01 0233 is the originating equipment (OE) number. The OE must be currently unassigned. Any desired OE may be assigned to any member number. (If the LCC of the MLHG defines ground start, special strapping is required. The ESS order must be coordinated with work in the central office to restrap the line ferrod for ground start on all members assigned to the MLHG. OE assignment rules specify that ground start member should appear on network level 0.)

6.107 The speed calling 1-digit list (added in paragraph 6.104, Note 11) must be built one number at a time against an OE associated with any member number. In the following example, one number of the list is built against OE 00 3060:

```
A RC:SC:1/
ACC 2/
DGS 1 741 0394/
OE 00 3060/
END!
```

6.108 If a TN is specified, a hunting subgroup may also be defined by specifying BHT and LHT. If BHT or LHT is not specified on a TYP NEW, the member number will be automatically used.

6.109 If the office is equipped with range extension, caution must be exercised in selecting the OE to be used. If a line requires range extension, it ***must*** be assigned to an OE associated with a network concentrator equipped for range extension. If the line does not require range extension, it ***must not*** be assigned to an OE associated with a range extended concentrator.

D. Hunting Only Telephone Number

6.110 A hunting only telephone number defines a hunting subgroup within an MLHG. This TN is not associated with a particular member and has no OE (ie, it has only terminating translation defined). A hunting only telephone number is assigned by specifying the MLHG to which it is to be assigned, the line class code, the member number at which hunting is to begin (BHT), and the member number after which hunting is stopped (LHT). An individual service order is required for each hunting only TN assigned to an MLHG.

```
A RC:MLH:2/
ORD 0010/
TYP NEW/
HML 002/
LCC PBX/
RAX 1/
TN 555 1212/
BHT 002/
LHT 005/
END!
```

As a result of this service order, calls to TN 555 1212 will first attempt to complete to the OE assigned to member 002. If 002 is busy, it will attempt to complete to member 003, then 004, and lastly to member 005. If all four members are busy, the overflow lamp (if assigned) for this MLHG will be incremented and a busy signal returned to the calling party. Hunting over a hunting subgroup will begin at the first hunt member (BHT) and proceed consecutively to the last hunt member (LHT) of the hunting subgroup. Overlapping hunting subgroups are permitted as well as hunting subgroups of one or all members of the MLHG.

6.111 The line class code must be defined in the LCC table in translations. However, it need not be the same as that specified for the MLHG as a whole. For a hunting only TN the screening class, 2-bit code, and major originating class must be the same as for the group.

6.112 The BHT and LHT must be within the huntable members (HSZ) for the MLHG. Also, the BHT must be less than or equal to the LHT.

6.113 If the MLHG is in other than rate area 0, an additional input line is required to specify the rate area (eg, rate area 1):

RAX 1/

If only one rate area is defined in the office, it is always assumed by the program to be rate area 0.

E. MLHG Features

6.114 The types of assignments that can be made for MLHG features are listed as follows:

(1) New Installation With Hunting and Outdial-Only (Nonhunting) Members, a Feature (Special Toll Billing), and an Equipment Common to Entire MLHG

(2) Changing Line Class Code (LCC) of Entire MLHG

(3) Changing a Rate Area of an MLHG

(4) Test Line Terminal Feature

(5) Adding an Outdial-Only Member

(6) Adding a Hunted Member

(7) Night Stop Feature

(8) Stop Hunt Feature

(9) Remote Make Busy Feature

(10) Remote Overflow Lamp/Register

(11) TOUCH-TONE Calling

(12) Simulated Facilities Group

(13) Toll Diversion

(14) Special Toll Billing

(15) Bill to Number

(16) Threeway Calling

(17) One-Digit Speed Calling

(18) Two-Digit Speed Calling

(19) Customer Dialed Changes to Speed Calling Lists

(20) TELCO Inserted Changes to Speed Calling Lists

(21) Call Forwarding Variable

(22) Complaint Observing

(23) Ground Start

(24) Call Trace

(25) Provide 800-ms Delay After Sleeve Lead Is Operated

(26) Automatic Line Insulation Tests

(27) Prohibit Line Insulation Test

(28) Prohibit Line Maintenance

(29) Carrier Line

(30) Open Switching Interval Protection.

New Installation With Hunted and Outdial-Only (Nonhunted) Members

6.115 To establish MLHG 002 with five hunted members and two outdial-only members, special toll billing, and prohibit line insulation tests, enter the following ESS order:

```
A RC:MLH:1/
ORD 0029/
TYP NEW/
HML 002/
BTN 554 1135/
GSZ 006/
HSZ 004/
LCC MLH/
BLN ADD/
PLIT ADD/
END!
```

Note: One or more of the features and equipment may be added depending on customer requirements.

6.116 To establish the seven members (000 through 006), enter the following seven ESS orders.

Members 000 through 004 are hunted members and members 005 and 006 are outdial-only members.

(a) First ESS order to establish hunted member 000 is:

```
A RC:MLH:2/
ORD 0030/
TYP NEW/
LCC MLH/
HML 002/
TER 000/
OE 00 3060/
END!
```

(b) Second ESS order to establish hunted member 001 is:

```
A RC:MLH:2/
ORD 0031/
TYP NEW/
LCC MLH/
HML 002/
TER 001/
OE 00 2360/
END!
```

(c) Third ESS order to establish hunted member 002 is:

```
A RC:MLH:2/
ORD 0032/
TYP NEW/
LCC MLH/
HML 002/
TER 002/
OE 01 1250/
END!
```

(d) Fourth ESS order to establish hunted member 003 is:

```
A RC:MLH:2/
ORD 0033/
TYP NEW/
LCC MLH/
HML 002/
TER 003/
OE 00 3260/
END!
```

(e) Fifth ESS order to establish hunted member 004 is:

```
A RC:MLH:2/
ORD 0034/
TYP NEW/
LCC MLH/
HML 002/
TER 004/
OE 01 1060/
END!
```

(f) Sixth ESS order to establish outdial-only member 005 is:

```
A RC:MLH:2/
ORD 0035/
TYP NEW/
LCC MLH/
HML 002/
TER 005/
OE 00 3460/
END!
```

(g) Seventh ESS order to establish outdial-only member 006 is:

```
A RC:MLH:2/
ORD 0036/
TYP NEW/
LCC MLH/
HML 002/
TER 006/
OE 01 2160/
END!
```

Changing Line Class Code of Entire MLHG (LCC)

6.117 A line class code change is performed on an MLHG change order only when it is desired to change the major originating class of the MLHG.

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
LCC MLH/
END!
```

The line class code must be defined in the LCC table in translations.

Changing a Rate Area of an MLHG

6.118 If more than one rate area is defined within the office, it is required to also input a line in the RC message indicating the rate area in which the MLHG is assigned. This is necessary to enable the program to assign the correct screening class from the LCC table to the MLHG (eg, rate area 1):

RAX 1/

6.119 To change the rate area of an MLHG, it is necessary to type in the new rate area on an MLHG change order to enable the program to assign the new screening class from the LCC table to this MLHG. If a rate area (RAX) is inputted, the LCC must also be inputted.

ORD 0001/
TYP CHG/
HML 002/
LCC PBX/
RAX 1/
END!

Test Line Terminal Feature

6.120 The test line terminal feature allows an MLHG line to originate and terminate before the office is cut into service. The feature may be assigned on a MLHG basis or on an individual MLHG line basis. ***This feature is not designed for use after cutover.***

6.121 To assign the test line terminal feature to all lines of an existing MLHG:

A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
TLT ADD/
END!

6.122 To remove the test line terminal feature from an existing MLHG:

A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
TLT DLT/
END!

Note: If the feature has also been assigned to an individual MLHG line, that particular line will not be affected by this input message.

Adding an Outdial Only Member

6.123 All outdial only members of an MLHG must appear after the hunted members of the MLHG. A new outdial only member may be added to the end of the terminal list. If all members are now assigned, the maximum size of the MLHG (GSZ) must be increased to define an additional member in the MLHG.

A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
GSZ 009/
END!

Note: The GSZ defined may not be larger than the maximum size specified by the ODA. The new outdial-only member may then be inserted as a new installation (TYP NEW) service order after the last member presently in service [paragraph 6.116(g)].

Adding a Hunted Member

6.124 All hunted members of an MLHG must appear in the terminal list before any outdial-only members. If no spares exist in the list of hunted members, the list must be lengthened to define an additional hunted member in the MLHG. For example, assume that MLHG 002 has nine members in its terminal list of which the first seven are hunted over. The last two then are outdial-only members. The initial step to add another hunted member is to increase the MLHG maximum size since all members are currently assigned.

A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
GSZ 009/
HSZ 007/
END!

Next, the outdial-only line that is assigned to member 007 must be removed by a disconnect (TYP OUT) service order.

```
A RC:MLH:2/
ORD 0002/
TYP OUT/
HML 002/
TER 007/
OE 01 0233/
END!
```

Then reinsert as member 009 by a new installation (TYP NEW) service order [paragraph 6.116(g)].

6.125 If the new line should be the last terminal in the hunted list, it may then be inserted as a new installation (TYP NEW) as member 007 (paragraph 6.116). If it must be inserted in the list (eg) between the members 005 and 006), the line assigned as member 006 must be removed by a disconnect (TYP OUT) service order (paragraph 6.124) and reinserted as member 007 by a new installation (TYP NEW) service order (paragraph 6.116).

6.126 The final step is to change the last hunt member of the hunt group to include the new hunted member (paragraph 6.110).

Night Stop Feature

6.127 The night stop feature is defined in an MLHG by assigning a scan point ferrod to the MLHG which is wired to a night stop key on the customer premises. A spare scan point in a control field must be obtained from the Network Administrator. A record of scan points is maintained on form ESS 2576-R (Scan Point Assignment Record). The scan point added is not effective until a recent change update has been performed.

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
SKEY ADD N/
SP 02 1809/
END!
```

This message will associate the given scan point (input line SP) with the night stop key (input line SKEY). In a single service order message, only one key may be defined in this manner. A separate message is required for each control key to be assigned. Only one night stop key may be assigned to an MLHG.

6.128 Only one member of an MLHG may be specified as the night stop member. This member may also be the stop hunt member if desired and/or have a remote make busy key associated with it just as any other member.

To designate an MLHG member as the night stop member:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
NST 006/
END!
```

The member assigned as the night stop member must be one of the members of the MLHG over which hunting is performed. When the night key is thrown, all normal hunt groups assigned within the MLHG are ignored. Calls made to any telephone number associated with that MLHG will begin hunting at member 000 and hunt through the member designated as the night stop member.

6.129 To remove the night stop feature from an MLHG, type the following message with a blank data field on the night hunt member (NHM) line.

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
NST/        (Note)
END!
```

Note: The night stop key position will now be ignored by the program, but the scan point assigned to the key for this MLHG is still defined. To reassign the night stop feature to the MLHG, an NHM member need only be specified on a recent change service order as above.

6.130 To remove the assignment of the night stop feature in the MLHG, use the input message:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
SKEY DLT N/
```

SP 02 1809/
END!

The scan point is now available for reassignment.

Stop Hunt Feature

6.131 The stop hunt feature is defined in an MLHG by assigning a scan point ferrod to the MLHG which is wired to a stop hunt key on the customer premises. A spare scan point must be obtained from the Network Administrator. A record of scan points is maintained on form ESS 2576-R (Scan Point Assignment Record).

A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
SKEY ADD S/
SP 02 1809/
END!

This message will associate the given scan point (input line SP) with the stop hunt key (input line SKEY). In a single service order message, only one key may be defined in this manner. A separate message is required for each control key to be assigned. Only one stop hunt key may be assigned to an MLHG.

6.132 Only one member of an MLHG may be specified as the stop hunt member. This member may also be the night stop member if desired and have a remote make busy key associated with it just as any other member. To designate an MLHG member as the stop hunt member:

A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
EHT 006/
END!

The member assigned as the stop hunt member must be in the MLHG over which hunting is performed. When the stop hunt key is thrown, all hunt groups will start at their normal member but will not hunt past the stop hunt member.

6.133 To remove the stop hunt feature from an MLHG, type the following message with a blank data field on the stop hunt member (EHT) line:

A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
EHT/ (Note)
END!

Note: The stop hunt key position will now be ignored by the program, but the scan point assigned to the key for this MLHG is still defined. To reassign the stop hunt feature to the MLHG, an EHT member need only be specified on a recent change service order as above.

6.134 To remove the definition of the stop hunt feature in the MLHG, use the input message:

A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
SKEY DLT S/
SP 02 1809/
END!

The scan point is now available for reassignment.

Remote Make Busy Feature (RMB)

6.135 Up to seven different remote make busy keys (1 through 7) may be associated with an MLHG. To define a remote make busy key in an MLHG, a scan point must be assigned to a remote make busy key on the customer premises. A spare scan point must be obtained from the Network Administrator. The Network Administrator maintains a record of scan points on form ESS 2576-R (Scan Point Assignment Record).

A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
SKEY ADD 1/
SP 02 1809/
END!

This message will associate the given scan point (input line SP) with the specified remote make busy key (key 1 in this example). In a single

service order message, only one key may be defined in this manner. A separate message is required for each control key to be assigned.

6.136 Any member of the MLHG over which hunting is performed (including the night stop and stop hunt members) may be associated with any one of the MLHG keys. There is no restriction to the number of members that may be controlled by a given key, but a member may be controlled by only one key. An example of a member associated with a given key:

```
A RC:MLH:2/
ORD 0002/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
RMB 1/
END!
```

When a remote make busy key is thrown, all members which are assigned to that key are treated as busy for all incoming calls. These member lines may continue to originate calls normally. The hunt sequences of the hunt groups are not affected except that more busy lines are seen.

6.137 To remove the remote make busy key assignment from a member:

```
A RC:MLH:2/
ORD 0002/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
RMB 0/     (Note)
END!
```

Note: If the remote make busy key assignment of a given key is removed from all members to which it was assigned, the key position of that particular key will be ignored by the program; but the scan point assigned to the key for this MLHG will still be defined. Members may again be associated with this remote make busy key as shown in paragraph 6.135.

6.138 To remove the definition of a single remote make busy key from an MLHG, use the input message:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
SKEY DLT 1/
SP 02 1809/
END!
```

The scan point is now available for reassignment.

Remote Overflow Register

6.139 The remote overflow register operates a call waiting lamp on the attendant console indicating an overflow condition. Only one remote overflow register (lamp) may be associated with an MLHG. A spare peripheral decoder point must be obtained from the Network Administrator to assign a remote overflow register to an MLHG. The Network Administrator maintains a record of peripheral decoder points on form ESS 2575-R (CPD and PD Assignment Record).

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
DPO 1245 21/
END!
```

To add a remote overflow lamp to an MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
DPO 1246 21/
RLMP ADD/
END!
```

6.140 To remove a remote overflow lamp or register from an MLHG, the remote overflow register DPO input line is typed with a blank data field:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
```

```
DPO/
END!
```

TOUCH-TONE Calling (TTC)

6.141 The TOUCH-TONE calling feature is assigned on an MLHG basis. An MLHG with the TOUCH-TONE feature may have both TOUCH-TONE lines and dial-pulse lines. To add the TOUCH-TONE calling feature:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
TTC ADD/
END!
```

6.142 To delete TOUCH-TONE calling:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
TTC DLT/
END!
```

Toll Diversion

6.143 A PBX may be assigned the toll diversion feature by assigning a line class code to the PBX that has the toll diversion feature. Note that the line class code must have been defined in translations by a previous ODA run. To remove the toll diversion feature from a PBX, a line class code must be assigned to the PBX that does not have the toll diversion feature.

Special Toll Billing

6.144 The special toll billing feature (formerly QZ billing) may be assigned to the entire MLHG or to individual members within an MLHG. Whenever possible, it is recommended that the special toll billing feature be assigned to the entire MLHG instead of individual lines of the MLHG to save translation memory.

6.145 To assign the special toll billing feature to an entire MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
BLN ADD/
END!
```

6.146 To remove the special toll billing feature from the entire MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
BLN DLT/
END!
```

Note: If the feature has also been assigned to an individual line in the MLHG, that particular line will not be affected by this input message.

Bill to Number (BTN)

6.147 It is required that every assigned MLHG have a bill to number (BTN) for the MLHG members. This number may be any assigned or unassigned TN. In addition, individual lines in the MLHG may have their own billing numbers against which changes are recorded, rather than against the BTN for the MLHG as a whole. The BTN must be an office code defined in the office (see ESS 2303-R output form).

6.148 To change the BTN assigned to an MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
BTN 555 1201/
END!
```

Threeway Calling

6.149 The threeway calling feature is assigned on an MLHG basis. If the feature is assigned to an MLHG, all member lines will have the feature. To assign threeway calling to an MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
ESC ADD/
END!
```

6.150 The threeway calling feature allows a customer to add another party to a call already established. To use this feature, the customer depresses the switchhook momentarily while talking to another party. This will give the customer dial tone so that the second number may be dialed. The customer may now talk to this party privately. The original party is on hold until the customer operates the switchhook to connect all three in the conference mode. This may be accomplished before or after the second party answers. If the party to be added on does not answer, operation of the switchhook will reconnect the original party and a second operation of the switchhook will disconnect the second party. If either of the two parties the customer is talking with hang up, the remaining line will still be connected. If the customer hangs up, all three lines will be disconnected.

6.151 To remove the threeway calling feature from an MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
ESC DLT/
END!
```

One-Digit Speed Calling (ESL)

6.152 The speed calling feature is assigned on an MLHG basis. If an MLHG has the 1-digit speed calling feature assigned, then all lines in that MLHG have the feature and may use the common list assigned to the MLHG. To assign 1-digit speed calling (8-number repertory) to an MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
ESL ADD/
END!
```

6.153 The numbers are stored in the list either by customer action or by the operating company. These numbers are accessed by dialing the single speed calling digit (2 through 9) and then either the # digit or waiting for a 4-second timeout.

6.154 To remove the entire 1-digit speed calling list and the feature from an MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
ESL DLT/
CSL DLT 1/
END!
```

Two-Digit Speed Calling (ESF)

6.155 The speed calling feature is assigned on an MLHG basis. If an MLHG has the 2-digit speed calling feature assigned, then all lines in that MLHG have the feature and may use the common list assigned to the MLHG. To assign 2-digit speed calling (30-number repertory) to an MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
ESF ADD/
END!
```

6.156 The numbers are stored in the list either by customer action or by the operating company. These numbers are accessed by dialing the 2-digit speed calling code (20 through 49) and then either the # digit or waiting for a 4-second time-out.

6.157 To remove the entire 2-digit speed calling list and the feature from an MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
ESF DLT/
CSL DLT 2/
END!
```

Customer Dialed Changes to Speed Calling Lists

6.158 The feature allowing the MLHG customer lines to dial direct changes to their speed calling list may be assigned on a group or member basis. To provide all MLHG members with the

ability to directly dial changes to their 1-digit speed calling list:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
CSL ADD 1/
END!
```

Note: Before the customer dialed change ability can be assigned, the MLHG must have the speed calling feature.

6.159 The customer dialed change feature for the 2-digit speed calling list assigned to the MLHG may be assigned exactly as above except by using CSL ADD 2/ instead of CSL ADD 1/.

6.160 To remove the customer dialed change feature on a 1-digit speed calling list:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
CSL DLT 1/
END!
```

6.161 The customer dialed change feature for a 2-digit speed calling list assigned to the MLHG may be removed exactly as above except CSL DLT 2/ must be used instead of CSL DLT 1/.

6.162 It is essential that the recent changes be recorded on paper tape. Refer to paragraph 6.50 for details of how these changes are recorded.

TELCO Inserted Changes to Speed Calling Lists

6.163 The operating company may assign numbers to speed calling lists and modify existing numbers on lists that are assigned to MLHGs exactly as shown in paragraph 6.55. For a list associated with an MLHG, the OE chosen in the input message may be any OE that is assigned to a member of the MLHG.

Call Forwarding Variable

6.164 Entire MLHGs or individual lines within an MLHG may be assigned the call forwarding variable feature. Whenever possible, it is recommended that the call forwarding variable feature be assigned to the entire MLHG instead of individual lines of the MLHG to save translation memory. See paragraph 6.55 for a description of the call forwarding variable feature.

6.165 To assign the call forwarding variable feature to an entire MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
ESM ADD/
END!
```

6.166 To remove the call forwarding variable feature from the entire MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
ESM DLT/
END!
```

Note: If the feature has also been assigned to an individual line in the MLHG, that line is not affected by the message.

Complaint Observing (COB)

6.167 Entire MLHGs or individual lines within an MLHG may be assigned the complaint observing feature. This feature allows all message rate calls from lines with the feature to be detail billed on the AMA tape. The purpose of this feature is to provide detailed information regarding all charges made for toll calls. Complaint observing is performed for all lines with the feature when activated as described.

Note: When an MLHG or individual MLHG member line is assigned the complaint observing function, it is recommended that the Dial Administrator be notified. A notation should then be made in the REMARKS field for that MLHG or line on form ESS 2105-R.

6.168 To assign the complaint observing features to an MLHG so that all lines will be complaint observed:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
COB ADD/
END!
```

6.169 To remove the complaint observing feature from an MLHG:

```
A RC:MLH:1/
ORD 0001/
TYP CHG/
HML 002/
COB DLT/
END!
```

Note: If the complaint observing feature is also assigned to an individual member line of the MLHG, that line will still have the feature.

6.170 The following input message must be used to cause all message rate calls from lines with the complaint observed feature to be detail billed on the AMA:

```
M AM:OBS:fg hi n!
```

See paragraph 18.24 for an explanation of variable fields.

All message rate calls normally recorded on the AMA will be detail billed until the message is canceled or the call store is cleared by a stable clear maintenance action caused by a system failure.

F. MLHG Member Procedures

Changing or Adding TN of an Assigned Member

6.171 To add a TN to an assigned member, use the following message:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
BHT 000/
LHT 008/
OE 01 0233/
TN 555 1438/          (Note)
LCC PBX/
END!
```

Note: The TN must be currently unassigned. Any TN may be assigned to any member.

6.172 To change the TN of an assigned member, use the following message:

```
A RC:MLH:2/
ORD 0002/
TYP CHG/
HML 002/
TER 006/
BHT 000/
LHT 008/
OE 01 0233/
TN 555 1438/
NTN 555 1234/         (Note)
END!
```

Note: The new telephone number (NTN) must have previously been in the unassigned condition. This service order will automatically place the old TN in the unassigned condition. Calls to unassigned TNs are given the blank number treatment specified for the hundreds group of the telephone numbers.

6.173 To delete the TN of an assigned member, use the following message:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN/
END!
```

Note: Calls to unassigned TNs are given the blank number treatment specified for the hundreds group of telephone numbers (see paragraph 13.01).

Changing OE of an Assigned Member

6.174 To change the OE of an MLHG member, use the following message:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
TN 555 1438/          (Note)
OE 01 0233/
IOE 01 6262/
END!
```

Note: If a TN is assigned to a member, it must be inputted on all service order messages for the member.

Changing Type of Service

6.175 A member may be assigned a line class code different from that assigned to the MLHG. Only the terminating major class may be different from the MLHG. The originating major class and screening class must be the same.

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1212/      (Note)
LCC DIF/
END!
```

Note: The TN is required if the member has an associated directory number.

6.176 If more than one rate area is defined within the office, it is required to also input a line indicating the rate area in which the MLHG is assigned. This is necessary to enable the program to assign the correct screening class from the LCC table to the TN (eg, rate area 1):

```
RAX 1/
```

Test Line Terminal Feature (TLT)

6.177 The test line terminal feature allows an MLHG line to originate and terminate before it is cut into service. The feature may be assigned on a MLHG basis or on an individual MLHG line basis. ***This feature is not designed for use after cutover.***

6.178 To assign the test line terminal feature to an individual line of an existing MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
MBR 006/
TN 555 1436/      (Note)
OE 01 0233/
TLT ADD/
END!
```

Note: The TN is required if the member has an associated directory number.

6.179 To remove the test line feature from an individual line of an existing MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
TN 555 1438/    (Note 1)
OE 01 0233/
TLT DLT/     (Note 2)
END!
```

Note 1: The TN is required if the member has an associated directory number.

Note 2: If the feature is also assigned to the entire MLHG, it is not affected by this message.

Adding to or Changing the Size of a Hunting Subgroup Associated With a Member TN

6.180 To define or change the member number of the start of a given hunting sequence (hunt group), enter the member number at which hunting is to begin (BHT):

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
```

TN 555 1212/
BHT 003/
END!

6.181 To define or change the member number where the hunting sequence (hunt group) stops, enter the member number after which the hunting is to stop (LHT):

A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1212/
LHT 005/
END!

If desired, modification of BHT and LHT may be performed in the same service order.

Free Terminating Service

6.182 The No. 2/2B ESS provides free terminating service through proper assignment of the line class code to a member TN. A line class code must have previously been defined in the line class code table in translations with a major terminating class of 13. To assign free terminating service to a member TN, the member must be inputted as a new installation (TYP NEW) with the assigned line class code, or a TYP CHG order must be made to assign the line class code.

Special Toll Billing

6.183 The special toll billing feature may be assigned to the MLHG as a whole or to individual members within an MLHG. Whenever possible, it is recommended that the special toll billing feature be assigned to the entire MLHG instead of individual lines of the MLHG to save translation memory.

6.184 To assign the special toll billing feature to an individual line in an MLHG:

A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/ (Note)
BLN ADD/
END!

Note: If a TN is assigned to a member, it must be inputted on all service order messages for this member.

6.185 To remove the special toll billing feature from a line of an MLHG:

A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/
BLN DLT/ (Note)
END!

Note: If the feature is assigned to the entire MLHG, it is not affected by this message.

Bill to Number for MLHG Line (BTN)

6.186 To assign or change a bill to number (different from the billing number for the MLHG) to an MLHG line:

A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/
BTN 555 1202/ (Note)
END/

Note: The BTN must be an office code defined in the office (see form ESS 2303-R).

6.187 To remove the special billing number from an MLHG line so that it is billed like other regular lines in the MLHG, the BTN that is inputted must be the same as the BTN for the MLHG as a whole.

A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 001/

```
TER 006/
OE 01 0233/
TN 555 1438/          (Note)
BTN 555 1201/
END!
```

Note: If a TN is assigned to a member, it must be inputted on all service order messages for this member.

Message Register

6.188 Message register assignments may be made to individual member lines of an MLHG. To assign a message register to a line, a spare peripheral decoder point, which is assigned to a message register, must be selected from form ESS 2575-R CPD and PD Assignment Record). (See paragraph 6.83.)

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/          (Note)
DPM 1246 32/
END!
```

Note: If a TN is assigned to a member, it must be inputted on all service order messages for this member.

6.189 To remove a message register from an existing line, the message register input line is typed with a blank data field:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/
DPM/
END!
```

Sleeve Lead

6.190 Sleeve lead assignments may be made to individual member lines of an MLHG. A spare peripheral decoder point must be obtained from the Network Administrator to assign a sleeve lead to a line. The Network Administrator maintains a record of peripheral decoder points on form ESS 2575-R CPD and PD Assignment Record). (See paragraph 6.80.)

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/          (Note)
DP 1246 32/
END!
```

Note: If a TN is assigned to a member, it must be inputted on all service order messages for this member.

6.191 To remove a sleeve lead from an existing line, the sleeve lead (DP) input line is typed with a blank data field:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/
DP/
END!
```

Note: When the sleeve lead feature is removed from a line, the automatic insulation test (AOSL) and 800-ms delay after sleeve lead is operated features are also removed.

Open Switching Interval Protection

6.192 The open switching interval protection feature eliminates the open to the central office battery during a switching sequence. This is accomplished by a software change which connects battery through the open switching interval protection circuit during what would have been the open interval. A spare peripheral decoder point must be obtained from the Network Administrator to assign a sleeve lead to a line. The Network Administrator maintains a record of peripheral decoder points on form ESS 2575-R CPD and PD Assignment Record).

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 002/
TN 562 3001/
OE 00 4222/
DPP 0512 22/
END!
```

Removing Open Switching Interval Protection

6.193 To remove open switching interval protection from an MLHG member:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 002/
TN 562 3001/
OE 00 4222/
DPP/
END!
```

Ground Start (GST)

6.194 Ground start assignments in an MLHG are made on an individual member basis. To designate a line as ground start:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 003/
OE 01 0212/
TN 555 1438/        (Note 1)
GST ADD/
END!        (Note 2)
```

Note 1: If a TN is assigned to a member, it must be inputted on all service order messages for this member.

Note 2: The service order must be coordinated with work in the office to restrap the line ferrod for ground start. OE assignment rules specify that all ground start lines should appear on network levels 0 or 2.

6.195 To change a line to loop start:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 003/
OE 01 0212/
TN 555 1438/
GST DLT/
END!        (Note)
```

Note: The service order must be coordinated with work in the office to restrap the line ferrod for loop start.

Customer Dialed Changes to Speed Calling Lists (CH)

6.196 The feature allowing the MLHG customer lines to dial direct changes to their speed calling list is assigned on a group or member basis. To provide an MLHG member with the ability to directly dial changes to their 1-digit speed calling list:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438        (Note 1)
CSL ADD 1/         (Note 2)
END!
```

Note 1: If a TN is assigned to a member, it must be inputted on all service order messages for this member.

Note 2: Before the customer dialed change ability can be assigned to a member, the MLHG must have the speed calling feature.

6.197 The customer dialed change feature for the 2-digit speed calling list assigned to the MLHG may be assigned exactly as above except by using CSL ADD 2/ instead of CSL ADD 1/.

6.198 It is recommended that the recent changes be recorded on paper tape. Refer to paragraph 6.50 for examples of how these changes may be recorded.

6.199 To remove the customer change feature on a 1-digit speed calling list:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/          (Note)
CSL DLT 1/
END!
```

Note: If a TN is assigned a member, it must be inputted on all service order messages for this member.

The customer dialed change feature for a 2-digit speed calling list assigned to the MLHG may be removed exactly as above except CSL DLT 2/ is used instead of CSL DLT 1/.

Call Forwarding Variable

6.200 Entire MLHGs or individual lines within an MLHG may be assigned the call forwarding variable feature. Whenever possible, it is recommended that the call forwarding variable feature be assigned to the entire MLHG instead of individual lines of the MUHG to save translation memory. (See paragraph 6.55 for a description of the call forwarding variable feature.)

6.201 To assign the call forwarding variable feature to an individual line in an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/          (Note)
ESM ADD/
END!
```

Note: A TN must be assigned to this member and it must be inputted on all service order messages for this member.

6.202 To remove the call forwarding variable feature from a line of an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/
ESM DLT/      (Note)
END!
```

Note: If the feature is assigned to the entire MLHG as well, it will not be affected by this message.

Complaint Observing (COB)

6.203 Entire MLHGs or individual lines within an MLHG may be assigned the complaint observing feature. This feature allows all message rate calls from lines with the feature to be detail billed on the AMA tape. The purpose of this feature is to provide detailed information regarding all charges made for toll calls.

6.204 To assign the complaint observing feature to an individual member line of an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/          (Note)
COB ADD/
END!
```

Note: If a TN is assigned to a member, it must be inputted on all service order messages for this member.

6.205 To remove the complaint observing feature from an individual member line of an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TER 006/
OE 01 0233/
TN 555 1438/
```

COB DLT/
END!

Note: If the complaint observing feature is also assigned to the MLHG, it will not be affected by this message.

6.206 The following input message must be used to cause all message rate calls from lines with the complaint observed feature to be detail billed on the AMA:

M AM:OBS:fg hi n!

See paragraph 18.64 for an explanation of variable fields.

All message rate calls normally recorded on the AMA will be detail billed until the message is canceled or the call store is cleared by a stable clear maintenance action caused by a system failure.

Call Trace (Terminating Call Identification [TRC])

6.207 All calls to a member telephone number (TN) assigned to an MLHG may be identified by TTY as they occur by adding the trace feature to the TN.

A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TN 555 1212/
OE 01 0233/
TER 006/
TRC ADD/
END!

6.208 When the trace feature is assigned to a telephone number, the Traffic Network Administrator should be notified to have the trace recorded on forms ESS 2100-R and ESS 2105-R for that number and MLHG.

6.209 Whenever a call attempt is made to a telephone number in the office on trace, regardless of whether or not the call is completed, one of the following TTY messages is printed:

INTEROFFICE - AI TK LCT
INTRAOFFICE - AI L LCT

The data fields of the above messages are described in OM-2H200-04 or OM-2H200-05 and indicate both terminals of the call traced.

6.210 To remove the trace feature from a member telephone number:

A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TN 555 1212/
OE 01 0233/
TER 006/
TRC DLT/
END!

Temporary Service Suspensions

6.211 Temporary service suspension ***cannot*** be accomplished on MLHG lines.

Changing Line Class Code of an MLHG Member

6.212 It is possible to assign a line class code (LCC) to a multiline hunt member which has a major originating class or screening class which is different from that contained in the group. To change the LCC for a member:

A RC:MLH:2/
ORD 0001/
TYP CHG/
OE 01 0232/
HML 002/
TER 001/
TN 555 1212/
LCC DIF/
END!

The TN is required if the member has an associated directory number. If more than one rate area is defined within the office, it is required to also input a line indicating the rate area in which the MLHG is assigned. This is necessary to enable the program to assign the correct screening class from the LCC table to the TN (eg, rate area 1):

RAX 1/

Automatic Line Insulation Test

6.213 The automatic line insulation test feature notifies the processor that automatic line

insulation tests should operate the sleeve lead before testing the line. To assign the automatic line insulation test feature to an MLHG:

```
A RC:MHG:2/
ORD 0001/
TYP CHG/
TN 341 2213/
OE 01 2145/
HML 001/
TER 002/
AOSL ADD/
END!
```

Note: To add this feature, sleeve lead must be defined for a line.

Removing Automatic Line Insulation Test

6.214 To remove automatic line insulation test feature from an MLHG:

```
A RC:MLHG:2/
ORD 0001/
TYP CHG/
TN 511 2103/
OE 01 4252/
HML 002/
TER 002/
AOSL DLT/
END!
```

Prohibit Line Insulation Test (PLIT)

6.215 This feature prevents the automatic line insulation test (ALIT) program from performing all tests except ***restore verify.*** Prohibit line insulation test (PLIT) feature may be assigned on an MLHG basis or to an individual line. If the prohibit line insulation test is assigned to an MLHG, then all of the lines in the MLHG are designated as having prohibit line insulation test assignment. To assign prohibit line insulation test feature to an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
TN 562 3001/
OE 01 4252/
HML 001/
TER 002/
PLIT ADD/
END!
```

Removing Prohibit Line Insulation Test

6.216 To remove prohibit line insulation test from an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
TN 562 3001/
OE 01 4252/
HML 001/
TER 002/
PLIT DLT/
END!
```

Prohibit Line Maintenance Test

6.217 This feature prevents the junctor reassignment (JASINT) and network fabric (NETFAB) programs from performing maintenance tests. This feature also prevents the automatic line insulation test (ALIT) program from performing insulation tests. The prohibit line maintenance test (PLM) may be assigned to an individual line or an MLHG. To assign PLM to an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
TN 562 3001/
OE 01 4252/
HML 001/
TER 002/
PLM ADD/
END!
```

Removing Prohibit Line Maintenance Test

6.218 To remove prohibit line maintenance test from an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
TN 562 3001/
OE 01 4252/
HML 001/
TER 002/
PLM DLT/
END!
```

Provide 800-ms Delay After Sleeve Lead Is Operated

6.219 Providing 800-ms delay after sleeve lead is operated ensures trunk-to-line assignments with concentrator switching systems. To assign this feature to an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
TN 562 3001/
OE 01 4252/
HML 001/
TER 002/
DLY ADD/
END!
```

Note: This feature cannot be used if a sleeve lead is not defined for the line.

Removing 800-ms Delay After Sleeve Lead Is Operated

6.220 To remove 800-ms delay after sleeve lead is operated:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
TN 562 3001/
OE 01 4252/
HML 001/
TER 002/
DLY DLT/
END!
```

Note: This feature cannot be used if a sleeve lead is not defined for the line.

Carrier Line

6.221 The carrier line feature indicates that a particular line is a carrier line and should ***not*** be given receiver off-hook tone. To assign the carrier line feature to an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
TN 562 3001/
OE 01 4252/
HML 001/
TER 002/
ROH ADD/
END!
```

Removing Carrier Line

6.222 To remove carrier line from an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
TN 562 3001/
OE 01 3534/
HML 001/
TER 002/
ROH DLT/
END!
```

800 Service

6.223 The 800 Service is a terminating feature that provides for billing all calls to a terminating party (called party) instead of the originating party (calling party). There are two types of 800 Service lines to which a customer may subscribe:

- Full Business Day—Where the customer is unrestricted as the number of incoming calls made per line.
- Measured Time—Where the customer pays for the line based on the amount of time the line is used.

The assignment is identical except that a separate simulated facilities group (SFG) number is used for the measured time 800 Service. This feature may be implemented for centrex lines or noncentrex lines; however, the 800 Service feature is not applicable for coin lines, party lines, or mobile lines. A simulated facilities group (SFG) number is assigned to the line in order to implement the 800 Service feature. The service order input message would appear as:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
OE 00 1202/
TN 562 2530/
HML 002/
TER 001/
SFG 5/
END!
```

Removing 800 Service

6.224 To remove either measured time or full business day 800 Service from an MLHG, the simulated facilities group number is set to zero, thus, causing the 800 Service to become deactivated. To remove 800 Service from an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
TN 562 2530/
OE 01 1202/
HML 002/
TER 001/
SFG 0/
END!
```

G. Changing a Hunting Subgroup Associated With a Hunting Only TN Procedure

6.225 A hunting only TN defines a hunting subgroup within an MLHG. This TN is not associated with a particular member and has no OE (ie, it has only terminating translations defined).

Changing TN of an Assigned Hunt Subgroup (Hunting Only TN)

6.226 To change the telephone number (TN) assigned to a hunting subgroup, use the message:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TN 555 1212/
NTN 555 1200/
END!
```

Note: The new telephone number (input line NTN) must have previously been in the unassigned condition. This service order will automatically place the old TN in the unassigned condition. Calls to unassigned TNs are given the blank number treatment specified for the hundreds group of telephone numbers (see paragraph 13.01).

Changing Size of a Hunting Subgroup Associated With a Hunting Only TN

6.227 To change the member number of the start of a given hunting sequence (hunt subgroup):

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TN 555 1212/
BHT 003/
END!
```

6.228 To change the member number at which the hunting sequence (hunting subgroup) stops:

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TN 555 1212/
LHT 005/
END!
```

If desired, modification of BHT and LHT may be performed in the same service order if they are to be changed or for informational purposes.

Changing Line Class Code of a Hunting Subgroup Associated With a Hunting Only TN

6.229 The hunting subgroup specified by a hunting TN may be assigned a line class code different from that assigned to the MLHG. However, it is required that the screening codes and major originating class of LCC assigned to the TN be the same as that currently assigned to the MLHG and that the LCC be defined in the LCC Table.

```
A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TN 555 1212/
LCC PBX/
END!
```

6.230 If more than one rate area is defined within the office, it is required to also input a line indicating the rate area in which the MLHG is assigned. This is necessary to enable the

program to assign the correct screening class from the LCC Table to the TN (eg, rate area 1):

RAX 1/

Call Trace (Terminating Call Identification) (TRC)

6.231 All calls to a given hunting only telephone number (TN) assigned to an MLHG hunting subgroup may be identified by TTY as they occur by adding the trace feature to the hunting subgroup.

A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TN 555 1212/
TRC ADD/
END!

When the trace feature is assigned to a telephone number, the Network Administrator should be notified to the trace recorded on forms ESS 2100-R and ESS 2105-R for that number and MLHG.

6.232 Whenever a call attempt is made to a telephone number in the office on trace, regardless of whether or not the call is completed, a TTY message is outputted as shown in paragraph 6.207.

6.233 To remove the trace feature from a telephone number assigned to an MLHG hunt group:

A RC:MLH:2/
ORD 0001/
TYP CHG/
HML 002/
TN 555 1212/
TRC DLT/
END!

Temporary Service Suspension

6.234 Temporary service suspension ***cannot*** be accomplished on MLHG lines.

H. Disconnecting Service Procedures

Removing an MLHG

6.235 To remove an MLHG that has been assigned:

A RC:MLH:1/
ORD 0001/
TYP OUT/
HML 002/
END!

The skeleton MLHG, as defined by the ODA, is immediately available for reassignment.

> ***Note:*** This service order removes all MLHG translations including the terminal list. The hunting subgroups for the MLHGs that are associated with the hunting only TN must be removed by individual service orders for each hunting only TN (see paragraph 6.236).

Placing a Hunting Only TN on Intercept

6.236 To remove a hunt subgroup from an MLHG, the telephone number (TN) assigned to that hunt subgroup may be assigned as routing to intercept (eg, route index 009):

A RC:MLH:2/
ORD 0001/
TYP ICP/
HML 002/
TN 555 1212/
RTI 009/
END!

Any calls to this TN will now be routed to the intercept via route index 009. Note that other route indexes could just as well be inputted, thus routing calls to some other treatment. If the route index is not typed, the route index which is shown on the ESS 2303-R output form, for the particular office code, is used. If no route index is specified, a default value of 008 will be inserted by the program.

6.237 The only service order allowed on this TN after the TYP ICP order is the TYP OUT service order for a TN.

A RC:L/
ORD 0001/
TYP OUT/

```
TN 555 1212/
END!
```

Placing a Hunting Only TN to the Unassigned Condition

6.238 To remove a hunting subgroup from an MLHG, the hunting only telephone number (TN) assigned to that hunt group may be removed from service.

```
A RC:MLH:2/
ORD 0001/
TYP OUT/
HML 002/
TN 555 1212/
END!
```

Calls to unassigned TNs are given the blank number treatment specified for the hundreds group of telephone numbers. The TN is immediately available for reassignment.

Placing an MLHG Member With a TN on Intercept

6.239 To remove a member from an MLHG, the telephone number (TN) assigned to that member may be assigned as routing to intercept (eg, route index 009):

```
A RC:MLH:2/
ORD 0001/
TYP ICP/
HML 002/
TER 006/
OE 01 0223/          (See Note)
TN 555 1438/
RTI 009/
END!
```

Note: The OE is now available for reassignment.

Any calls to this TN will now be routed to the intercept via route index 009. Note that other route indexes could just as well be inputted, thus routing calls to some other treatment. If the route index is not typed, the route index which is shown on the ESS 2303-R output form for the particular office code is used. If no route index is specified, a default value of 008 will be inserted by the program.

6.240 The only service order allowed on this TN after the TYP ICP order is the TYP OUT service order for a TN.

```
A RC:L/
ORD 0001/
TYP OUT/
TN 555 1212/
END!
```

Placing an MLHG Member With a TN to the Unassigned Condition

6.241 To remove a hunt group from an MLHG, the TN assigned to that hunt group may be removed from service.

```
A RC:MLH:2/
ORD 0001/
TYP OUT/
HML 002/
TER 006/
OE 01 0233/
TN 555 1212/
END!
```

Calls to unassigned TNs are given the blank number treatment specified for the hundreds group telephone numbers. The TN and OE are immediately available for reassignment.

6.242 To remove a member line from the terminal list of an MLHG:

```
A RC:MLH:2/
ORD 0001/
TYP OUT/
HML 002/
TER 006/
OE 01 0233/
END!
```

A vacancy will now exist in the terminal list. If the member was an outdial-only member, it will have no effect on the hunt groups. If the member was a hunted member, the call processing programs will treat this member number (with an all zero OE) as permanently busy. In this way, vacancies are permitted in the terminal list without affecting the hunt group continuity. However, the vacancy will count as a busy member in traffic usage counts. The OE is immediately available for reassignment.

7. RC PROCEDURES FOR TRUNKS AND SERVICE CIRCUITS

Note: The RC procedures given in this section are allowed from TTY channels 0, 1, and 3. In practice, however, they should be used only from the maintenance channels (0 and 1). The verify procedures are available from all channels.

TRUNKS

7.01 All trunk circuits in the office must have been defined by the ODA program. When an ODA run is made, spare trunks are defined in spare trunk groups so that translations exist when they are needed.

7.02 For details on trunk message formats and data fields, refer to the Input Message Manual. Each example listed performs only the one desired task. As indicated in the Input Message Manual, these functions can be performed simultaneously in the same message. It is not necessary to make up a separate message for each change to a trunk.

7.03 Groups 64 and 65 contain the noncontrolling ports of all multiport circuits so no changes can be made in group 64 or 65.

A. Verification

7.04 To verify the contents of a trunk group:

```
A VY:GRP:123!
```

Following this message will be a printout of words 0 through 7 of the trunk group if the group has no 4-word expansion assigned. Words 0 through 11 will be printed if a 4-word expansion is assigned, where word 8 is the first word of the 4-word expansion. Also for each word, the printout will contain the program store and recent change value in octal.

7.05 When word changes are required to the trunk group, the recent change message would appear as:

```
A RC:GRP:123 1/
WD 0 1234567 1001001/
WD 1 1002143 1010101/
END!
```

Note: The number 123 is the group number, 1 will add a 4-word expansion to group; 2 will remove expansion.

7.06 Given the trunk group and member number, (eg, group 81, member 16) a trunk may be verified by the following input message:

```
A VY:TRK:81 16!
```

The response message will indicate whether that member is not equipped in the group, or if the group defined size is not that large. If the member exists, the response will indicate the OE, first peripheral decoder point, auxiliary peripheral decoder point, first directed scan point, and first supervisory scan point, if they exist.

7.07 To verify a trunk, service circuit, or attendant OE, use the following message:

```
A VY:L/
OE 01 0232/
END!
```

The information returned is that which would have been returned had the trunk or service circuit been verified by group and member, or had the attendant been verified by FDC (frame, data link, console). See the following messages in IM/OM 2H200-04 or 2H200-05 for more detail:

```
AR VY TRK
AR VY SVC
AR VY ATT.
```

B. Changing the Member Number of a Trunk

7.08 To move a trunk circuit from one member number to another (eg, from group 080, member 006 to group 080, member 002), use the following input message:

```
A RC:TRK/
OGP 080/
OMB 006/
GRP 080/
MBR 002/ (Note)
END!
```

Note: If the new group member number is left blank, the trunk is assigned to the first available member in the group.

7.09 A trunk must be made maintenance busy before it is allowed to be moved. Any testing should be done from the spare group for that circuit type.

7.10 When a member number change is made by the above message, a verification message response will follow automatically.

C. Moving Trunk From One Group to Another

7.11 To move a trunk circuit from one trunk group to another (eg, from group 80, member 6 to group 116, member 2), use the following input message:

```
A RC:TRK/
OGP 080/
OMB 006/
GRP 116/
MBR 002/        (Note)
END!
```

Note: If the new group member number is left blank, the trunk is assigned to the first available member in the new group.

7.12 A trunk must be made maintenance busy before it is allowed to be moved. Any trunk wiring changes and testing should be performed from the spare trunk group for that circuit type.

7.13 When a group change is made by the above message, a verification message response will follow automatically.

D. Changing OE of a Trunk Circuit

7.14 The OE to which a given trunk circuit is assigned can be changed in translation by the following input message:

```
A RC:TRK/
OGP 080/
OMB 006/
OE 01 0232/
IOE 01 6263/        (Note)
END!
```

Note: The new OE (IOE) must have previously been unassigned. The old OE is immediately available for reassignment.

7.15 The trunk circuit must be made maintenance busy before the OE may be changed. Wiring changes must also be performed to change a OE assignment of a trunk. The ferrod associated with the new TTY must be unstrapped. (See Section 232-010-301.)

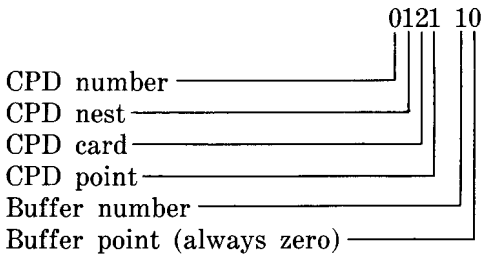
7.16 When the OE of a trunk is changed by the above message, a verification message response will follow automatically.

E. Changing PDA of a Trunk Circuit

7.17 The peripheral decoder buffer point address (PDA) is the peripheral decoder point used to operate the trunk. The PDA to which a given trunk circuit is assigned can be changed in translation by the following input message:

```
A RC:TRK/
OGP 080/
OMB 006/
PDA 0121 10/
END!
```

where:



SERVICE CIRCUITS

7.18 All service circuits in the office must have been defined by the ODA program. When an ODA run is made, spare service circuits are defined in spare service circuit groups so that translations exist when they are needed.

7.19 For details on service circuit message formats and data fields, refer to the Input Message Manual. Each example listed performs only the one desired task. As indicated in the Input Message Manual, these functions can be performed simultaneously in the same message. It is not necessary to make up a separate message for each change to a service circuit.

Note: Groups 64 and 65 contain the noncontrolling parts of all multiport circuits so no changes can be made in groups 64 or 65.

A. Verification

7.20 Given the service circuit group and member number (eg, group 40, member 4) a service circuit may be verified by the input message:

A VY:SVC:40 4!

The response message will indicate whether or not member 4 is equipped in group 40 or if the group defined size is less than 40. If the member is correct, the response will indicate the OE, first peripheral decoder point, auxiliary peripheral decoder point, first directed scan point, and first supervisory scan point, if they exist.

7.21 To verify a trunk, service circuit, or attendant OE, use the following message:

```
A VY:L/
OE 01 0232/
END!
```

The information returned is that which would have been returned had the trunk or service circuit been verified by group and member, or had the attendant been verified by FDC (frame, data link, console). See the following message in IM/OM 2H200-04 or 2H200-05 for more details:

```
AR VY TRK
AR VY SVC
AR VY ATT.
```

B. Changing the Member Number of a Service Circuit

7.22 To move a service circuit from one member number to another (eg, from group 040, member 004 to group 040, member 002), use the following input message:

```
A RC:SVC/
OGP 040/
OMP 004/
GRP 040/
MBR 002/        (Note)
END!
```

Note: If the new group member is left blank, the service circuit is assigned to the first available member in the group.

7.23 A service circuit must be made maintenance busy before it is allowed to be moved. Any testing should be done from the spare group for that circuit type.

7.24 When a member number change is made by the above message, a verification message response will follow automatically.

C. Moving Service Circuit From One Group to Another

7.25 To move a service circuit from one group to another (eg, group 40, member 4 to group 56, member 2), use the following input message:

```
A RC:SVC/
OGP 040/
OMB 004/
GRP 056/        (Note)
MBR 002/
END!
```

Note: If the new group member is left blank, the service circuit is assigned to the first available member in the new group.

7.26 A service circuit must be made maintenance busy before it is allowed to be moved. All circuit testing should be performed from the spare service circuit group for that circuit type.

7.27 When a group change is made by the above message, a verification message response will automatically follow.

D. Changing OE of a Service Circuit

7.28 The OE to which a given service circuit is assigned can be changed in translation by the following input message:

```
A RC:SVC/
OGP 040/
OMB 004/
OE 01 0232/
IOE 01 6262/        (Note)
END!
```

Note: The new OE (IOE) must have previously been unassigned. The old OE is immediately available for reassignment.

7.29 The service circuit must be made maintenance busy before the OE may be changed. Wiring changes must also be made to change the OE assignment of a service circuit.

7.30 When the OE of a service circuit is changed by the above message, a verification message response will follow automatically.

ADDING ADDITIONAL TRUNK AND SERVICE CIRCUIT HELP MESSAGES

7.31 Changes to the trunk and simulated trunk group words are difficult because octal calculations are involved. For example, the bill to number (BTN) and manual trunk disposition (MTD) are stored in translations in a packed octal form. In order to change one of these numbers, the new number must be converted to the packed octal form and inputted as a work change. The EF-2 and 2B-EF-2 generic programs contain help messages that will convert a decimal directory number to its packed octal form and print the results on the TTY as well as several other types of HELP messages. These help messages are designed to minimize conversion errors and are designed ***ONLY*** to be used in conjunction with the Manual Translation Modification procedures in Sections 232-127-312 and 232-327-314.

A. Group Translation Data

7.32 The following help message is designed to provide the craft personnel with the locations within the group translation tables to be modified when adding new circuit members. The base location of the group data block and the locations of the corresponding circuit list member entry may be obtained via use of the following input message:

```
A HP:G/
GRP 111/
MBR 123/
END!
```

The following output message provides the group data block location and the circuit list entry location:

```
AR HP G
GRP 111 1010101
MBR 123 1010101 01010101
END!
```

B. Scan Point Translation

7.33 The following message will provide the craft personnel with the location in the scan point translation tables of the scan point required to add a new circuit to the office. The message can differentiate between universal trunks and miscellaneous trunk/service circuits via the output message. The input message is as follows:

```
A HP:G/
SP 23 1413/
END!
```

The output message for universal trunks is as follows:

```
AR HP G
SP 23 1413
UTB 1212121 2121211
UWD1 1121212 1121212
UWD2 2211212 1111222
END
```

The output message for miscellaneous trunk/service circuit is as follows:

```
AR HP G
SP 23 1513
AS BSE 3333333
AS ENT 1122211 2222111
END
```

Note: If the miscellaneous trunk is undefined, variable fields will not print in either output messages for UWD1, UWD2, AS BSE nor AS ENT.

C. Circuit Subtranslator Entry

7.34 The input message in paragraph 7.35 is used in conjunction with the scan point translation input message (paragraph 7.33) whenever a miscellaneous trunk or service circuit is to be added.

7.35 The first eight words of the auxiliary subtranslator contains four 2-word entries. These entries identify the connecting subtranslators as per type (miscellaneous trunk or service circuit subtranslator) and contain the base address of the

associated subtranslator tables. The preceding scan point translator input message (AS BSE, word 1) provides the base address of a connecting circuit subtranslator obtained from one of the four entries and is used as the input. The input message that follows locates a free 4-word block within the specified circuit subtranslator and prints out the starting location.

```
A HP:T/
SUBB 0 1234567/
END!
```

The output message is as follows:

```
AR HP T
SUBB 1212121
SUBE 2222222 121
END
```

In this message SUBB is the scan point subtranslator base location, miscellaneous trunk or service circuit subtranslator base location obtained from one of the four 2-word entries contained within the first eight words of the auxiliary subtranslator.

SUBE is the location of a 4-word free entry located within the circuit subtranslator whose base address was specified in the input message.

D. Terminal Equipment Translator

7.36 Terminal equipment originating subtranslator entry (OSE) that corresponds to a specified originating equipment number can be identified via an administrative help message.

```
A HP:G/
OE 01 1233/
END!
```

The resulting output message contains the OSE as a full word with the originating subtranslator corresponding with the OE specified.

E. Table and Entry Translation

7.37 The following administrative help message can be used to find the address of 2-, 4-, 6- or 8-word expansions.

```
A HP:T/
TBL 0 566/
END!
```

The resulting output message contains the pointer and address of the expansion in keyword TBL.

```
AR HP T
TBL 566 1244323
END
```

F. Program and Call Store Allocation

7.38 To find a block of spare program store words use input message:

```
A RC:PST:1024 10!
```

This message will find a block of spare program store 1024 words in size where the first address of the block has 10 low zeros.

The first and last address of the spare program store block, the pointer and address of the two word expansion, are printed out in the output message:

```
AR RC PST 1024 10
ADR 1234000 1236000
END
```

7.39 To find a block of spare call store of a 32-word block, use input message:

```
A RC:CST: 32 10!
```

The first and last address of the spare or unused call store appears in the output message:

```
AR RC CST 32 10
ADR 1334000 1334040
END
```

G. Place Spare Words in Program Store and Call Store

7.40 To place spare words in program store into spares:

```
A RC:PST 1024/
ADR 0 123400/
END!
```

7.41 To place spare words in call store into spares:

```
A RC:CST 32/
ADR 0 133400/
END!
```

H. Find an Empty 2-Word Expansion

7.42 To find a 2-word expansion in the program store table:

```
A RC:PST:1024/
TBL 2/
END!
```

The resulting output message provides the expansion pointer and the address of the expansion.

```
AR RC PST
TBL 01645 533188
```

8. TRUNK GROUP

> ***Note:*** The RC procedures given in this section are allowed from TTY channels 0, 1, and 3. In practice, however, they should be used only from the maintenance channels (0 and 1). The verify procedures are available from all channels.

8.01 A trunk group consists of eight program store words plus four optional words in general purpose expansion pointed to by word 7. Any number of words may be changed one at a time. The old octal contents of the word to be changed, as well as the new information, must be entered. Before using the message, consult with TG-2H, Division 4, Sections 2c and 2e and complete ESS 2202-3 (Trunk Group Table, No. 2 ESS) and ESS 2204 (Trunk Feature Table, No. 2 ESS) forms for the group in question. Then, using PA-2H204 or PA-2H205, Section 610, convert the data from the forms to the octal representation for all words of the group. Then to change a given word of the trunk group data, use the following message:

```
A RC:GRP:71 1/
WD 1 1234567 2234567/
END!
```

The above message will change word 1 of trunk group 71 from O(1234567) to O(2234567). Even parity is calculated by the program for the new information to be entered. The digit 1 places a 4-word expansion on word 7 of the group. A digit 2 would delete the expansion, and digit 0 would be no change to word 7 for expansions. In the header message, digit 1 represents adding a 4-word expansion to the trunk group, while digit 2 would delete a 4-word expansion from the trunk group.

8.02 A recent change to a trunk group is effective immediately for word 0 and bits 0 through 3 of word 6, (bylink peg counter) of the translator. However, a recent change update must be performed for any changes to words 1 through 5, bits 4 through 15 of word 6, and word 7 to be effective; ie, only word 0 and bits 0 through 3 of word 6 are recent change hunted.

8.03 Before using this message, it is recommended that the No. 2 ESS Translation Guide, TG-2H, be consulted, especially Division 4, Section 2e, Table A.

8.04 To verify the octal contents of all data words in both program store and recent change for a given trunk group:

```
A VY:GRP:71!
```

The octal contents in recent change will only print out if different from that in program store.

9. SERVICE CIRCUIT GROUP

> ***Note:*** The RC procedures given in this section are allowed from TTY channels 0, 1, and 3. In practice, however, they should be used only from the maintenance channels (0 and 1). The verify procedures are available from all channels.

9.01 A service circuit group consists of four program store words. Any number of words may be changed at one time. The old octal contents of the word to be changed, as well as the new information, must be entered. Before using the message, consult with TG-2H, Division 4, Section 2C and complete ESS 2202-1 and ESS 2202-2 (Trunk Group Table, No. 2 ESS) forms for the group in question. Then using PA-2H204 or PA-2H205, Section 610, convert the data from the forms to the octal representation for all words of the group. Then to change a given word of the service circuit group data, use the following message:

```
A RC:GRP:29/
WD 0 1234567 1234560/
END!
```

The above message will change word 0 of service circuit group 29 from O(1234567) to O(1234560). Even parity is calculated by the program for the new information to be entered.

9.02 A recent change to word 0 of a service circuit group is effective immediately. However, a recent change update must be performed for any change to words 1 through 3 to be effective; ie, only word 0 is recent change hunted.

9.03 To verify the octal contents of all data words in both program and recent change for a given service circuit group:

A VY:GRP:29!

The octal contents in recent change will be returned only if different from that in program store.

10. CARRIER GROUP ALARM TABLE AND TRUNK GROUP/TRUNK MAKE BUSY TABLE

Note: The RC procedures given in this section are allowed from TTY channels 0, 1, and 3. In practice, however, they should be used only from the maintenance channels (0 and 1). The verify procedures are available from all channels.

10.01 In order to add a trunk to a "carrier group" alarm table, the carrier group definition must have been established by a previous ODA run. The recent change message may be used to add any number of members of various trunk groups to the carrier group member table. The members of this table are then removed from service when the associated ferrod is saturated. In essence, this is a trunk remote make busy facility which may be controlled by a carrier group alarm contact closure, a remote make busy key, etc (refer to Translation Guide TG-2H, Division 4, Section 21 for explanation of ESS-2216 Carrier Group Table).

A. Verify Carrier Group

10.02 To verify all trunks associated with a given carrier group alarm table, use the input message:

A VY:CGA:007!

The response will indicate all trunks (by group and member) which are associated with carrier group number 7.

B. Adding a Trunk to a Carrier Group

10.03 Before a trunk can be added to an existing carrier group table, certain translation tables and pointers must be established by the ODA. Assuming these are established, add a new trunk to a carrier group as follows:

A RC:CGA:007 152 003 1!

This message will add trunk group 152, member 3 to carrier group number 7 if room exists in the table.

C. Removing a Trunk From a Carrier Group

10.04 To remove a trunk from a carrier group, use the following input message:

A RC:CGA:007 152 003 0!

This message will remove trunk group 152, member 3 from carrier group number 7.

D. Verify Trunk on Carrier Group

10.05 In addition to the response normally given by the verification of a trunk (refer to the Output Message Manual (OM-2H200-04 or OM-2H200-05) the carrier group number is returned. For example, a verify of trunk group 152, member 3 would return:

CGN 007

E. Verify Trunk Group and Member Assigned to a Trunk Make Busy Table

10.06 To verify the trunk group and member assigned to a trunk make busy table, use the following input message:

A VY:TMB:1!

This message will verify trunk make busy Table 1.

F. Adding a Trunk Group to a Trunk Make Busy Table

10.07 To add a trunk group to a trunk make busy table, use the following input message:

A RC:TMB: 1 2 3 1!

This message will add trunk group 2 to number position 3 of TMB Table 1. The last 1 in the message means to add.

G. Removing a Trunk Group From a Trunk Make Busy Table

10.08 To remove a trunk group from a trunk make busy table, the following input message should be used:

A RC:TMB: 1 2 3 0!

The zero on the end of the message deletes trunk group 2 from number position 3 on TMB, Table 1.

11. RC PROCEDURES FOR ROUTING AND CHARGING

Note: The RC procedures given in this section are allowed from channels 0, 1, and 3. In practice, however, they should be used only from the maintenance channels (0 and 1). The verify procedures are available from all channels.

ROUTE INDEX EXPANSIONS

11.01 Caution must be exercised when changing a route index expansion. Several different call situations may use the same route index. Different code groups (ESS 2304-R) may use the same route index as a direct route index or different special routing cases (ESS 2301-R) may also use that same route index as an alternate route index. All uses of a route index must be considered before it is changed.

11.02 The route index is a 3-digit number ranging from 008 to 511, by which trunk group numbers and routing information are associated with data based on the telephone number (ESS 2100 form), a line or trunk class code (ESS 2301 form), an area code and office code (ESS 2300 form), an incoming trunk digit translation (ESS 2209 form), or centrex group table (ESS 2109 form).

11.03 A given word of a route index expansion may be changed by specifying the octal contents of the program store word to be changed as well as the new information to be entered. The 2-word code conversion expansion, as pointed to by a route index with exit code 6 and destination code 17, is not recent changeable.

11.04 The quantity of information obtained (via the route index) requires two data words in the 1024 word Route Index Expansion Table, limiting the total number of route indexes to 512. The first eight entries (ESS 2303-1 form) 000-007 are reserved for intraoffice codes corresponding to normalized office codes (NOC) 0-7. Route Indexes 008-019 (ESS 2302-2 form) are also dedicated within the generic program and must be defined even where the function is not desired by the operating company. The dedicated route indexes are defined in Table D. The quantity of route indexes which may be linked together (as in alternate routing) is six (initial plus five others).

11.05 Service circuits that are required in every No. 2/2B ESS office, do not require a defined route index because they are accessed by the generic program via a dedicated trunk group number. Service circuits that require a telephone number or other optional treatment require a route index. Additional service circuits accessed by the program may be assigned a route index, if desired.

11.06 Trunk group number assignments for operating company defined trunk groups vary with the generic program installed in the office. In offices equipped with EF-2 or 2B-EF-2 generic programs, TELCO defined trunk group numbers are limited to the 070-511 range. Additional service circuits may be assigned within the 070-511 trunk group number range. However, starting with

TABLE D

DEDICATED ROUTE INDEXES

ROUTE INDEXES	DESCRIPTION
000-007	Normalized office code.
008	Route index for regular intercept (announcement, AIS, or operator). *Normally accessed via recent change ICP default treatment.
009	Route index for disconnect intercept (announcement, AIS, or operator). *Normally accessed via recent change.
010	Route index for trouble intercept (announcement, AIS, or operator). *Normally accessed via recent change. Also used when program encounters a line on the plugged up list.
011	Route index used when an origination from a manual line is encountered.
012	Route index used when a customer with at least one custom calling feature attempts to use a custom calling feature which the customer is not entitled to have. Also when a dialing or procedural error related directly to a custom calling feature is encountered.
013	Route index to be used for all 2-party message rate reverting calls. Also used for all reverting calls if the data in items 07 and 08 of ESS 2500 (General Information Table) indicates.
014	Route index to be used on all blank 4-digit numbers, blank hundreds groups, and all 4-digit translation errors.
015	Route index to be used on noncoin calls which should be routed to the permanent signal operator.
016	Route index to be used on coin calls which should be routed to the permanent signal operator. Route index 015 and 016 may use the same trunk group if desired.
017	Route index to be used in the first phase of permanent signal treatment. Normally defined with P.S. announcement, group 018.
018	Route index to be used in the first phase of partial dial treatment. Normally defined with P.D. announcement trunk group, 019.
019	Route index to be used for all translation errors other than 4-digit errors (see route index 014). This route index cannot go to an AIS system. It is possible to use this route index with an announcement or tone trunk.

* These route indexes may use call types 16, 17, 18, 24, 29, or 30, or 04 (for AIS only).

trunk group number 080, service circuits and trunk groups cannot be mixed within any group of 16 trunk group numbers; ie, 080-095, 096-111, 112-127, etc. As an example, if a service circuit is assigned to trunk group number 096, a trunk group cannot be assigned to trunk group number 097-111.

A. Verification

11.07 To verify the contents in both the program store (PS) and recent change (RC) areas of call store for the given route index, use the following input message:

A VY:RI:aaa!

aaa = A 3-digit variable field that represents the route index.

= Range is decimal 8 through the maximum defined route index for this office.

11.08 A route index occupies a 2-word block of program store or the recent change area of call store. The output message following a route index verification request is as follows:

AR VY RI aaa yyyyyy zzzzzz

aaa = A 3-digit variable field that represents the route index. The range is decimal 8 through whatever the maximum defined route index is for this office.

yyyyyy = The octal contents of program store.

zzzzzz = The octal contents of recent change area of call store (Note).

Note: Only prints out if different from program store.

B. Changing a Route Index

11.09 A route index consists of two to four program store words. Any one of the four may be changed with each message. Before using the following input message, consult with TG-2H, Division 4, Section 3d, and complete ESS 2303 form for the route index in question. Then, using PA-2H204 or PA-2H205, Section 510, convert the data from the ESS 2303 form to the octal representation for the appropriate words of the route index. Then, to change a given word or words of the route index expansion table, use the following message:

A RC:RI:aaa/
WD x zzzzzzz/
WD x zzzzzzz/
END!

aaa = A 3-digit variable field that represents the route index. Range is decimal 8 through whatever the maximum defined route index is for this office.

x = The word in the route index to be changed. x may be 0 to 3.

zzzzzzz = Octal contents to be entered into recent change. Even parity will be calculated and inserted.

C. Deleting a Route Index

11.10 A route index could have to be removed for one of several reasons including:

- The route index is no longer used.
- The route index could have been created incorrectly or only created on a temporary basis.

The route index is deleted by the following message:

A RC:RI:aaa/
WD x zzzzzzz/
WD x zzzzzzz/
END!

aaa = A 3-digit variable field that represents the route index. Range is decimal 8 through whatever the maximum defined route index is for this office.

x = The word in the route index expansion to be deleted. x may be 0 to 3.

zzzzzzz = Octal contents (0000000) to be entered into recent change.

Even parity will be calculated and inserted.

THREE- AND SIX-DIGIT TRANSLATION

11.11 In general, a 2- or 6-digit code will point to a code index. From the code index expansion, a direct route index is obtained as well as another pointer to screening translators. From the line class of service in the screening translators, the charge index and possibly an alternate route index are obtained. None of the information in the screening translators is able to be modified by recent change techniques. The only item in a code index expansion that is recent changeable is the direct route index.

A. Verifying Code Assignment

11.12 The following input messages verify to which code index a given 3-digit (eg, 555) or 6-digit (eg, 312 555) code directly points:

A VY:DIG:555!
A VY:DIG:312 555!

The response message will indicate the first code index to which the given code is pointing. The exit code of the code index expansion indicates the format of the expansion. Different exit codes are used to handle the possible 1 or 0 prefixing of a number.

B. Verifying Which Route Index Is Assigned to a Code Index

11.13 As shown in the Code Index Expansion Tables formats (see paragraph 11.14), exit codes 1, 2, 3, and 6 do not contain direct route indexes. These expansion types point to other code indexes for special conditions. The remaining code index expansion types (eg, code index 12) have a direct route index which may be verified by the following input message:

A VY:CRI:12!

11.14 The response message will indicate the direct route index associated with this code index expansion and the expansion exit code. This direct route index is not necessarily used by all 3- or 6-digit codes pointing to this code index. The exit code determines whether this direct route index is to be used for the dialed prefix code or if the direct route index of another code index must be used for the dialed prefix. The prefix digit treatment in the code index expansions with direct route indexes is as follows:

EXIT CODE 4:
no pfx - use this direct route index
0 pfx - use this direct route index
1 pfx - use this direct route index.

EXIT CODE 5:
no pfx - use this direct route index
0 pfx - points to code index
1 pfx - use this direct route index.

EXIT CODE 7:
no pfx - points to code index
0 pfx - points to code index
1 pfx - use this direct route index.

EXIT CODE 8:
no pfx - use this direct route index
0 pfx - points to code index
1 pfx - points to code index.

If it is necessary to verify the direct route indexes assigned to the code index expansions to which a prefix points, a direct octal readout of the first word of the first code index expansion is required. From the format for the correct exit code, the code index to which a prefix points may be determined. Then the code index expansion may be verified by the following message:

A VY:CRI:004!

004 = aaa = a 3-digit variable field that represents the code index.

11.15 The direct route index used for each prefix of a 3- or 6-digit code may be obtained from the office records. This can be done by finding the code group for each prefix for the desired 3- or 6-digit code on ESS 2300-R and then looking up the direct route index on ESS 2304-R.

C. Treating a 3- or 6-Digit Code the Same as Some Other Code

11.16 Any 3- or 6-digit code may be modified by recent change to provide routing and charging identical to some other 3- or 6-digit codes defined in the office. This means that the routing and charging for the two codes will be identical

for every class of service. It also means that the prefix digits for the two codes will be handled in the same way.

11.17 To provide the same treatment for a 3- (eg, 555) or 6-digit (eg, 312 555) code that is given to some other 3- or 6-digit code, the old code index to which the 3- or 6-digit code now points (eg, 70), and the new code index to which the other 3- or 6-digit code points (eg, 112) must be known and inputted into the machine via the following message:

A RC:DIG:555 0 70 112! (3-digit)

A RC:DIG:312 555 70 112! (6 digit)

11.18 The equivalent of doing this on the office records is copying all the data from the line for one 3- or 6-digit code being changed.

D. Assigning a New Direct Route Index to a Code Index

11.19 Before changing the direct route index of a code index, all of the 3- or 6-digit codes that point to that code index and all prefixing conditions in other code index expansions that point to that code index should be well known. Many different 3- or 6-digit codes may point to a given code index expansion either directly or indirectly through the prefixing on another code index expansion. Changing the direct route index on this code expansion will affect the routing of all calls of 3- or 6-digit codes that either directly or indirectly point to it.

11.20 To change the direct route index (eg, from 86 to 81) of a code index expansion (eg, code index 30), use the following input message:

A RC:CRI:30 86 81!

11.21 On the office records, this is equivalent to changing the direct route index for all code groups on ESS 2304-R to which the 3- or 6-digit codes with those prefixes belong.

E. Assigning a New Direct Route Index to a 3- or 6-Digit Code

11.22 A direct route index may be assigned for a given 3- or 6-digit code, different from any other route index which points to the same first code index. The first step is to create a new code index expansion exactly identical to the first code index expansion to which the 3- or 6-digit code now points. A new code index must be selected that is defined in the machine, but not currently in use (ESS 2304-R). To create a new code index expansion (eg, code index 103) exactly like an existing expansion (eg, code index 61), use the following input message:

A RC:NCG:61 103!

After creating the new code index expansion, the direct route index may be changed (eg, from route index 86 to 81) exactly as in the above example by the following input message:

A RC:CRI:103 86 81!

The last step is to assign the chosen 3- (eg, 555) or 6-digit code (eg, 312 555) to this newly created code index expansion by the following input message:

A RC:DIG:555 0 61 103! (3-digit)
A RC:DIG:312 555 61 103! (6-digit)

11.23 The result will be that the 3- or 6-digit code is routed and charged exactly as before, except for the prefix cases that use the direct route index of this code index expansion. These prefix cases are determined by the expansion exit code.

> ***Note:*** This procedure is applicable only for 3- or 6-digit codes that point to a first code index with an expansion exit code of 4, 5, 7, or 8.

11.24 The equivalent of doing this on the output records is to change the code index for the 3- or 6-digit codes on ESS 2300-R. The exit code of the expansion indicates which prefixing cases use the new direct route index in the expansion. The 3- or 6-digit codes with these prefixes must still be considered members of the same code groups as before for charging purposes. They will no longer use the same direct route index as the code group shown on ESS 2304-R. A rate indicating the new route index to be used for that 3- or 6-digit code and associated prefix should be made in the REMARKS field.

F. Treating a 3- or 6-Digit Code Exactly as Some Other Code but With a Different Direct Route Index

11.25 A given 3- or 6-digit code may be changed to provide a treatment like some other 3- or 6-digit codes already defined in the office; however, it will have a different direct route index. The first step is to create a new code index exactly like the index used by the 3- or 6-digit code desired. The following input message must be used as described in paragraph 11.22.

A RC:NCG:61 103!

The direct route index of that new code index is then modified as follows:

A RC:CRI:103 86 81!

The last step is to point the 3- or 6-digit code being changed to the new code index with the modified direct route index as follows:

A RC:DIG:555 0 61 103! (3-digit)
A RC:DIG:312 555 61 103! (6-digit)

G. Changing Prefixes for a 3- or 6-Digit Code

11.26 A completely new prefixing scheme not previously used in the office may not be defined by recent change techniques. However, a 3- or 6-digit code treatment may be modified so that the prefixing scheme is identical to that used by some other 3- or 6-digit code. If this is done, the charging pattern and special routing for every line class of service must also be the same. It is then equivalent to treating a 3- or 6-digit code exactly the same as some other 3- or 6-digit code as shown in paragraph 11.25 except both will have the same direct route index.

H. Deleting a Code Index

11.27 A given code index could have to be removed for one of several reasons including:

- No 3- or 6-digit codes are assigned to the code index.
- A new code index was created incorrectly.

The code index is deleted by the following message:

A RC:NCG:75 ---!

Note: It is important to remember that this message ***will not*** make any checks to ensure that the code index is unused before it is removed.

CHARGING

A. Changing the Day Type

11.28 The days of the week may be assigned to any one of four different day types.

- Weekday
- Holiday
- Special 1
- Special 2

The assignment of a day to a type may only be made by recent change. It will ***not*** be done by the ODA. The message to assign a day to a particular day type is as follows:

A RC:DAY:d t!

This recent change is active immediately upon successful completion of the message.

d = A 1-digit field that represents the day of the week. Range is 1 through 7; 1 = Sunday, 7 = Saturday.

t = A 1-digit field for the code the day is to have. Range is 0 through 3.

= 0 = Weekday

= 1 = Holiday

= 2 = Special 1

= 3 = Special 2

The message to assign Monday as a holiday would be as follows:

A RC:DAY:2 1!

Note: A day should not be assigned to a day type for which the daily rates have not been defined by the ODA.

B. Verifying the Day Type of a Day

11.29 The day type to which a given day has been assigned by a recent change request may be determined by the TTY verify request:

A VY:DAY!

The response message, as described in the Output Message Manual, will indicate the day type of all seven days of the week.

C. Changing the Daily Rate

11.30 The three daily rates that may be assigned within a day type are:

- Day Rate
- Evening Rate
- Night Rate.

The assignment of a given rate for each hour of the day in a day type is made by the ODA only. The daily rate in a day type cannot be modified by recent change procedures.

11.31 If Special 1 or Special 2 day types are not normally used for other purposes, they may be utilized to perform rate changes (eg, to Start Night Rate at 5:00 p.m. instead of at 6:00 p.m.). In an ODA run prior to the effective date of the rate change, the special day type can be defined for new rates. To activate the new rate, the days affected need only be assigned to the special day type by the following recent change message:

A RC:DAY:d t!

The ***d*** is the day to be changed and the ***t*** is the day type as described in the Input Message Manual (see paragraph 11.28).

11.32 To activate rate changes for Tuesday, if the rate change was assigned to special 2 day type, the following message is used:

A RC:DAY:3 2!

D. Changing Charging Pattern for 3- or 6-Digit Code

11.33 A completely new charging pattern not previously used in the office cannot be defined by recent change. However, a 3- or 6-digit code treatment may be modified so that the charging pattern and special routing pattern for all classes of service are identical to that used by some other 3- or 6-digit code. If this is done, the prefix case routing and charging must also be the same. It is then equivalent to treating a 3- or 6-digit code exactly the same as some other 3- or 6-digit code except perhaps for the direct route index. Examples of this are shown in paragraph 11.25.

E. Detail Bill All Message Rate Calls

11.34 All message rate (bulk billed) calls originating from an office that are normally recorded by the automatic message accounting (AMA) can be requested to be detail billed on the AMA by the following input message:

M AM:OBS:fg hi 1!

The data fields are specified as shown in the Input Message Manual. After the message is inputted, all message rate calls will be detail billed until the message is canceled or the call store is cleared by a stable clear. Refer to paragraph 18.64 for an explanation of the variable fields.

11.35 To stop detail billing of all message rate calls, the same message used above is again inputted with the ***n*** data field as specified in the following recent change input message.

M AM:OBS:fg hi 0!

0 = No AMA observing or detail billing in effect.

Whether observing and detail billing is currently in effect can be determined by requesting the AMA status information (see input message M PU SI in Input Message Manual).

F. Complaint Observed Coin Lines

11.36 The following input message can be used to detail bill all calls from coin lines with the complaint observed feature:

M AM:OBS:fg hi 2!

Note: Refer to paragraph 18.64 and Input Message Manual IM-2H200-04 or IM-2H200-05 for an explanation of the variable fields.

After this message is inputted all coin calls, whether or not they are normally AMA recorded, are detail billed on the AMA tape until the message is canceled or the call store is cleared by a stable clear maintenance action caused by a system failure.

11.37 To stop detail billing of all calls from complaint observed coin lines, the same message used above is inputted with the ***n*** data field as specified in the following recent change input message.

M AM:OBS:fg hi 0!

0 = No AMA observing or detail billing in effect.

G. Complaint Observed Message Rate Lines

11.38 The following input message can be used to cause all message rate calls from lines with the complaint observed feature to be detail billed on the AMA:

M AM:OBS:fg hi 4!

Note: Refer to paragraph 18.64 and Input Message Manual IM-2H200-04 or IM-2H200-05 for an explanation of the variable fields.

All message rate calls normally recorded on the AMA will be detail billed until the message is canceled or the call store is cleared by a stable clear maintenance action used by a system failure.

11.39 To stop detail billing of message rate calls from complaint observed lines, the same message used above is inputted with the date field as specified in the following recent change input message:

M AM:OBS:fg hi 0!

0 = No AMA observing or detail billing.

H. Type of Observing Being Done by the AMA

11.40 To determine if any detail billing of calls is being done by the AMA, use the message:

M PU:SI!

The output data given by this request tells what, if any, observing has been activated by the message:

MR AM SI fg hi sss tuv

Note: Other outputs will also be printed at this time.

12. HUNDREDS GROUP ROUTE INDEX

12.01 The pointer in the number group table can point to a 2-word expansion instead of directly to the hundreds group table. This 2-word expansion contains a pointer to the hundreds group table, a route index, and a fully restricted terminating bit. This expansion is used when it is known that the manner in which calls are to be completed to a given group of 100 directory numbers will change in bulk from time to time. When the route index is zero, all calls to this group of 100 directory numbers complete normally to the line expansion in the hundreds group table. When the route index is not zero, all calls to this group of 100 TNs receive the treatment given by the route index. This route index allows 100 directory numbers to be intercepted and sent to an announcement, or to another central office, etc, with one recent change message (refer to Translation Guide TG-2H, Division 4, Section 5b, for explanation of ESS-2501 Office Code Table).

12.02 The fully restricted bit allows one recent change message to change the terminating characteristics of all centrex stations in the hundreds group. When the hundreds group is marked fully restricted terminating, all numbers in the group of 100 TNs corresponding to centrex stations are treated as fully restricted terminating. A fully restricted terminating station is denied the ability to receive any calls except extension-to-extension calls. When the fully restricted bit is not set, each station is as defined in its centrex line expansion.

12.03 The verification printout on a line whose number group is route indexed will contain, in addition to the normal information, the following keyword:

HRI 233

Where 233 is the route index in the number group table.

Note: A line whose number group is route indexed or fully restricted terminating may be recent changed in the normal manner.

A. Verification of a Number Group Route Index

12.04 To verify whether a number group entry is fully restricted terminating or route indexed, use the input message:

A VY:HRI:555 1212!

The response will indicate the route index (if any) that is assigned to the group of telephone numbers from 555 1200 to 555 1299 and also whether or not the TNs are fully restricted terminating. Any TN within this range may be used for the verification.

B. Changing Route Index or Fully Restricted Terminating Feature

12.05 If the number group entry to be changed is a 2-word expansion, the route index and the fully restricted terminating feature may be changed, added, or deleted as follows:

A RC:HRI:555 1212 rrr f!

where rrr = route index or zero if no route index is desired.

f = 1 add fully restricted terminating.

= 0 or blank delete fully restricted terminating.

12.06 To add fully restricted terminating but not have a route index:

A RC:HRI:555 1210 0 1!

12.07 To have a route index but not fully restricted terminating:

A RC:HRI:555 1212 012 0!

This will assign the block of TNs from 555 1200 to 555 1299 to route index 12.

12.08 To remove both the route index and fully restricted terminating feature:

A RC:HRI:555 1212 0 0!

13. BLANK NUMBER TREATMENT

13.01 The blank number treatment given to an unassigned telephone number, within a range of 100 TNs, may be verified by:

A VY:VTN:555 1212!

The above message will verify the treatment given to the block of the 100 TNs from 555 1200 to 555 1299.

13.02 The response is:

AR VY VTN 555 1212 e yyy

where:

e = 0 Noncentrex originated calls to this block of 100 TNs are routed to route index 14. Centrex originated calls are routed to the dialing error route index which is located in the centrex group translator.

= 1 yyy = Route Index used for blank code treatment (special routing).

= 2 yyy = Centrex group used for attendant intercept.

13.03 To change the blank number treatment given to a block of 100 TNs:

A RC:VTN:555 1212 e yyy!

where:

e = 0 delete entry

= 1 yyy = Route Index

= 2 yyy = Centrex group for attendant intercept.

14. MISCELLANEOUS RC PROCEDURES

Note: The RC procedures given in this section are allowed from TTY channels, 0, 1, and 3. In practice, however, they should be used only from the maintenance channels (0 and 1). The verify procedures are available from all channels.

ASSIGNING A NEW MISCELLANEOUS OFFICE ALARM

14.01 New office alarms can be wired to alarm ferrods and this assignment specified in translations by using the input message:

A RC:ALM:rr ss cc bt 1!

rr = The scanner row number where the ferrod is to be changed. Range is decimal 32 through 42.

ss = The scanner number range is 00 through 11 for No. 2 ESS or 00 through 30 for No. 2B ESS.

cc = The routine code number range is 0 through 6 (see Note).

bt = The bit number of the ferrod in the row. Range is decimal 0 through 15.

The data fields are described in the Input Message Manual. The scanner row in which the ferrod is found must be in a miscellaneous alarm row as defined on ESS 2506-R. The transition causing the alarm condition for the new assignment will be as defined for that scanner row.

Note: The routine code number (RTN) range is as follows:

0 = fuse alarms (used only for fixed entries in ALMTBLE)

1 = alarm battery, major and minor power alarms

2 = printout only conditions (neither major or minor as indicated on ESS 2506)

3 = miscellaneous (either major or minor is indicated on ESS 2506)

4 = carrier group alarms (form ESS 2216)

5 = trunk make-busy keys (form ESS 2216)

6 = battery discharge alarm.

14.02 The new ferrods assigned for alarms by this message are not effective until a recent change update is performed to place the information in permanent memory.

REMOVING A MISCELLANEOUS OFFICE ALARM

14.03 The assignment of a miscellaneous office alarm ferrod can be removed from translations by inputting the message:

A RC:ALM:rr ss cc bt 1!

The data fields are described in the Input Message Manual.

14.04 The assignment is not removed from translations until a recent change update is performed to place the information in permanent memory.

VERIFYING A MISCELLANEOUS OFFICE ALARM

14.05 The current assignment of a miscellaneous office alarm ferrod in translations can be verified by verifying the scanner row in which the ferrod appears within input message:

A VY:ALM:rr ss cc!

The ***rr*** field is the scanner row (in decimal) in the miscellaneous alarm rows of master scanner 0 in which the desired ferrod appears. As described in the Output Message Manual, the response will indicate whether or not each ferrod of that row is currently assigned. The specific alarm to which a given ferrod is assigned is not stored in translation. The remarks field on the office records must be checked for this ferrod to determine which alarm is assigned to it. Note that the transition causing the alarm and the type of alarm given is the same for every ferrod in the row and cannot be verified by TTY request.

CUSTOMER LINE OVERFLOW REGISTERS

14.06 This feature gives centrex lines their own customer line overflow (CLO) registers for

assignment. In addition, a CLO table has been defined to indicate which originting equipment number (OE) is assigned to which register. To obtain the OE assigned to a centrex CLO register, use the following input message:

A TV:CLO: 7!

The output message will appear with the OE assigned to the specified CLO register:

AR TV CLO 7 01 5242

Registers 0 through 3 are for noncentrex lines. Registers 4 through 7 are for centrex lines.

14.07 The Automatic Line Insulation Tests (ALIT) checks the insulation and the ability to make originations of all lines in the office, including MLHG lines. The following changes can be made from MTC and LTD channels only. Insulation tests are not performed on ground start lines in the office.

LINE INSULATION TESTS

A. Types of Tests Available

14.08 Three types of tests are available to be run by the automatic line insulation test program.

(1) ***Short Circuit and Ring to Ground Test***—This test is used to detect leakage between tip and ring and leakage between ring and ground.

(2) ***Tip and Ring to Ground***—This test detects leakage from tip or ring to ground.

(3) ***Foreign Electromotive Force Test***—This test is used to detect the presence of a foreign potential on either the tip or ring.

All tests are usually run using the line installation test (LIT) circuit. The sensitivity of the test requested depends on the circuit cross-connections and the test range requested. These tests and the procedures for using them are described in detail in the line insulation test program PD-2H114.

B. Changing Store ALIT Parameters

14.09 To change the stored parameters which indicate how to automatically run the ALIT tests, use the input message:

M LI:ST:a b!

If the variables are zero or unspecified, the stored parameters will be printed.

When the variables are correctly specified, the new parameters are stored in the recent change area of the call store until the program store is updated.

a = Test mode.

= 1 = Short circuit and ring to ground test (SRG).

= 2 = Tip and ring to ground test (TRG).

= 3 = Foreign potential on tip and ring test (FEMF).

= 4 = All of above (GENERAL).

b = Test sensitivity, refer to cross connection information in the following table and in SD-2H142.

= 1 = A range.

= 2 = B range.

= 3 = C range.

= 4 = D range.

As explained in the Input Message Manual, the ***a*** field indicates which single test to run or if all three tests should be run and the ***b*** field indicates the test sensitivity range.

HIGH AND DRY LIST

14.10 There are three conditions that will cause the High and Dry List to be printed. It is automatically printed out at specified times, immediately printed when the number of parties on the list exceeds some threshold value, or may also be manually requested.

14.11 The high and dry list may be manually requested to be printed from either the maintenance or local test desk channel by the input message:

M HD:PR!

14.12 To change the time or threshold value for automatically printing the high and dry list on the local test desk channel, use the input message:

M HD:RC:a bbb!

a = office time used for timing regular printouts of the high and dry list.

= 0 = every 15 minutes print = 1 = every 30 minute print

= 2 = every 45 minutes print = 3 = every 60 minute print

bbb = threshold number of lines entered into the high and dry list in a 5-minute period necessary to trigger a printout of the high or dry list.

COUNT SPARE EXPANSION BLOCKS

14.13 The following input message can be used to determine the total number of unused 2-, 4-, 6-, or 8-word entries in translations:

A AU:TBL!

or

A VY:TBL!

The resulting output message contains the unused 2-word entries in program store, the unused 4-word entries in program store, the unused 6-word entries in program store, and the unused 8-word entries in program store (not recent change).

15. RC PROCEDURES FOR TRAFFIC AND PLANT MEASUREMENTS

Note: The messages in this section are allowed only on the maintenance and traffic channels.

GENERAL

15.01 A No. 2/2B ESS central office must be capable of providing an operating company with various types of statistical information necessary to properly engineer and administer that office. The traffic and plant measurement program in No. 2/2B ESS provides on a scheduled or immediate demand basis the required information. (Refer to Section 232-120-301.) Several traffic and plant measurement TTY output messages provide the information to engineer traffic dependent equipment, to guide division of revenue, to assist marketing activities, to guide and evaluate maintenance activities, and to determine the quality and quantity of service provided by the system.

ASSIGNING ITEMS TO TRAFFIC SCHEDULES

A. H and C Schedules

15.02 The measurements on the H and C schedules are separated into six sections. The first two sections, trunk and service circuit measurements and MLH measurements may appear on both the H and C schedules. The four remaining sections contain office total, bylink, preroute and class of service, and junctor measurements. Each ***section,*** not each measurement, can be assigned to either the H or C schedule but ***not*** to both. The assignment structure is recent changeable by a TTY input message:

T WO:HCSS:ab!

15.03 This message is used to enter a recent change into the traffic data area specifying which sections of traffic data are to be printed on the H or C output schedules.

HCS = H or C schedule assignment

ab = a 6-bit data word specifying the schedule each section is to appear on. Bits are set = 0 for the H schedule and set = 1 for the C schedule.

The following example of H or C schedule assignment is provided to show the correlation between the bit number, the binary bits and the octal data word. To assign office totals (OFT), junctor group (JCT), bylink group (BYL) and preroute and line screening class (PRC) measurement sections to the

H and C schedules, the four bits corresponding to these sections must be set to 0, 1, 1, and 0.

BIT NUMBER	3	2	1	0
TRAFFIC SECTION	PRC	BYL	JCT	OFT
OCTAL DATA WORD	a		b	
POSITION WEIGHT	1	4	2	1
BINARY BITS*	0	1	1	0
OCTAL VALUE	0		6	

a = 0
b = 6

*1 = C Schedule
0 = H Schedule

The input message would appear as:

T WO:HCS:06!

B. Customer Line Usage (CLU) Assignments

15.04 The CLU section of the Weekly Usage List (WUL) contains registers for recording line use by up to 64 different lines. This section is primarily used for load balancing of networks. To determine what lines are currently assigned to the CLU section of the W schedule, use the input message:

T PR:WUL!

Measurement on Concentrators (Option 1)

15.05 All 64 lines of any given concentrator multiple may be measured (eg, network 1, concentrators 4 and 36) by the input message:

T CC:CON:1 4!

If the network has a 2:1 concentration, only the 32 lines on the concentrator (numbered from 0-31) will be recorded in the first 32 registers of the CLU section. If the network has 4:1 concentration, the 32 lines on each of the multipled concentrators will be recorded.

Measurements on Selected Lines (Option 2)

15.06 Up to 64 individual lines may be recorded in one of the 64 registers in the CLU section of the W schedule. To assign a line to a given register (eg, a line with TN 555 1212 to register 17), use the input message:

T CC:CLU:17 555 1212!

To record data for selected lines, register 0 must be assigned to a directory number.

C. Class of Service—Line Screening Class

15.07 Line Screening Classes may be assigned to any of seven traffic registers in the PRC section for preroute class of service measurements. The PRC section may optionally appear in either the H or C schedule printouts.

15.08 To verify the traffic register assignment of any line screening class (eg, Line Screening Class 5), the input message to be used is:

A TV:LSC:5!

The response will indicate whether or not the line screening class is assigned to a counter and, if so, will indicate the counter number.

15.09 Any member of Line Screening Classes may be assigned to one of the seven registers (eg, Line Screening Class 5 to counter 3) by the input message:

A TC:LSC:5 3!

15.10 To remove a line screening class from a class of service counter, use the same message as above except with no traffic counter specified:

A TC:LSC:5!

15.11 The changes to line screening class assignments to traffic registers are not effective until the program store is updated by a recent change update.

D. Preroute Peg Counter Assignments

15.12 The 3- and 6-digit dialed codes may be assigned to any 32 traffic registers in the PRC section. The PRC may optionally appear on either the H or C schedule printouts.

15.13 To verify the traffic register assignment of 3-digit (eg, 554) or 6-digit codes (eg, 312 555), the input message to be used is:

A TV:PRC:555!
A TV:PRC:312 555!

The response will indicate whether or not it is assigned to a counter and the counter number.

15.14 Any number of 3-digit or 6-digit codes may be assigned to one of the 32 preroute peg count registers (eg, 554 to counter 6 and 312 554 to counter 23) by the message:

A TC:PRC:554 0 6!
A TC:PRC:312 554 23!

15.15 To remove a 3-digit or 6-digit code from a preroute peg counter, use the same message as above except with no traffic counter specified:

A TC:PRC:554!
A TC:PRC:312 554!

15.16 The changes to 3- and 6-digit code preroute peg counters are effective immediately.

E. Customer Line Overflow (CLO)

15.17 A customer line may be assigned to any one of four traffic registers in the OFT section of the H or C schedule to count the number of times the line is busy when a second call is attempted to be completed to the line. The measurement may be made on any line except those that have a series completion feature.

A TV:CLO 4!

This message will verify the OE using CLO counter #4. The output message would appear as:

AR TV CLO 4 01 0233

The following message may now be used to verify the OE:

A VY:L/
OE 01 0233/
END!

15.18 To verify whether or not a line is assigned to an overflow counter (eg, 555 1212), use the input message:

A VY:L/
TN 555 1212/
END!

or:

A VY:L/
OE 01 0233/
END!

If a CLO output line response appears, it indicates the line is assigned to a counter and also states the counter number.

15.19 To assign a line to CLO counter (eg, to counter 2):

A RC:L/
ORD 0001/
TYP CHG/
OE 01 0233/
TN 555 1212/
CLO 2/
END!

For party lines, the party number is also required to uniquely identify the line.

15.20 To remove a CLO counter assigned to a line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0233/
TN 555 1212/
CLO/
END!
```

For party lines, the party number is also required to uniquely identify the line.

15.21 Assignments of lines to CLO counters are effective immediately.

F. MLHG Assignments

15.22 Any MLHG defined may have its traffic registers associated with the MLH section on the H schedule or C schedule or appear on no schedule.

15.23 To verify which schedule, if any, an MLH is assigned (eg, MLH 10), use the input message:

A TV:MLH:10!

15.24 To assign an MLH to the MLH section of the H schedule:

A TV:MLH:10 0!

15.25 To assign an MLH to the MLH section of the C schedule:

A TC:MLH:10 1!

15.26 To remove an MLH from either the H schedule or the C schedule, use the same message as above, but with the last field blank:

A TC:MLH:10!

15.27 The assignment of a given MLHG to a schedule is effective immediately.

G. Service Circuit Group Assignments

15.28 Any service circuit group defined may have its traffic counters associated with the TRK section of the H schedule or C schedule or appear on no schedule.

15.29 To verify which schedule, if any, a service circuit group is assigned (eg, group 17), use the input message:

A TV:SVC:17!

15.30 To assign a service circuit group to the TRK section of the H schedule:

A TC:SVC:17 0!

15.31 To assign a service circuit group to the TRK section of the C schedule:

A TV:SVC:17 1!

15.32 To remove a service circuit group from either the H or C schedule, use the same message as above, except with the last field blank:

A TC:SVC:17!

15.33 The assignment of a service circuit group to a schedule is effective immediately.

H. Trunk Group Assignments

15.34 Any trunk group defined may have its traffic registers associated with the TRK section of the H schedule or C schedule or appear on no schedule.

15.35 To verify which schedule, if any, a trunk group is assigned (eg, group 112), use the input message:

A TV:TRK:112!

15.36 To assign a trunk group to the TRK section of the H schedule.

A TC:TRK:112 1 0!

15.37 To assign a trunk group to the TRK section of the C schedule:

A TC:TRK:112 1 1!

15.38 To remove a trunk group from either the H or C schedule, use the same message as above, except with the last field blank:

A TC:TRK:112 1!

15.39 The assignments of a trunk group to a schedule is effective immediately.

I. Bylink Trunk Group Assignments

15.40 Any bylink trunk group may be assigned to a peg counter in the BYL section. The BYL section may optionally appear on either the H schedule or C schedule. Any bylink trunk group not assigned to an individual peg counter (counters 2-16) in the BYL section will be included in the counts accumulated in counter 1.

15.41 To verify to which peg counter a bylink trunk group (eg, group 86) is assigned, use the input message:

A TV:TRK:86!

15.42 To assign a bylink trunk group to a specific peg counter in the BYL section (eg, to counter 7):

A TC:TRK:86 2 7!

15.43 To remove a bylink trunk group from a specific counter assignment (and thereby include it in count of peg counter 1 with all other unassigned bylink trunk groups), use the same message as above except with the last field blank:

A TC:TRK:86:2!

15.44 The assignment of a bylink trunk group to a peg counter in the BYL section is effective only after a recent change update is performed.

J. Outgoing Toll Count

15.45 Any number of trunk groups may be assigned to one of the four outgoing toll call peg counters on the D schedule.

15.46 To verify the assignment of a trunk group (eg, group 250 to an outgoing toll count register), use the input message:

A TV:TRK:250!

15.47 To assign a trunk group to an outgoing toll count register (eg, to counter 2):

A TC:TRK:250 3 2!

15.48 To remove a trunk group from an outgoing toll count register, use the same message as above except with the last field blank:

A TC:TRK:250 3!

15.49 The assignment of a trunk group to an outgoing toll counter is effective immediately.

16. CENTREX GROUP

Note: Complete and accurate information must be recorded on the ESS 2108 and 2109 forms as specified in the translation guide TG-2H prior to executing any TTY input messages.

16.01 The EF-2 and 2B-EF-2 generic programs provide for the availability of a centrex group operation with either PBX-CO or Centrex-CO as established and changed by the central office. The members of a centrex group may have many features associated with the line which are not otherwise available. These features are divided into several categories and are applied as follows:

(1) Centrex Group—In General

(2) Centrex Station Line—Individual

(3) Centrex Universal Attendant Console

(4) Centrex Simplified Console Attendant

(5) Centrex Flexible Station Hunt Group.

These features are described in the following paragraphs with example TTY inputs shown for making changes to each on the service order or maintenance TTY channels.

16.02 A new centrex group may not be established by recent change procedures. The only type of service order which is allowed is a TYP CHG. It is possible for a dummy centrex group to have been previously established by input to the ODA on form ESS 2109. This group must have had the speed call lists built and the attendant

list defined on form ESS 2109. All other features can then be added or changed by recent change.

16.03 For additional details on service order message formats and data fields, refer to the Input Message Manual (IM-2H200-04 or IM-2H200-05). Each of the examples which follow performs only the one desired task. A number of functions can be performed by a single service order message. It is not necessary to make up separate service orders for each individual change to the centrex group data.

> ***Note:*** Recent changes to the centrex group data are not active until the next recent change update. Recent changes to centrex line and centrex attendant console are active immediately.

A. Verification (VY)

16.04 Before any service order activities are performed, it is recommended that the centrex group data be verified. This is done by the following request:

```
A VY:CTX:007 b!
```

b = 0, return information in program store.

b = 1, return information in call store (RC) or information from program store if none in RC.

This will verify all of the group data for centrex group 7.

B. Number of Equipped Attendant Consoles

16.05 This is the number of attendants belonging to a specific centrex group. This number is used to determine the size of the idle list/call wait queue, size of the attendant list, and the number of the attendant block. The number of equipped attendants is ***not*** recent changeable. It is updated by ODA when an attendant frame, data link, and console are added to or removed from the centrex group in accordance with the procedures in Part 27.

C. Busy Verify (BV)

16.06 This feature allows the attendant to establish a "talking" connection to an apparently busy station line to determine if the station line is in working order. When the attendant is connected to a busy line, periodic spurts of tone are applied to alert the talking parties of the attendant's presence. Busy verify is only available with the universal attendant console. To add the busy verify feature to centrex group 7, the following TTY input message is used:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
BV ADD/
END!
```

To remove the busy verify feature:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
BV DLT/
END!
```

D. Through Dial (THD)

16.07 Attendant through dialing allows the attendant to dial a trunk access code, receive second dial tone, and pass this second dial tone to the SOURCE party (a centrex extension), thereby, allowing this SOURCE party to complete dialing. The through dial option is only available with the universal console (not the simplified console). To add the through dial option:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
THD ADD/
END!
```

To remove the through dial option:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
THD DLT/
END!
```

E. Camp-on (CMP)

16.08 This feature allows any call which the attendant attempts to complete to a busy station line within the centrex system to be held waiting until the called station becomes idle. The

called station is then automatically rung and connected to the waiting call. If the camp-on feature is to be added, the group must have SIEs provided. To add the camp-on feature to a centrex customer group:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
CMP ADD/     (Note)
END!
```

Note: In order to add CMP, SIEs must be provided (see paragraph 16.67).

To remove the camp-on feature:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
CMP DLT/
END!
```

F. Dial "0" Night Service Number (NSN)

16.09 The night service number in the centrex block is the telephone number to which all dial "0" calls will terminate when the regular attendant positions are in night service. The night service number must be a centrex extension in this customer group. To change or add the dial "0" night service number:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
NSN 555 1212/
END!
```

To remove the dial "0" night service number from translation:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
NSN/     (Note)
END!
```

Note: This feature should be removed with caution. If the attendant position is placed in night service, calls will attempt to complete to the indicated NSN (all zero) and will receive reorder tone.

G. Trunk Answer From Any Station (TAS)

16.10 The trunk answer from any station feature allows incoming calls, normally directed to the attendant, to activate a common alerting signal (associated with the night station) on the customer premises when the attendant positions are in night service. These calls may then be answered by any nonrestricted station in the centrex system who dials a special trunk answer code. To add the trunk answer from any station feature to a centrex customer group:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
TAS ADD/
END!
```

To remove the trunk answer from any station feature:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
TAS DLT/
END!
```

H. ACOF Route Index (ARI)

16.11 Attendant control of facilities (ACOF) is a centrex option that enables the attendant to selectively control extension access to WATS, FX, CCSA and tie trunk groups. This service allows the attendant to limit traffic on crowded trunk groups during periods of high traffic demand. Control of these trunk groups can be implemented at the customer's option by operating a key or dialing a code. Trunk groups under the control of the attendant can have station calls optionally routed to a recorded announcement, reorder, or to the attendant. For a trunk group to be under ACOF control, the trunk group data for each trunk group must be appropriately marked. An ACOF lamp can be lighted whenever the trunk group is under control of the attendant.

16.12 This route index specifies the treatment given to a controlled trunk group (controlled under ACOF) if the trunk group is not to be taken

to the attendant. To change the ACOF route index:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
ARI 32/
END!
```

The route index specified must have an exit code of six and a destination code of 13 for local announcement; ie, call type = 29.

Note: The trunk group(s) under ACOF control must be so marked as to whether ACOF is to the attendant or to the ARI.

16.13 To remove the ACOF route index causing ACOF trunks to go to the attendant:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
ARI 0/
END!
```

I. Dialing Error Route Index (DRI)

16.14 This route index specifies the treatment given to partial dial or misdialed centrex calls. To add or change the dialing error route index:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
DRI 33/
END!
```

The route index specified must have an exit code of six; ie, the call type must be 16 or greater.

J. Incoming Call Identification Lamps

16.15 The incoming call identification lamps allow an attendant at a universal attendant console position to visually identify the type of call directed to that position. In addition to the ICI lamp provided in the listed directory number line expansion, the capability to assign seven more lamps for specific purposes is provided on a per-centrex basis:

1—Dial Zero
2—Attendant Conference
3—Manual Line
4—Call Forwarding—Don't Answer
5—Call Forwarding—Busy Line
6—Call Transfer—Attendant
7—Attendant Intercept

Any lamp (0 through 23 for 2B consoles; 0 through 5 or 0 through 11 for 1B consoles) may be assigned to the specific purpose by inputting the correct ICI code. For example to assign lamp 17 to indicate call forwarding-busy line:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
CIL 17 5/
END!
```

To remove the incoming call identification lamp for call forwarding-busy line:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
CIL DLT 5/
END!
```

K. Speed Call Dialing Plan

16.16 Two 1-digit (6 codes maximum) speed call dialing plans are offered to centrex customers. One employs 2-digit access (dedicated digits plan) and the other employs 1-digit access with an additional end-of-dialing digit (the TOUCH-TONE sharp symbol "#") or a 4-second time-out to signal the end-of-speed call dialing. Likewise, two 2-digit (30 codes maximum) speed call dialing plans are offered to centrex customers. One employs 4-digit access (dedicated digits plan) and the other employs 2-digit access with an additional end-of-dialing digit (the TOUCH-TONE sharp symbol "#") or a 4-second time-out to signal the end-of-speed call dialing. To assign the time-out (or dial "#") plan for both 1-digit (6-code) and 2-digit (30-code) speed calling to a centrex customer group, see paragraph 16.19:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
```

TOP ADD/
END!

To assign the dedicated digits plan to both 1-digit and 2-digit speed calling, see paragraph 16.17:

A RC:CTX:007/
ORD 0001/
TYP CHG/
TOP DLT/
END!

Note: A given centrex group ***cannot*** mix plans for 1-digit and 2-digit speed call.

16.17 Dedicated Digits Plan—The dedicated digits plan has one digit numbers dedicated to each 1-digit speed calling list and a 2-digit number dedicated to each 2-digit speed calling list for use with the code number for dialing as follows:

A, B, C = any nonambiguous dedicated digit chosen for each speed calling list along with and not conflicting with access codes for FX, WATS, CCSA, TIE trunks, extensions, and other special service codes.

E = any digit 2 through 7 (code number)
U = any digit 2 through 4 (2-7 for attendant speed calling) (code number)
X = any digit 0 through 9.

It is recommended that A = B = C = 0, 1, 8, or 9 (1 is preferable) be chosen for this dialing plan so as to avoid possible conflicts with extension assignments and interference between the 1-digit and 2-digit lists.

16.18 It may be the case that certain centrex customers have special numbering plan constraints. For these cases, extreme caution must be exercised in choosing these three digits (A, B, and C) so that ambiguous assignments are not made between these two lists and the remaining numbering plan.

16.19 Time-Out (#) Plan—The time-out plan uses a special digit to indicate the end of dialing. This digit (#) is the twelfth button on the TOUCH-TONE set. If the customer does not have a 12-button TOUCH-TONE telephone set or does not depress the "#" digit within 4 seconds, a 4-second time-out is substituted for this digit. A customer group that chooses this plan can use either the # or time-out interchangeably. The digits comprising the abbreviated code for this plan are outlined below:

E = any digit 2 through 7
U = any digit 2 through 4 (2-7 for attendant speed calling)
X = any digit 0 through 9.

Note: A given centrex group ***cannot*** mix plans for 1-digit and 2-digit speed calling.

L. Ten-Digit Common Control Switching Arrangement (CCSA) Group (TDG)

16.20 A centrex group may have the capability of dialing seven or ten digits for CCSA (plus the access code). If certain stations are restricted to seven digits while others may dial seven or ten digits, two CCSA trunk groups are provided. In this case, the CCSA group number stored in the per-centrex block is for the group that permits 7- or 10-digit dialing (not restricted to seven digits). To add or change this group number:

A RC:CTX:007/
ORD 0001/
TYP CHG/
TDG 37/
END!

If the centrex group has only one CCSA group, that group number is stored in the Digit Interpreter Table and the entry in the ten-digit group is zero.

M. Group Billing Number (BTN)

16.21 The group billing number may or may not be one of the numbers assigned to the stations in the centrex group. In addition, stations in the centrex group may have their own individual billing number. To change the billing number assigned to the centrex group:

A RC:CTX:007/
ORD 0001/
TYP CHG/
BTN 555 1212/
END!

N. Central Office Access Code (CAC)

16.22 It is possible to specify the access code (limited to one digit) to be dialed for access to the exchange network ("9" is typical). To change this access code (for example from "7" to "9"):

Caution: When the central office access code is changed, the change must be reflected in the digit interpreter terminal entry for this digit. Refer to Part 17, Digital Interpreter Table for additional recent change data.

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
CAC 9/
END!
```

O. Screening Class

16.23 Screening for a centrex line implies screening after "dial 9." Each customer group may have up to four (range is 0 to 3) screening treatments for dial 9 calls. The centrex attendant screening treatment must be entered as screening treatment 0. The screening classes are inputted by typing in a line class code which contains the desired screening treatment. For example, if the screening class assigned the attendant is to be changed:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
LCC ATT 0/
END!
```

P. Variable Timing Index for Call Forwarding—Don't Answer (VTI)

16.24 The basic period of time for call forwarding—don't answer to take place is 11 seconds. This interval may be extended in increments of 3.2 seconds (±1.6 seconds) to a maximum of 15 increments. (Refer to Table E.) To change the call transfer—don't answer timing interval from 11 seconds to approximately 20 seconds:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
VTI 3/
END!
```

TABLE E

VARIABLE TIMING INDEX		
VTI (rr)	TIMING (SEC)	NO OF RINGS (APPROX)
00 01	10.4—11.2 11.2—14.4	2
02 03	14.4—17.6 17.6—20.8	3
04 05	20.8—24.0 24.0—27.2	4
06 07	27.2—30.4 30.4—33.6	5
08 09	33.6—36.8 36.8—40.0	6
10 11	40.0—43.2 43.2—46.4	7
12 13	46.4—49.6 49.6—52.8	8
14 15	52.8—56.0 56.0—59.2	9

Q. Simulated Trunk Group for the Listed Directory Number

16.25 Simulated trunk facilities are used to provide a method of bookkeeping on LDN calls or to limit the number of simultaneous WATS calls (or PBX CO dial "9" and LDN calls). To change or add a simulated trunk group:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
LDS 37/
END!
```

R. Intercentrex Group Calling Number (ICG)

16.26 A centrex group may be associated with an intercentrex group calling (ICG). This feature allows extensions in several separate centrex groups (within the same ICG) to dial each other by only dialing the extension number (no office code). To change the ICG for Centrex group 7:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
ICG 2/
END!
```

16.27 To remove the intercentrex group calling (ICG) number:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
ICG 0/
END!
```

S. 6-Port Conference Trunk Group (CTG)

16.28 To assign or change the 6-port conference trunk group number for a centrex group:

```
A RC:CTX:007/
ORD 0001/
```

```
TYP CHG/
CTG 119/
END!
```

16.29 To remove the 6-port conference trunk:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
CTG 0/
END!
```

T. Attendant Speed Calling (ATF, ATS)

16.30 An attendant can have access to two different 2-digit speed call lists. The first speed call list, list 1, is accessed by codes 20-49 and may be a list which is shared by centrex stations. To allow the attendant access to speed call list 1:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
ATF ADD/
END!
```

16.31 To disallow the attendant access to speed call list 1:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
ATF DLT/
END!
```

16.32 The attendant can have access to a second 2-digit speed call list, list 0, by using codes 50-79. This list may be shared by attendants only. To allow access to this speed call list:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
ATS ADD/
END!
```

16.33 To disallow access to speed calling list 0:

```
A RC:CTX:007/
ORD 0001/
TYP CHG/
ATS DLT/
END!
```

U. Silence on Call Waiting Originating (SCCW)

16.34 Silence on call waiting originating feature allows six seconds of audible ringing followed by silence. To add this feature to a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
SCCW ADD/
END!
```

16.35 To remove silence on call waiting originating feature:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
SCCW DLT/
END!
```

16.36 Restriction of the number of simultaneous calls involved in a particular centrex group is provided by the simulated facilities group (SFG). The SFG includes 3-port simulated trunk group, intercom simulated trunk group and record peg usage.

V. 3-Port Simulated Trunk Group (PSG)

16.37 A 3-port simulated trunk group is used for centrex threeway calling, add-on, call waiting, and call hold, by providing a 3-port conference circuit. To add the 3-port simulated trunk group to a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
PSG 0016/
END!
```

To remove a 3-port simulated trunk group from a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
PSG 0/
END!
```

W. Intercom Simulated Trunk Group (ISG)

16.38 The EF-2 and 2B-EF-2 generic programs restructures the Centrex-CO service to provide a better segregation between the competitive business customer service and the nonbusiness customers. Part of the restructuring includes the intercom simulated trunk group feature. The facilities used by this feature are those facilities used for calls originated by the centrex station to other centrex stations in the same centrex customer group. When implemented, simultaneous intercom (intragroup) calls placed by a station, attendant, or 3-part conference controller can be limited to the number specified by the customer. In this way, a balance is provided between business and nonbusiness customers sharing the use of service circuits and interoffice trunks.

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
ISG 0017/
END!
```

To remove an intercom simulated trunk group from a centrex group:

```
A RC:CTX:1!
ORD 0001/
TYP CHG/
ISG 01
END!
```

X. Record Peg Usage (REC)

16.39 The record peg usage feature is used to indicate whether or not to record the peg usage and overflow count for 3-port simulated trunk groups and intercom simulated trunk groups on AMA every hour. To add this feature to a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
REC ADD/
END!
```

16.40 To remove record peg usage:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
REC DLT/
END!
```

Y. Customer Dialed Account Recording (CDRN)

16.41 The customer dialed account recording (CDAR) feature allows a centrex customer to add a personal account number to telephone bills for any AMA recorded call. The CDAR feature is available to any centrex line, attendant or incoming tie trunk. The customer first dials a previously defined CDAR access code of one to four digits. The customer then dials the account number of one to eight digits to be associated with the call. The account number, a previously specified number of digits, is recorded. The digits recorded will appear on the customer's telephone bill with other normal entries. The customer will then receive a second dial tone and may continue dialing as with an ordinary call.

16.42 Implementing this feature requires the capability to recent change data in the centrex group expansion and digit interpreter tables.

16.43 The centrex group expansion table is used to retain the number of CDAR account number digits required for all CDAR identified calls from its centrex group. To add the CDAR feature:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
CDRN 4/
END!
```

To remove customer dialed account recording from a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
CDRN 0/
END!
```

16.44 The digit interpreter table is used to identify CDAR access codes. A value for the special service code (SSC) is designated to identify CDAR calls for a dial sequence which is not associated with a routing access code. The following example defines a CDAR acess code for

a dial sequence not associated with a routing access code:

```
A RC:DIT/
CTX 1/
DGT 12/
NDT SS/
DTP SS/
SSR 2/
SSC 21/
END!     (Note)
```

Note: Refer to Part 17 for more details in the use of the digit interpreter table.

Z. Allow Calls on Forwarded Lines (COFL)

16.45 The allow calls on forwarded lines feature permits lines in the centrex group that are call forwarded to originate calls. To add this feature to a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
COFL ADD/
END!
```

To remove feature allowing calls on forwarded lines from a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
COFL DLT/
END!
```

AA. Short Burst of Ring on Forwarded Line (SBR)

16.46 The use of the short burst of ring on the forwarded line feature allows the centrex lines that are call forwarded to receive a short burst of ring to indicate when a call has been placed to those lines. To add this feature to a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
SBR ADD/
END!
```

To remove the short burst of ring on forwarded lines from a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
SBR DLT/
END!
```

AB. Source Billing on Attendant Handled Calls (SBAC)

16.47 This feature causes the centrex group ***attendant*** billing number to be replaced with the ***source*** party billing number in all AMA records whenever the attendant extends the source party call. To add this feature to a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
SBAC ADD/
END!
```

To remove source billing on attendant handled calls from a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
SBAC DLT/
END!
```

AC. Attendant Idle List/Call Waiting Queue for a Centrex Group

16.48 An attendant idle list/call waiting queue (AIL/CWQ) can be associated with a centrex group. The skeleton for the attendant idle list/call waiting queue must be established by the ODA program, and its contents are maintained by call processing programs. A binary flag in the centrex group expansion block indicates whether or not the feature is currently defined for the centrex group. To assign this feature to a centrex group:

```
A RC:CTX:4/
ORD 0001/
TYP CHG/
NIQ 0/
END!
```

Note: When NIQ = 0, it implies that an attendant idle list/call waiting queue exists.

When NIQ = 1, ***no*** attendant idle list/call waiting queue exists.

AD. Attendant Call Forward Outside the Centrex Group (AFO)

16.49 Attendant call forward outside the centrex group allows any station or attendant to call forward outside the centrex group. To add this feature to a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
AFO ADD/
END!
```

To remove an attendant call forwarding outside the centrex group feature:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
AFO DLT/
END!
```

AE. Intercentrex Call Transfer Screening (ICTA)

16.50 The intercentrex call transfer screening feature allows a station in one centrex group to transfer an incoming call from an external party to a station in another centrex group, provided both centrex groups have the same intercentrex calling (ICG) number. To add this feature to a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
ICTA ADD/
END!
```

To remove intercentrex call transfer screening feature from a centrex group:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
ICTA DLT/
END!
```

AF. Provide Route Index for Attendant Loop-Back Calls (LBRI)

16.51 The route index for attendant loop-back calls feature provides a route index for calls placed by the centrex group attendant to a line that is transferred to an attendant. To implement this feature the following recent change message is required:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
LBRI 58/
END!
```

To remove the feature providing route indexes for attendant loop-back calls:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
LBRI 0/
END!
```

AG. Satellite Attendant Transfer Via Tie Trunk

16.52 Satellite attendant transfer via tie trunk allows a call to route to an attendant at the centrex main satellite and provides the ability to concentrate all attendant facilities at the main location. The routing is accomplished via a directory number which identifies an FX line that terminates as an incoming manual tie trunk at the main location or via an outgoing tie trunk group that terminates as an incoming tie trunk at the main location. The satellite attendant transfer via tie trunk feature allows stations at satellite locations to have access to the attendants at the main location on a flash or flash and dial attendant access code basis, from any satellite centrex station having the call transfer-attendant or call transfer-individual features.

16.53 To implement this feature requires changes to the centrex group, digit interpreter tables, attendant access terminal entry and special routing terminal entry and route index table.

16.54 The ***change in the centrex group*** involves adding a satellite transfer route index (STRI) to transfer an incoming direct inward dialed or common controlled switching arrangement facility call from a centrex station to an attendant located at the main location. The centrex station

must have call transfer-attendant service without dial hold and be located at the satellite location in a main/satellite configuration. The route index must have an exit code of 6 and a destination code of 17 or 22.

16.55 To change the STRI in the centrex group, use the following recent change input message:

```
A RC:CTX:1/
ORD 0001/
TYP CHG/
STRI 58/
END!
```

16.56 The ***change in the centrex group digit interpreter table*** involves charging the special routing and attendant access terminal entry. Centrex lines with call transfer-individual (TW 2) or threeway calling-add on (ESC) service require the use of the attendant access entry. The attendant access entry is routed to a special routing entry that checks the satellite bit to determine if the special routing entry route index or the satellite transfer route index in the centrex group was set. The attendant access entry also contains a destination port lamp rate (DPLR), a source port lamp rate (SPLR), an incoming call indicator (CIL), or simplified attendant console subgroup number, an attendant type code (ATC), and a restriction code (RES). To change the centrex group digit interpreter table, use the following recent change input message:

```
A RC:DIT/
CTX 1/
DGT 0/
NDT ATT/
DPT ATT/
SPLR 3/
DPLR 2/
ATC 1/
CIL 13/
RES 177777/
END!
```

16.57 The ***special routing entry*** now contains a satellite transfer bit, a route index and a restriction code. To add the satellite transfer feature, use the following recent change input message:

```
A RC:DIT/
CTX 1/
DGT 109/
DTP RI/
NDT RI/
SAT ADD/
RTI 59/
RES 177777/
END!
```

16.58 The ***route index table is changed*** to create a satellite transfer route index (STRI) by using the following recent change input message:

```
A RC:RI:58/
WD 0 17770756/
WD 1 00260000/
WD 2 00053042/
WD 3 00050540/
END!
```

AH. Simulated Facility Group (SFG) for Call Forwarding Inside (FFG) and Call Forwarding Outside (FOFG) Centrex Group

16.59 The centrex group has the ability to limit the number of lines call forwarded inside and outside the group by assigning a simulated facility group (SFG) to call forward inside (FFG) and/or one to call forward outside (FOFG). To add this feature to the centrex group:

```
A RC:CTX:1/
TYP CHG/
ORD 0001/
FFG 0051/
FOFG  0052/
END!
```

Note: In this example, FFG is assigning the call forwarded line inside the simulated facility group (51) and FOFG is assigning the call forward outside the simulated facility group (52).

16.60 To remove simulated facility group for call forwarding inside and outside centrex group:

```
A RC:CTX:1/
TYP CHG/
ORD 0001/
FFG 0/
FOFG 0/
END!
```

AI. Optional Second Dial Tone (ODT)

16.61 For centrex lines to receive a second dial tone on customer-dialed speed call changes, the optional second dial tone (ODT) bit must be set along with the second dial tone bit in the digit interpreter entry. To add ODT to the centrex group, use the message that follows:

```
A RC:CTX:1/
TYP CHG/
ORD 0001/
ODT ADD/
END!
```

16.62 To remove the ODT from the centrex group, use the message that follows:

```
A RC:CTX:1/
TYP CHG/
ORD 0001/
ODT DLT/
END!
```

AJ. Stable Information Entry (SIE) Provides Indication for Call Waiting Originating (CWOR), Call Waiting (ESX) and Camp-On

16.63 In order to assign call waiting originating (CWOR), call waiting (ESX) and camp-on to a station in a centrex group, stable information entry (SIE) must be provided indication to the centrex group. To indicate that SIE information is provided:

```
A RC:CTX:1/
TYP CHG/
ORD 0001/
SIEP ADD/
END!
```

16.64 To remove SIE information from a centrex group:

```
A RC:CTX:1/
TYP CHG/
ORD 0001/
SIEP DLT/
END!
```

CONTROL GROUP

A. Defining a Control Group

16.65 A control group contains a control restriction code (CR) and up to four control restriction disposition types along with the associated TNs or RIs. To define a control group:

```
A RC:CGP:1 4/
TYP NEW/
ORD 0001/
CR 0531/
DSP0 58/
DSP1 255 2200/
DSP2 255 2300/
DSP3 64/
END!     (Note)
```

Note: This example builds control group 4 from centrex group 1. The control restriction code is 15 bits long where each bit corresponds to a control treatment code for stations that wish to control the stations within the control group (CR being similar in use to the restriction code RES in the digit interpreter table).

B. Changing a Control Group

16.66 To change any information within a control group:

```
A RC:CGP:1 4/
TYP CHG/
ORD 0001/
CR 1430/
DSP2/
END!
```

Note: This example changes the control restriction code and removes disposition type 2 from control group 4 in centrex group 1.

C. Removing a Control Group

16.67 To remove a control group from a centrex group:

```
A RC:CGP:1 4/
TYP OUT/
ORD 0001/
END!
```

D. Assigning an SP Key to a Control Group

16.68 An SP key can be assigned to a control group. The SP key activates one of the control restrictions for all stations assigned to the group. The input message would appear as:

```
A RC:CGP:1 4/
TYP CHG/
ORD 0001/
SP 01 2301/
SKEY ADD 3/
END!
```

Note: This example adds controlled total restriction (ADD 3) key to SP 01 2301 for control group 4, centrex group 1.

E. Removing an SP Key From a Control Group

16.69 To remove an SP key from a control group:

```
A RC:CGP:1 4/
TYP CHG/
ORD 0001/
SP 01 2301/
SKEY DLT/
END!
```

F. Control Restriction Disposition for Centrex Group

16.70 In addition to having control restriction disposition for stations and control groups, a centrex group can have disposition types assigned.

G. Adding Disposition Type

16.71 To add disposition type to a centrex group, use the message that follows:

```
A RC:CTX:1/
TYP CHG/
ORD 1/
DSP1 58/
DSP3 255 2200/
END!
```

H. Removing Disposition Type

16.72 To remove the disposition type from a centrex group, use the message that follows:

```
A RC:CTX:1/
TYP CHG/
ORD 1/
DSP1/
DSP3/
END!
```

17. DIGIT INTERPRETER TABLE

17.01 Digit interpreter tables are used to build dialing patterns for each centrex group. These include access codes as well as station numbers (refer to Translation Guide TG-2H, Division 4, Section 1h, for explanation of ESS-2109 Centrex Group Table, and fill out completely before starting RC).

17.02 To add a 16-word digit interpreter table to the dialing tree for a given centrex group, a spare digit interpreter table must have been established by the ODA. In addition, the terminal entry for the digit received must be unassigned (see paragraph 17.04). To add a digit interpreter table to digit access code "17":

```
A RC:DTB/
TYP NEW/
CTX 127/
DGT 17/
END!     (Note)
```

Note: This recent change is not effective until a recent change update is performed.

17.03 To remove a 16-word digit interpreter table, the terminal entry for the digit received must point to the table to be removed and words 1 through 15 of the table must be zero; ie, all terminal entries must be unassigned. To remove a digit interpreter table from access code "17":

```
A RC:DTB/
TYP OUT/
CTX 127/
DGT 17/
END!
```

This recent change is not effective until a recent change update is performed. Following the recent change update, the table may be reassigned to the digit interpreter table for any centrex group.

A. Digit Interpreter Table Attendant Access Terminal Entry

17.04 To recent change an attendant access terminal entry in a digit interpreter table, all information for the new terminal entry must be specified. Information not specified is assumed to be zero. Information which ***does not*** change ***must*** still be inputted. Changes to a terminal entry are not effective until a recent change update is performed.

17.05 To verify the contents in program store for the terminal entry for digits "11":

```
A VY:DIT:0/
DGT 11/
CTX 001/
END!
```

17.06 To verify the contents in recent change (or program store if no information is changed) for the terminal entry for digits "11":

```
A VY:DIT:1/
DGT 11/
CTX 001/
END!
```

B. Keyword Descriptions

17.07 The following is a list of keywords used in recent changing an attendant access terminal entry.

ATC r

Attendant type code. The range is 1 through 7 (see TG-2H for definitions).

BGP zzz

Barge-in permitted. Indicates that the caller is permitted to barge-in on a call on a directed pickup basis. It may be used to add or delete BP. For this purpose, ***zzz*** may be either ADD or DLT. Either ADD or DLT is required if this keyword is used. This feature is for future development.

BV zzz

Busy verify. Variable field zzz may be either ADD or DLT.

CD zzz

Customer account recording. For this purpose, zzz may be either ADD or DLT.

CHI rrr

The charge index. The range is decimal 1 through 127 (see TG-2H for more information).

CIL xxx

Incoming call identification code. Variable Field xxx should contain the lamp number. Range is 0 through 23.

CTX aaa

The centrex group number. The range is decimal 1 through whatever the maximum defined centrex group number is for this office (maximum of 127).

DGE n

The number of digits expected. The range is 0 through 7 (refer to Translation Guide, TG-2H for more detail).

DGT nnnn

The digits which point to the terminal entry to be changed. It may be from 1 to 4 digits in length. The digits allowable are 1, 2, 3, 4, 5, 6, 7, 8, 9, 0.

DISP n

Controlled restriction disposition code. Variable field n should contain the disposition number, range 0 through 6.

DLT r

The number of digits to delete. The range is 0 through 7 (refer to Translation Guide, TG-2H for more detail).

DPLR n

Destination port lamp rate. Variable field n should contain the rate number. Range is 0 through 3.

DTP ttt

The data type presently stored in the terminal entry. The data types allowed for ttt are (see Table F):

UNA—UNAssigned (or all zero)

UND—UNDefined digit in speed calling range

SC—# (12) format if table in Speed Calling range

COT—Central Office Trunk access

CTX—CenTreX or PBX-CO extension

TIE—TIE trunk access

FX—FX trunk access

DPU—Direct Pickup

CCS—Common Controlled Switching arrangement

RI—Route Index for special routine

WAT—Wide Area Telecommunication service

SS—Special Service access

ATT—ATTendant access

MER—Most Economical Routine access

DTB—Digit Table Word 0 entry all 1's.

GRP nnn

The trunk group in the terminal entry. The range is 70 through the maximum defined for this office (maximum is 511).

LCC ccc

Line class code. The LCC is used to specify the screening class and 2-bit code to be used for a MER data type terminal entry. Keyword RAX may be used with LCC to determine the information. If it is not used, it is assumed to be zero.

The valid characters for ***ccc*** may be found in LINE CLASS CODE RECORD 2300-R.

LS zzz

Look for Sharp (#).

Indicates that the next digit dialed may be a sharp. It may be used to add or delete LS. For this purpose, ***zzz*** may be either ADD or DLT. Either ADD or DLT is required if this keyword is used.

MN zzz

This keyword is used to indicate a Manual tie trunk group. For this purpose, ***zzz*** may be either ADD or DLT. Either ADD or DLT is required if this keyword is used.

NDT ttt

The New Data Type to be stored in the terminal entry (see keyword DTP for types allowed).

NNX nnx

The office code to be prefixed (refer to Translation Guide, TG-2H for more detail).

OP zzz

This keyword indicates when the dialed outpulse access code is to be outpulsed. For this purpose, ***zzz*** may be either ADD or DLT. Either ADD or DLT is required if this keyword is used.

PFX nnn

The prefix digits. This may be 1, 2, or 3 decimal digits (refer to Translation Guide, TG-2H for more detail).

RAX d

Rate area data. This keyword is used with keyword LCC to determine the line class code. If it is not used, it is assumed to be zero. The range is 0 through 7.

RES rrrrrr

The restriction code. The range is from 0 to 177777 and must be ***octal.*** CAT code 0 is

associated with the rightmost bit and CAT code 15 with the leftmost bit.

RTI rrr

Route Index. This is the route index used whenever special routing is to be employed when the given terminal entry is reached.

The range is decimal 8 through whatever is the maximum defined route index for this office (maximum is 511).

A route index must be specified; no default value is assumed.

SAT zzz

Satellite transfer. For this purpose, zzz may be either ADD or DLT.

SBGP xx

Subset of a flexible station hunting group. Designation of a BHT through LHT is obtained through use of this keyword. Variable field xx should contain the subgroup number, range is 1 through 31.

SDT zzz

This keyword indicates whether or not Second Dial Tone should be returned to the calling party after the specified access code is dialed. For this purpose, *zzz* may be either ADD or DLT. Either ADD or DLT is required if this keyword is used.

SFG nnn

The simulated facilities group number. The range is 1 through whatever the maximum defined simulated facilities group number is for this office (maximum is 127).

SO x

Sub type CCSA only. Variable field (x) may be 4 for 7 or 10-digit dialing or 5 for 7-digit dialing only.

SPLR n

Source port lamp rate. Variable field n should contain the rate number. Range is 0 through 3.

SSC nn

Special service code. The range is decimal 1 through 15 (see TG-2H for definitions).

SSR n

Special service register. Variable field n is for the register number.

TCG zzz

Two common controlled switching access (CCSA) groups. If this centrex group has two CCSA groups (both 7 and 7/10 digit dialing), the information for the 7 digit only group is contained in the terminal entry. Information for the 7/10 group is contained in the centrex group information. For this purpose, *zzz* may be either ADD or DLT. Either ADD or DLT is required if this keyword is used.

TTT r

Tie trunk group. r is a 1-digit octal number (see TG-2H for definitions).

C. Examples

17.08 An example is not given for each new data type (NDT). However, Table F is provided which specifies all keywords which are allowed for each NDT. A change to a terminal entry in the digit interpreter table is not effective until a recent change update is performed.

17.09 To change the terminal entry for digits "723" from a CCSA access code to unassigned:

```
A RC:DIT/
DGT 723/
CTX 001/
DTP CCS/
NDT UNA/
END!
```

If all terminal entries for digits "723" are now unassigned, an error message is outputted to indicate that this 16-word digit interpreter table may be removed (see paragraph 17.03).

17.10 The data type (DTP) specified is the DTP from recent change if the terminal entry was changed. To change the terminal entry for

digit "9" from unassigned to central office trunk access:

```
A RC:DIT/
DGT 9/
CTX 001/
DTP UNA/
NDT COT/
RES 177776/
SFG 2/
SDT ADD/
END!
```

The above message will make this code accessible to all centrex extensions in the group which have a CAT code other than 0, assign simulated facilities group 2, and return second dial tone. This may require a change in the centrex group data for the CO access code.

17.11 To change the terminal entry for digit "2" from central office trunk access to centrex or PBX-CO extension:

```
A RC:DIT/
DGT 2/
CTX 001/
DTP COT/
NDT CTX/
PFX 1/
NNX 555/
DGE 3/
LS ADD/
END!
```

The above message will prefix digits "555 1" onto the 3-digit extension received and since digit "2" is within the range of speed calling (2 through 7), the look for sharp bit is set indicating that the next digit may be a sharp (#). If the sharp did follow, this would be a 1-digit speed call code.

17.12 The attendant access terminal entry contains a designation port lamp rate (DPLR), a source port lamp rate (SPLR), an incoming call indicator lamp code (CIL) or simplified attendant console subgroup number, an attendant type code (ATC) and a restriction code (RES). Refer to paragraph 16.56 for an example of the application involving the use of these keywords.

17.13 The digit interpreter table also contains a special routing entry. The special routing entry, in turn, contains a satellite transfer bit (SAT), a route index code (RTI) and a restriction code (RES). To recent change this data, use the following recent change input message:

```
A RC:DIT/
CTX 002/
DGT 109/
DTP RI/
NDT RI/
SAT ADD/
RTI 59/
RES 177777/
END!
```

Satellite Transfer Route Index

17.14 Provisions are made to change the route index by creating a satellite transfer route index. This message appears in paragraph 16.55.

Flexible Centrex Register Assignment

17.15 This feature allows special service assignment to attendant access terminal entries within the centrex group digit interpreter table. The assignment of traffic registers to each centrex group in sizes of 0, 1, 2, or 3 registers is provided by the use of keyword SSR. Use the following recent change input message:

```
A RC:DIT/
CTX 001/
DGT 12/
NDT SS/
DTP SS/
SSC 13/      (Note 1)
GRP 72/      (Note 2)
RES 177777/
SSR 2/       (Note 3)
END!
```

Note 1: Refer to the TG-2H for definition.

Note 2: The trunk group is the one in the terminal entry. The range is 70 through the maximum defined for the office.

Note 3: The unique part of this input message is keyword SSR. SSR has a range of 0 through 3, where:

0 = No special service register assigned
1 = Assigned register one

2 = Assigned register two
3 = Assigned register three.

Station 6-Port Conference

17.16 This feature allows a centrex group station to have up to six parties on a line at one time. To obtain this feature, change the centrex group digit interpreter table using the following recent change input message:

```
A RC:DIT/
CTX 001/
DGT 12/
DTP SS/
NDT SS/
SSR 2/
SSC 12/ (Refer to TG-2H)
GRP 269/
RES 177777/
END!    (Note)
```

Note: This change is for a special service terminal entry, where SSC is the special service code and GRP is the 6-port trunk group.

Busy Verify of Centrex Trunks

17.17 This feature allows a centrex universal console to verify whether a particular trunk group member is busy. This feature is implemented by a change to the centrex group digit interpreter table.

```
A RC:DIT/
CTX 001/
DGT 109/
DTP SS/
NDT SS/
BV ADD/
DGE 5/
SSR 1/
RES 177777/
SSC 12/ (Refer to TG-2H)
END!    (Note)
```

Note: This input message is to centrex group 1's digit 109, special service (SS) terminal entry. SSC 12 is the special service code, BV is the busy verify bit and DGE is the number of digits expected. When BV is not specified operational verify is used.

Operational Verify of Centrex Trunks

17.18 This feature allows a centrex universal console to verify whether a particular trunk group member is operational. This feature is implemented by a change to the centrex group digit interpreter table.

```
A RC:DIT/
CTX 001/
DGT 109/
DTP SS/
NDT SS/
RES 177777/
SSC 12/   (Refer to TG-2H)
END!    (Note)
```

Note: Refer to ***NOTE*** in paragraph 17.17.

Single Digit Dialing

17.19 Single digit dialing feature allows a centrex station user to reach other centrex stations by dialing a single digit. The use of variable length mixture of 1-, 2-, 3-, or 4-digit access codes to reach different facilities. To assign single digit dialing, use the following recent change input message:

```
A RC:DIT/
CTX 001/
DGT 3/
NDT DPU/
DTP DTB/
LS ADD/
SSR 2/
DGE 3/
NNX 255/
PFX 311/
BP ADD/
END!    (Note)
```

Note: This change places an entry in the first word of a DTB table.

CAT Code Screening on Centrex Station (and Directed Call Pickup) Dialed Calls

17.20 CAT code screening provides the ability to prevent certain centrex stations from dialing certain codes within the centrex customer's dialing plan. CAT code screening includes centrex station-to-station dialed calls and centrex station dialed directed call pickup calls. To implement

this procedure would require changing the digit interpreter table. To change the directed pickup extension terminal entries in the digit interpreter table, use the following recent change input message:

```
A RC:DIT/
CTX 001/
DGT 3/     (Note 1)
NDT DPU/       (Note 2)
DTP DPU/       (Note 3)
LS ADD/
SSR 2/       (Note 4)
DGE 3/       (Note 5)
NNX 255/       (Note 6)
PFX 204/       (Note 7)
RES 177777/       (Note 8)
END!
```

Note 1: This keyword points to the terminal entry to be changed which may be from 1 to 4 digits in length. Digits allowable are 1 through 9, 0, * and #.

Note 2: This is the new data type to be stored in the terminal entry. Refer to Table F for the types allowed. For centrex station-to-station call centrex terminal entries would require fields to show CTX. (Refer to paragraph 17.21).

Note 3: The data type presently stored in the terminal entry. Refer to Table F for the types allowed.

Note 4: This keyword indicates the special service register number.

Note 5: The maximum number of digits expected is 7.

Note 6: The office code to be prefixed.

Note 7: The prefix digits may be 1, 2, or 3 decimal digits.

Note 8: Restriction code range is from 0 to 177777 and must be in octal form. CAT code 0 corresponds to the rightmost bit.

17.21 Following this message the centrex or PBX-CO extension terminal entries would require changing. To change the centrex or PBX-CO extension terminal entries, use the following recent change input message:

```
A RC:DIT/
CTX 001/
DGT 3/
NDT CTX/
DTP CTX/
LS ADD/
SSR 2/
DGE 3/
NNX 255/
PFX 311/
RES 177777/
END!
```

Note: Refer to Notes 1 through 8 in paragraph 17.20 for an explanation of the variable fields and keywords.

TABLE F

DIGIT INTERPRETER TABLE
NEW DATA TYPE — NDT

KEYWORDS	UNA	UND	SC	COT	CTX	TIE OR FX	DPU	CCS	RI	WAT	SS	ATT	MER	DTB
CTX	R	R	R	R	R	R	R	R	R	R	R	R	R	R
DTP	R	R	R	R	R	R	R	R	R	R	R	R	R	R
NDT	R	R	R	R	R	R	R	R	R	R	R	R	R	R
DGT	R	R	R	R	R	R	R	R	R	R	R	R	R	R
RES				R	R	R	R	R	R	R	R	R	R	
SFG				A						R				
SDT				A		A		A		A				
OP						A		A						
PFX					A	A	A	A						
NNX					R		R							
DGE					R	R	R							
LS					A		A							
GRP						A		A						
MN						A								
TTT						A								
BGP							A							
TCG								A						
SO								A						
RTI									R					
SSC											R			
ATC												R		
LCC													R	
RAX													A	
DLT						A		A						
CHI						A		A						
BV											A			
DISP											A			
CIL												A		
SBGP												A		
DPLR												A		
SPRL												A		
CD				A		A		A		A				
SAT									A					
SSR				A	A	A	A	A	A	A	A	A	A	
END	A	A	A	A	A	A	A	A	A	A	A	A	A	A

LEGEND:
R = The keyword is required.
A = The keyword is allowed.
blank = The keyword is not allowed.

18. CENTREX STATION LINE

Note: Complete and accurate information must be recorded on the ESS forms 2101 and 2107 as specified in the translation guide TG-2H prior to executing any TTY input messages.

18.01 A centrex station line is an individual line which is a member of a centrex group and the available features are controlled by that group. To assign a new line or make changes to an established line, the service order or maintenance TTY channel is used.

18.02 For additional details on service order message formats and data fields, refer to the Input Message Manuals (IM-2H200-04 or IM-2H200-05). Each example listed below performs only the one desired function. These functions can be performed simultaneously in a single service order message. It is not necessary to make up a separate service order for each individual change to a line.

18.03 In the following discussions, the word centrex will be used to mean either PBX-CO or Centrex-CO. Keyword CTX (the centrex group number) is required on all recent change messages for a centrex line (not for a line verify).

A. New Installation

18.04 To assign a new centrex line, the OE must be currently unused, and the TN must be currently unassigned. To assign a centrex station line:

```
A RC:L/          (Note 1)
ORD 0001/
TYP NEW/
CTX 002/
TN 555 1212/
OE 01 0232/
CAT 12/
LCC CTX/         (Note 2)
END!
```

Note 1: All of the keywords listed are required for a new centrex line.

Note 2: The line class code (UNIVERSAL SERVICE ORDER CODE) USOC must be defined in the line class code table in translations. The USOC specifies what originating major class, terminating class, and screening class a line will have. RAX may be used with LLC to determine the classes. If it is not used or if one rate area is defined within an office, it is always assumed by the program to be rate area 0.

18.05 If this line is defined as in other than rate area 0, an additional input line is required to specify the rate area (eg, rate area 1):

```
RAX 1/
```

If only one rate area is defined within an office, it is always assumed by the program to be rate area 0.

18.06 For a PBX-CO extension, it is recommended that the telephone number used have a pseudo-office code; ie, a normalized office code (NOC) of 8 to 13.

B. Special Bill to Number (BTN)

18.07 To assign a special bill to number different from the directory number or BLC (see paragraph 18.09) or to change a special bill to number now assigned:

```
A RC:L/
TYP CHG/
ORD 0001/
TN 555 1212/
OE 01 0232/
CTX 002/
BTN 555 1313/
END!
```

18.08 To remove the special bill to number from an extension, input the directory number as the new special bill to number:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
BTN 555 1212/
END!
```

Typing in a request to bill calls to the centrex group billing number will also remove the special bill to number (see paragraph 18.10).

C. Bill Listed Number (BLC)

18.09 To bill calls to the centrex group billing number:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
BLC ADD/
END!
```

18.10 To stop special bill to calls to the group billing number:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
BLC DLT/
END!
```

Calls will then be billed to the directory number. Typing in a special bill to number will also stop billing calls to the centrex group billing number.

D. Recall

18.11 Centrex extensions connected to another extension do not have the ability to send a flash signal from one to the other. Adding the recall feature to an extension allows a centrex line connected to the recallable extension to signal the extension by flashing. To provide the capability of being recalled:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
FL ADD/
END!
```

18.12 To remove the recall feature:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
FL DLT/
END!
```

E. Special Toll Billing

18.13 To assign the special toll billing feature to a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
BLN ADD/
END!
```

18.14 To delete the special toll billing feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
BLN DLT/
END!
```

F. Centrex Access Treatment Code (CAT)

18.15 A centrex access treatment (CAT) code allows or denies a station access to the following:

Dial "0"
Dial "9"
Tie Trunks
FX Trunks
CCSA Trunks
WATS
Most Economical Routing
Paging
Recorded Telephone Dictation
Code Call
Code Call Pickup
Trunk Answer From Any Station
Trunk Flash Request

Access codes may be associated with one or more of 16 CAT codes (0 to 15). Each centrex station

has a CAT code that allows or denies access to these codes.

18.16 To change the centrex access treatment afforded an existing centrex station:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
CAT 13/
END!
```

G. Call Transfer—Attendant (TW1)

18.17 A line (party A) which has the call transfer—attendant feature (TW1) may use it in the following way. When party A is in the talking state with some incoming party B [CCSA, DID, or TIE line (if TFR bit = 1)] A's switchhook is momentarily depressed (flashed). The attendant is alerted by visual and audible signals while audible ring is returned to both parties, A and B. If A remains connected when the attendant answers, the attendant is bridged on the connection with both parties. The attendant may now transfer the incoming call to another station line after A disconnects or after the attendant releases A, using the RLS DEST key. Refer to Section 232-190-301 for detailed information and restrictions.

18.18 To assign or change the call transfer—attendant feature to an existing centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
TW1 ADD/
END!
```

18.19 To remove or change the call transfer—attendant feature from a line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 9232/
TN 555 1212/
TW1 DLT/
END!
```

H. Call Transfer—Individual (TW2)

18.20 A line (party A) that has the call transfer—individual feature may use it in the following way. When party A has a talking connection with some incoming call (party B) (CCSA, DID, or TIE/line if TRF bit = 1), party A momentarily depresses the switchhook (flashes) to get dial tone. Party A may then dial another party (C) within the centrex group and talk with that party privately. During this period, B is in the hold state. Party A may flash back to B if C does not answer or, after C answers, to connect all three parties together in the talking state. If A hangs up before C answers, B will hear audible and the connection will be made normally when C answers. Refer to Section 232-190-301 for detailed information and restrictions.

18.21 To assign or change the call transfer—individual feature to an existing centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0233/
TN 555 1212/
TW2 ADD/
END!
```

18.22 To remove or change the call transfer—individual feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
TW2 DLT/
END!
```

I. Call Transfer—Individual—All Calls (E2H)

18.23 Operation of call transfer—individual—all calls is similar to call transfer—individual with additional capabilities. A station user can transfer any established call to another party. Refer to Section 232-190-301 for detailed information

and restrictions. To assign or change the call transfer—individual—all calls feature to an existing centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
E2H ADD/
END!
```

18.24 To remove or change the call transfer—individual—all calls feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
E2H DLT/
END!
```

J. Call Hold (EAB)

18.25 The call hold feature allows a station user to put any call in progress on hold by flashing the switchhook and then dialing a hold code, thus freeing the user line for the purpose of originating another call or returning to a previously held call. Only one call per station line may be held at a time. The held line cannot be added to another call. To add call hold to an existing station:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
EAB ADD/
END!
```

18.26 To remove the call hold feature from an existing centrex station:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
EAB DLT/
END!
```

K. Ten-Digit CCSA Dialing Permitted (TP)

18.27 The station user is allowed to dial the CCSA access code plus seven or ten digits instead of being restricted to seven digits. To add this feature to an existing centrex station:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
TP ADD/
END!
```

18.28 To remove 10-digit CCSA dialing from a centrex station:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
TP DLT/
END!
```

L. Call Pickup (CPG)

18.29 A station user can answer any calls directed to another station within the user pickup group by dialing a special pickup code. To add call pickup to an existing station, the pickup group to which the line will be assigned must be specified:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
CTX 002/
OE 01 0232/
CPG 7/
END!
```

18.30 To remove the call pickup feature from an existing centrex station, the pickup group is entered as 0, 00, or 000.

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
CPG 0/
END!
```

To verify station lines in a call pickup group, see paragraph 5.24.

M. Directed Call Pickup (DMA)

18.31 A station user can answer calls directed to a specific station line in the centrex system by dialing the unique answer code which is defined by the digit interpreter table of the station whose calls are to be answered. To allow an existing centrex station to be picked up on a directed basis:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
DMA ADD/
END!
```

18.32 To remove the directed pickup feature from a line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
DMA DLT/
END!
```

N. One-Digit Speed Calling (ESL)

18.33 To assign the 1-digit (8-code) speed calling feature to an existing centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
ESL 12/
END!
```

The above message will assign the station line to the 1-digit speed calling list number 12 which may be shared by other stations in that centrex group (see paragraph 5.20). The range of a 1-digit speed call list is 1 through the maximum assigned to the centrex group. Each centrex group can have up to one thousand twenty-three 1-digit lists.

18.34 Telephone numbers or station line numbers are stored in the list either by customer action or by the operating company. Each centrex customer group has a choice of either of the two dialings.

18.35 Each centrex line that has access to a 1-digit speed calling list also automatically has the ability to change that list (CSL ADD 1 is not required). For this reason, it is not recommended that more than two extensions share a given 1-digit list.

18.36 To remove the 1-digit speed calling feature from an existing centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 02 0232/
TN 555 1212/
ESL DLT/
END!
```

O. Two-Digit Speed Calling (ESF)

18.37 To assign the 2-digit (30-code) speed calling feature to an existing centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
ESF 3/
END!
```

The above message will assign the station to the 2-digit speed calling list number 3 which may be shared by other stations in that centrex group (see paragraph 5.20). The range of 2-digit speed calling

lists is 1 through the maximum number assigned to the centrex group. Each centrex group can have up to sixty-three 2-digit speed call lists.

18.38 Telephone numbers or station line numbers are stored in the list either by customer action or by the operating company. Each centrex customer group has a choice of two dialing options which are described in paragraph 16.16.

18.39 To remove the 2-digit speed calling feature from an existing centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
ESF DLT/
END!
```

P. Customer Dialed Changes to 1-Digit Speed Calling List

18.40 Any centrex line which has access to a 1-digit speed calling list automatically has the ability to change that list if the change speed calling access code is defined in the centrex digit interpreter table. The procedure for changing a 1-digit list is similar to changing a 2-digit list with only the change speed call access code being different (see paragraphs 18.43, 18.44, and 18.45).

Q. Customer Dialed Changes to 2-Digit Speed Calling List

18.41 To provide a line with the ability to directly dial changes to the 2-digit list:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
CSL ADD 2/
END!
```

Before the extension dialed change ability can be assigned to a line, the line must have the 2-digit speed calling feature and the change speed calling access code must be defined in the centrex digit interpreter table.

18.42 From the customer's viewpoint, multiple assignments to the 2-digit list are encouraged. There are no program limitations on the number of stations allowed to make dial changes, but as this number increases, so does confusion and uncertainty as to the actual contents of the list. For this reason, it is advisable to restrict the number of extensions which have this ability.

18.43 To dial a change into the speed call list, the station goes off-hook and dials the speed call change access code for the customer group (eg, "107"). If this extension is allowed to change the speed calling list, second dial tone is received. After reception of second dial tone, the station dials in the abbreviated code to be changed, followed by the new number to be stored. After dialing is complete, a confirmation is returned consisting of two short bursts of tone. If the customer remains off-hook for an additional 1 second, the call is recycled to dial tone as a new origination. The TN dialed may be from three digits (centrex station line) to 14 digits in length.

18.44 The customer dialed changes to speed calling lists enter the system exactly as other service orders. A paper tape TTY record of all changes should be generated as they are inputted by the customer. The input message to cause these tapes to be created as the changes are dialed is:

```
A RC:PUN:1!
```

18.45 These tapes provide a record of speed calling changes and are punched in standard service order format so that they may be directly inputted through the service order channel should that be necessary. Therefore, it is recommended that the office always be in the punch mode. The input message to instruct the machine to no longer produce tapes from extension dialed changes is:

```
A RC:PUN:0!
```

18.46 The message to remove the ability to directly dial in changes to the 2-digit speed calling list from a line is:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
```

```
CSL DLT 2/
END!
```

R. TELCO Inserted Changes to Centrex Speed Calling Lists

18.47 Examples are shown below of service orders to assign a telephone number to a code on a customer speed calling list, or to change the number associated with a code. The field after SC is the number of digits (1 or 2) to the speed call list to which the number is being assigned. The OE is that of any centrex extension which has access to the list being changed. The TN (DGS) is the telephone number which is being assigned and may be up to 14 digits in length. For the keyword DGS—to enter the symbol **#**, type a - and to enter a *, type a +. An example for 1-digit speed calling:

```
A RC:SC:1/
ORD 0001/
ACC 2/
DGS 9 201 555 1212/
OE 01 0232/     (Note)
END!
```

Note: Keywords LIST and CTX may be used in lieu of keyword OE. LIST is the centrex list of the speed call change to be entered. CTX is the centrex group whose list is being changed.

18.48 An example for 2-digit speed calling:

```
A RC:SC:2/
ORD 0001/
ACC 20/
DGS 9 201 555 1212/
OE 01 0232/     (Note)
END!
```

Note: Keywords LIST and CTX may be used in lieu of keyword OE. LIST is the centrex list of the speed call change to be entered. CTX is the centrex group whose list is being changed.

S. TOUCH-TONE Calling (TTC)

18.49 To add TOUCH-TONE calling (TTC) to a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
TTC ADD/
END!
```

18.50 To delete a TOUCH-TONE calling feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
TTC DLT/
END!
```

T. Prohibit Line Insulation Test (PLIT)

18.51 To add the prohibit line insulation test feature to a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0232/
TN 555 1212/
CTX 002/
PLIT ADD/
END!
```

18.52 To remove the prohibit line insulation test feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
PLIT DLT/
END!
```

U. Ground Start (GST)

18.53 To designate a centrex line as ground start:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
GST ADD/
END!     (Note)
```

Note: The service order must be coordinated with work in the office to restrap the line ferrod in ground start. OE assignment rules specify that all ground start lines should appear on network switch levels 0 or 2.

18.54 To change a centrex line to loop start:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
GST DLT/
END!     (Note)
```

Note: The service order must be coordinated with work in the office to restrap the line ferrod loop start.

V. Sleeve Lead

18.55 To assign a sleeve lead to an existing centrex line, a spare peripheral decoder point, which is assigned to an auxiliary line circuit, must be selected. (See paragraph 6.80 for detail information).

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
DP 1246 32/
END!
```

18.56 To remove a sleeve lead from an existing centrex line, the DP input line is typed with a blank data field:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
DP/     (Note)
END!
```

Note: When DP is deleted AOSL and DLY are also deleted.

W. Message Register

18.57 To assign a message register to an existing centrex line, a spare peripheral decoder point which is assigned to a message register must first be selected (see paragraph 6.81 for detailed information).

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0232/
TN 555 1212/
CTX 002/
DPM 1246 32/
END!
```

18.58 To remove a message register from an existing centrex line, the DPM input line is typed with a blank data field:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0232/
TN 555 1212/
CTX 002/
DPM/
END!
```

X. Test Line Terminal (TLT)

18.59 The test line terminal feature allows a line to originate and terminate before it is cut into service. ***This feature is not designed for use after cutover.*** To assign the test line

terminal feature to a previously defined centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
TLT ADD/
END!
```

18.60 To remove the test line terminal feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
TLT DLT/
END!
```

Y. Complaint Observing (COB)

18.61 The complaint observing function allows all message rate calls from lines with this feature to be detail billed on the AMA tape. The purpose of the complaint observing feature is to provide detailed information regarding all charges made for toll calls.

18.62 Complaint observing is performed for all lines with the feature when activated as described in the Input Message Manuals (IM-2H200-04 or IM-2H200-05) under message M AM:OBS:fg hi n! To assign the complaint observing feature to a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
COB ADD/
END!
```

18.63 To remove the complaint observing feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
COB DLT/
END!
```

18.64 The following input message must be used to cause all message rate calls from lines with the complaint observed feature to be detail billed on the AMA:

M AM:OBS:fg hi n!

fg = two-digit AMA frame number.

h = AMA transport number. (Either a 0 or 1 is accepted because this input request is nonhardware related and h is ignored.)

i = control unit to process the request.

= -, use online control unit.

= 0, use control unit 0.

= 1, use control unit 1.

n = 0, no AMA observing or detail billing in effect.

= 1, detail bill all message rate calls (affects only calls normally AMA billed and causes all bulk billed calls - type 16 - to be detail billed as type 22).

= 2, complaint observed coin calls to be detail billed (affects all coin calls whether normally AMA billed or not and causes all calls from coin lines which have complaint observed bit set in the line information to be detail billed as type 01).

= 3, combination of 1 and 2 above.

= 4, complaint observed message rate calls to be detail billed (affects only calls normally AMA billed and causes all bulk billed calls - type 16 - from lines which have complaint observed bit set in the line information to be billed as type 18).

= 5, combination of 1 and 4 above.

= 6, combination of 2 and 4 above.

= 7, combination of 1, 2, and 4 above.

All message rate calls normally recorded on the AMA will be detail billed until the message is canceled or the call store is cleared by a stable clear maintenance action caused by a system failure.

Z. Call Trace (TRC)

18.65 There are two types of call tracing available in the No. 2/2B ESS. The first type of trace identifies calls that are currently in progress on a one-shot basis, and the other type identifies either all calls to a given line in the office or all calls for a given number outside the office. Call trace is covered in detail in Section 232-110-301 (Calling Line Identification).

18.66 Terminating Call Identification: All calls to a given line may be identified by TTY printout as they occur by adding the trace feature. To add the trace feature to a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
TRC ADD/
END!
```

Whenever a call attempt is made to a line on trace, regardless of whether the call is completed, a TTY message is outputted.

18.67 To remove the call trace feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
TRC DLT/
END!
```

AA. Changing TN of an Assigned Centrex Line

18.68 To change the telephone number (TN) assigned to an OE:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
NTN 555 1313/
END!
```

The new telephone number (NTN) assigned must have previously been in the unassigned condition. This service order will automatically place the old TN in the unassigned condition. See paragraph 13.01 for a description of the treatment given an unassigned telephone number.

AB. Changing OE of an Assigned Centrex Line

18.69 Changing the originating equipment number (OE) requires coordination between the dial assignment staff and the switching center personnel. After the new originating equipment number (IOE) is selected and verified to be unassigned, the OE assignments are forwarded to the frame personnel. The frame personnel will attempt to place a call from the IOE. This is necessary to ensure that the OE is spare and to condition it for the IOE order. If dial tone is present on the IOE, the frame personnel will notify the assignment personnel so that an investigation can be made. If OE is a spare, the frame personnel will back tap a cross-connect from the cable pair to the IOE. The assignment personnel will then be notified to input the message to establish the IOE in translation. After the order is entered in translation, the back tap to the old OE may be removed. The old centrex line defined on the old OE is moved to the IOE by the input message:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
IOE 01 0233/
CTX 002/
END!
```

Switching center personnel are now notified to disconnect the jumper from the cable pair to the old OE. The old OE is now available for reassignment. The IOE must previously have been unassigned.

> ***Note:*** Caution must be exercised in selecting the OE to be used in offices equipped with range extension. If the range extension feature is used with the old OE it ***must*** be used with the IOE selected.

AC. Changing the Line Class Code of an Assigned Centrex Line

18.70 A centrex line may be reassigned any valid centrex line class code, except an LCC for a universal attendant console or a manual LCC. The manual LCC may be entered only on a type NEW recent (see paragraph 18.72). The centrex line class code USOC must have been previously defined in the line class code table in translations. To change the assigned line class code:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
OE 01 0232/
CTX 002/
LCC CX1/
RAX 1/
END!
```

If the rate area is other than 0, it must be inputted. If the rate area is 0, it may be omitted.

AD. Assigning Free Terminating Service

18.71 The No. 2/2B ESS provides free terminating service through proper assignment of the line class code to a centrex station line. A centrex line class code must be previously defined in the office line class code table with the free terminating bit set. To assign a centrex line free terminating service, the line must be inputted with this line class code or a TYP CHG service order must be made to change the line class code for the line. To assign free terminating service to a line (assuming FRE is the assigned LCC):

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
LCC FRE/
RAX 1/
END!
```

If the rate area is other than 0, it must be inputted. If the rate area is 0, it may be omitted.

AE. Manual Line Service

18.72 Station lines which are so arranged alert the attendant when the station user goes off-hook for service. Dial tone is not provided for these lines, and all originating connections are made by the attendant. Manual line service is provided through proper assignment of the line class code to a centrex line. A centrex line class code must be previously defined in the office line class code table which indicates manual line service. To assign a centrex line to be a manual line, the line must be inputted with this line class code. To assign manual line service to a line (assuming MLS is the assigned LCC):

```
A RC:L/
ORD 0001/
TYP NEW/
CTX 002/
OE 01 0232/
TN 555 1212/
LCC MLS/
END!
```

AF. Fully Restricted Terminating Station

18.73 A fully restricted terminating station line is denied the ability to receive any but station-to-station calls. Restricted calls are routed to the dialing error route index (typically an announcement). Fully restricted terminating service is provided through proper assignment of the line class code to a centrex line. A centrex line class code must be previously defined in the office line class code table which indicates fully restricted service (see paragraph 12.05). To assign a centrex line to be fully restricted terminating, the line must be inputted with this line class code or a TYP CHG service order must be made to change the line class code for the line. To assign fully

restricted terminating service to a line (assuming FRS is the assigned LCC):

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
LCC FRS/
END!
```

AG. Temporary Service Suspensions

18.74 Temporary suspension of service is accomplished in the No. 2/2B ESS by changing the class of service to deny originations, deny terminations, or both. In order to perform suspensions by this technique, a centrex suspension line class code must be previously defined in translation for each of the three cases. To place an in-service centrex line on temporary suspension of service, the line must be inputted with the proper line class code or a TYP CHG service order must be made to change the line class code for the line. To assign temporary service suspension to a line (assuming TSS is the assigned LCC):

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
LCC TSS/
END!
```

AH. Call Forwarding Outside the Centrex Group (CFO)

18.75 Centrex call forwarding outside the centrex group is an arrangement that allows a centrex station customer to redirect calls intended for the customer telephone number to another telephone outside the customer group. The customer initiates call forwarding outside the centrex group by dialing the call forwarding access code followed by the central office access code and the directory number to which the calls are to be forwarded. To add this feature to a centrex station line, use the following recent change input message:

```
A RC:L/
CTX 001/
ORD 0001/
TYP CHG/
TN 255 2101/
OE 01 4252/
CFO ADD/      (Note)
END!
```

Note: To add CFO the centrex group must have ESM (see paragraph 18.77).

18.76 To remove call forwarding outside the centrex group feature:

```
A RC:L/
CTX 001/
ORD 0001/
TYP CHG/
TN 255 2101/
OE 01 4252/
CFO DLT/
END!
```

AI. Call Forwarding Variable (ESM)

18.77 To assign the call forwarding variable feature to an existing centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
CTX 002/
OE 01 0232/
ESM ADD/
END!
```

18.78 ***Station User Activates Call Forwarding Variable:*** To use the call forwarding variable feature, the customer first dials the call forwarding variable code. After hearing the second dial tone, the customer dials the number (must be within the centrex group) to which calls are to be forwarded. The customer then hears a confirmation tone, indicating that a call forwarding variable has been established. While the call forwarding variable is activated, the station line can only be used to cancel call forwarding variable or dial the attendant ("0"). When a forwarded station line is called, the call is routed to the forwarded line.

18.79 ***Attendant Activates Call Forwarding Variable for a Station Line:*** The attendant obtains dial tone, dials the access code and hears second dial tone. The attendant then

dials the number of the station line to be placed on the call forwarding variable. After hearing a third dial tone, the attendant dials the number (within the centrex group) to which the calls are to be forwarded. The attendant then hears a confirmation tone, indicating that the call forwarding variable has been established.

18.80 ***Station User Cancels Call Forwarding Variable:*** The customer, using the customer line, dials the cancel code. The customer then hears a confirmation tone, indicating that the call forwarding variable has been canceled.

18.81 ***Attendant Cancels Call Forwarding Variable for a Station Line:*** The attendant obtains dial tone, dials the cancel code, and hears second dial tone. The attendant then dials the number of the station line for which the call forwarding variable is to be canceled. The attendant will hear a confirmation tone, indicating that the call forwarding variable has been canceled.

18.82 To remove the call forwarding variable feature from an existing line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
OE 01 0232/
TN 555 1212/
ESM DLT/
END!
```

AJ. Call Forwarding—Busy Line (E6G)

18.83 The call forwarding—busy line feature automatically routes incoming DID, CCSA, or TIE line (if TFR bit = 1) calls to an attendant or another line when the called station is busy. If a call forwarding telephone number is inputted the calls will forward to it. If no call forwarding number is given, calls will forward to the attendant.

18.84 Separate call forward numbers can be defined for call forwarding—busy line and call forwarding—don't answer. If a number is not specified, the call is transferred to an attendant. To assign this feature to an existing centrex station and have the calls forwarded to the attendant:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
E6G ADD/
END!
```

Note: This message causes a call to be forwarded to the attendant if the line is busy. The call forwarding—busy line feature cannot be added if the line has customer line overflow (CLO).

AK. Call Forwarding—Busy Line—All Calls (CFBA)

18.85 To change the call forwarding—busy line so that all calls are call forwarded (not just CCSA and DID calls), call forwarding—busy line—all calls (CFBA) must be added. To add this feature to a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 756 2126/
OE 02 1102/
CTX 1/
CFBA ADD/  (Note)
END!
```

Note: The call forwarding—busy line (E6G) feature and the call forwarding—busy line—all calls (CFBA) feature cannot be added to the system in the same message format.

18.86 To remove the call forwarding—busy line—all calls feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
CFBA DLT/
END!
```

AL. Call Forwarding—Busy Line Number (CFBN)

18.87 The forwarded to number (CFBN) must be in the same centrex group and cannot be the same as the forwarding line. A call forwarding—busy line number cannot be added unless the line has the call forwarding—busy line feature.

18.88 To cause a line which does not have the call forwarding—busy line feature to forward calls to TN 555 1313 (where 555 1313 must be a centrex station in this customer group):

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
CFBN 555 1313/
END!
```

18.89 To have calls forwarded to the attendant or to delete the call forwarding—busy line number:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
CFBN/
END!
```

18.90 To remove the call forwarding—busy line feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
CFBA DLT/
END!
```

AM. Call Forwarding—Don't Answer (E9G)

18.91 This feature automatically routes incoming DID, CCSA, or TIE line (if TFR bit = 1) calls to the attendant or another line when the called station does not answer within a minimum of 11 seconds. (This interval may be extended, on a per-centrex group basis.) To assign this feature to an existing centrex station and have the calls forwarded to the attendant:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
E9G ADD/
CFBN/
END!
```

AN. Call Forwarding—Don't Answer Number (CFDN)

18.92 To cause a centrex line which has the call forwarding—don't answer feature to forward calls to TN 555 1313 (where 555 1313 must be a centrex station in this customer group):

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
CFDN 555 1313/          (Note)
END!
```

Note: The forwarded to number must be different from the TN assigned, and in the same centrex group. A call forwarding—don't answer number cannot be added unless the line has the call forwarding—don't answer feature.

18.93 To delete the call forwarding—don't answer number, or to cause this centrex line to call forwarding—don't answer to the attendant:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
CFDN/
END!
```

18.94 To remove the call forwarding—don't answer feature from a centrex station:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
E9G DLT/
END!
```

AO. Call Forwarding—Don't Answer—All Calls (CFDA)

18.95 The call forwarding—don't answer—all calls feature is less restrictive than call forwarding—don't answer in that all calls are forwarded in case of no answer. To assign this feature and cause calls to forward to the attendant:

```
A RC:L/
TYP CHG/
ORD 0001/
CTX 002/
TN 555 1212/
OE 01 0232/
CFDA ADD/
END!
```

18.96 To cause a centrex line which has the call forwarding—don't answer—all calls feature to forward calls to TN 555 1313 (555 1313 must be a centrex extension in this customer group):

```
A RC:L/
TYP CHG/
ORD 0001/
CTX 002/
TN 555 1212/
OE 01 0232/
E9G ADD/
CFDN 555 1313/
END!
```

18.97 To cause ***this*** centrex line to call forwarding—don't answer—all calls to the attendant:

```
A RC:L/
TYP CHG/
ORD 0001/
CTX 002/
TN 555 1212/
OE 01 0232/
CFDN/
END!
```

18.98 To remove the call forwarding—don't answer—all calls feature from a centrex station:

```
A RC:L/
TYP CHG/
ORD 0001/
CTX 002/
TN 555 1212/
OE 01 0232/
CFDA DLT/
END!
```

AP. Centrex Call Waiting

18.99 Centrex call waiting is a feature that allows a customer already involved in a conversation to know, by means of an alerting signal, when another call is attempted to complete to that station. The three types of call waiting are:

- Call Waiting—Originating
- Call Waiting—Terminating (Incoming Calls Only)
- Call Waiting Terminating—All Calls

AQ. Call Waiting—Originating (CWOR)

18.100 This feature allows a centrex station with the feature to direct a call waiting tone toward a busy station in the same centrex group. To add call waiting—originating to a centrex station line, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2108/
OE 00 0312/
CTX 001/
CWOR ADD/
END!
```

18.101 To remove call waiting—originating from a centrex station line, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2108/
OE 00 0312/
CTX 001/
CWOR DLT/
END!
```

AR. Call Waiting—Terminating (ESX)

18.102 Call waiting—terminating (ESX) allows a busy centrex station with the feature to

receive call waiting tone when another call is directed toward the station. This type of call waiting is applicable for incoming Direct Inward Dialed (DID) and Common Controlled Switching Arrangement (CCSA) calls only. To add call waiting—terminating to a centrex station line, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 755 2108/
OE 00 0312/
ESX ADD/
CTX 001/
END!
```

18.103 To remove call waiting—terminating from a centrex station line:

```
A RC:L/
ORD 0002/
TYP CHG/
TN 755 2108/
OE 00 0312/
CTX 001/
ESX DLT/
END!
```

AS. Call Waiting Terminating—All Calls (CWTA)

18.104 Call waiting terminating—all calls (CWTA) feature allows a busy centrex station to receive a call waiting tone when another call is directed toward the station. This applies to all calls to the station. A line is not allowed to have CWTA unless it also has call waiting—terminating. To add call waiting terminating—all calls to a centrex station line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 755 2108/
OE 00 0312/
CTX 001/
ESX ADD/
CWTA ADD/
END!
```

18.105 To remove call waiting terminating—all calls from a centrex station line:

```
A RC:L/
ORD 0002/
TYP CHG/
TN 755 2108/
OE 00 0312/
CTX 001/
CWTA DLT/
END!
```

AT. Examples of Call Forwarding

18.106 Call forwarding—don't answer and call forwarding—busy line to attendant:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
E6G ADD/
E9G ADD/
END!
```

18.107 Call forwarding—busy line to attendant and call forwarding—don't answer to a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
CFDA ADD/
E6G ADD/
E9G ADD/
CFDN 555 1313/
END!
```

18.108 Call forwarding—don't answer—to attendant and call forwarding—busy line to centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
OE 01 0232/
E6G ADD/
```

```
E9G ADD/
CFBN 555 1313/
END!
```

AU. Data Restriction (NCT)

18.109 It may be desirable, in certain instances, not to return camp-on tone to the busy line (eg, if a line is a computer port). To cause (data restriction) no camp-on tone on the line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0232/
TN 555 1212/
CTX 002/
NCT ADD/
END!
```

18.110 To restore camp-on tone to the line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 0232/
TN 555 1212
CTX 002/
NCT DLT/
END!
```

AV. Disconnecting Service

18.111 To remove an active centrex station line from service but to leave the TN defined as routing to operator intercept (route index 009):

```
A RC:L/
ORD 0001/
TYP ICP/
TN 555 1212/     (Note 1)
OE 01 0232/
CTX 002/
RTI 009/     (Note 2)
END!
```

Note 1: If the route index is not typed, the TN will be assigned to attendant intercept. Any calls to the TN are now routed to intercept via route index 009. The OE from this line is immediately available for reassignment after the TYP ICP order.

Note 2: The only service order allowed on this TN after paragraph 18.112).

18.112 To completely remove a centrex station line from service and free both the OE and TN (TN to the unassigned condition):

```
A RC:L/
ORD 0001/
TYP OUT/
CTX 002/
TN 555 1212/
OE 01 0232/
END!
```

Both the TN and OE are free for reassignment immediately following the TYP OUT order. Any calls to the TN while in this unassigned condition will be given the blank number treatment specified for this hundreds group of telephone numbers (see paragraph 13.01).

18.113 The only service permitted for a centrex line on intercept is TYP OUT service order to free the TN for reassignment by placing it in the unassigned condition:

```
A RC:L/
ORD 0001/
TYP OUT/
TN 555 1212/     (Note)
END!
```

Note: Refer to paragraph 13.01 for a description of the blank number treatment for an unassigned TN.

18.114 When the line was previously changed by a TYP ICP service order assigning the route index to the TN, the OE was freed for reassignment and the translations removed.

AW. Open Switching Interval Protection (DPP)

18.115 The open switching interval protection feature eliminates the open to the central office battery during a switching sequence. This is accomplished by connecting battery through the open switching interval protection circuit during what would have been the open interval. To add this feature to a centrex station line:

```
A RC:L/
ORD 0001/
```

```
TYP CHG/
CTX 001/
TN 255 2101/
OE 01 4252/
DPP 0512 11/
END!
```

18.116 To remove centrex open switching interval protection from a centrex station line:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 001/
TN 255 2101/
OE 01 4252/
DPP/
END!
```

AX. Centrex Customer Line Overflow—Registers

18.117 The centrex customer line overflow—register feature provides overflow registers to a centrex line to count the number of times a given centrex line is found to be in a busy or talking condition by a second call attempt.

18.118 To assign this feature to a line, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 00 1234/
TN 321 4962/
CTX 001/
CLO 2/
END!
```

18.119 To remove centrex customer line overflow—register from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 00 1234/
TN 321 4962/
CTX 001/
CLO/
END!
```

AY. 800 Service

18.120 The 800 Service is a terminating feature that provides for billing all calls to a terminating party (called party) instead of the originating party (calling party). This feature can be implemented in a centrex or noncentrex station; however, the 800 Service feature is not applicable for coin lines, party lines or mobile lines. Assigning the 800 Service feature is realized by assigning a simulated facilities group (SFG) to the line. To assign 800 Service, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 562 2540/
OE 00 1202/
SFG 4/
END!
```

18.121 To remove 800 Service, use the following RC input message:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 262 2540/
OE 00 1202/
SFG 0/
END!
```

AZ. Attendant Outward Restriction (AOUT)

18.122 When a line is given the attendant outward restriction (AOUT) feature, the attendant can restrict all outward directed calls from this station. To add AOUT to a centrex station line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
AOUT ADD/
END!
```

18.123 To remove attendant outward restriction from a centrex station line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
AOUT DLT/
END!
```

BA. Attendant Total Restriction (ATOT)

1.124 When a line is given attendant total restriction (ATOT) feature, the attendant can restrict all incoming and outgoing calls to this line. To add the ATOT feature to a centrex station line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
ATOT ADD/
END!
```

18.125 To remove attendant total restriction from a centrex station line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
ATOT DLT/
END!
```

BB. Attendant Do Not Disturb (ADND)

18.126 When a line is given the attendant do not disturb (ADND) feature, incoming station calls are prevented from reaching this line. To add ADND to a centrex station line, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
ADND ADD/
END!
```

18.127 To remove attendant do not disturb feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
ADND DLT/
END!
```

BC. Station Do Not Disturb (SDND)

18.128 With the station do not disturb (SDND) feature, a line can dial do not disturb for itself. To add a station do not disturb feature to a centrex line, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
0E 01 0400/
CTX 001/
SDND ADD/
END!
```

18.129 To remove station do not disturb feature from a center line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
SDND DLT/
END!
```

BD. Control Group (CGRP)

18.130 Each station whose lines may be controlled are assigned to a control group. To add a centrex station to a control group:

```
A RC:L/
ORD 0001/
TYP CHG/
```

```
TN 255 2126/
OE 01 0400/
CTX 001/
CGRP 4/
END!
```

18.131 This action will add TN 255 2126 to control group 4.

18.132 To remove a centrex station from a control group:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
CGRP/
END!
```

When a centrex station is removed from a control group, its control restriction and do not disturb features must be removed also.

BE. Control Group Treatment Code (CNRG)

18.133 If a centrex station is to control restrict other lines, it must be given a control group treatment code. The treatment code is used in conjunction with the particular control group restriction code to determine whether that station is permitted to control restrict other lines. To add a control group treatment code to a centrex line, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
CNRG 5/
END!
```

18.134 To remove control group treatment code from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2126/
OE 01 0400/
CTX 001/
CNRG/
END!
```

BF. Defining Control Restriction Disposition Types, TNs and RIs for Stations

18.135 There are four control restriction disposition types that can be assigned to a station.

DSP0—Disposition of DID calls to this station when total or DND restrictions are in effect.

DSP1—Disposition of non-DID calls to this station when total or DND restrictions are in effect.

DSP2—Disposition of DIAL-9 calls from this station when outward restriction is in effect.

DSP3—Disposition of originations from this station when total restriction is in effect.

18.136 Each disposition type has route index or directory number assigned and uses them to appropriately route the restricted calls. To assign the disposition types along with their route index or directory number:

```
A RC:L/
TYP CHG/
ORD 0001/
CTX 001/
TN 255 2100/
OE 00 0033/
DSP0 255 2400/
DSP2 58/
DSP3 255 2400/
END!
```

18.137 Only three disposition types can be assigned to a line at one time and the line must not have flexible station hunting. All disposition directory numbers must be within the CTX group.

18.138 To remove the disposition types along with their route index or directory number:

```
A RC:L/
TYP CHG/
ORD 0001/
CTX 001/
TN 255 2100/
OE 00 0033/
DSP0/
```

DSP2/
DSP3/
END!

BG. Control Restriction Individual Stations (CNR)

18.139 If a station is to control restrict other individual stations, the CNR bit must be set within the controlling station. To add this feature to a centrex line:

A RC:L/
ORD 0001/
TYP CHG/
CTX 001/
TN 255 2126/
OE 01 0400/
CNR ADD/ (Note)
END!

Note: This feature can be assigned to stations belonging to a flexible station hunting group.

18.140 To remove control restriction individual stations from a centrex line:

A RC:L/
ORD 0001/
TYP CHG/
CTX 001/
TN 255 2126/
OE 01 0400/
CNR DLT/
END!

BH. Route Index to Attendant

18.141 When a centrex station line is placed on attendant intercept, a route index ***must*** be given. To place a line on attendant intercept, use the following recent change input message:

A RC:L/
ORD 0001/
TYP ICP/
TN 255 2126/
OE 01 0400/
CTX 001/
RTI 4/
END!

19. VERIFY EXTENSIONS SHARING SPEED CALL LIST

19.01 Any number of centrex extensions may share a given 1-digit (6-code) or 2-digit (30-code) speed calling list. The only restriction is that the extensions be part of the same centrex group.

19.02 To verify which extensions have access to 1-digit speed calling list 12 for centrex group 7:

A VY:SCL/
SC 12 1/
CTX 007/
END!

All extensions which have access to this speed calling list will have their telephone numbers printed out.

19.03 If 0 is inputted for the list number, all extensions for the given centrex group which have 1-digit speed calling will be printed out with their respective 1-digit speed calling list number.

19.04 To verify which extensions have access to 2-digit speed calling list 3 for centrex group 7:

A VY:SCL/
CTX 007/
SC 3 2/
END!

All extensions which have access to 2-digit speed calling list 3 will have their telephone numbers printed out.

19.05 If 0 is inputted for the list number, all extensions for the given centrex group which have 2-digit speed calling will be printed out with their respective 2-digit speed calling list number.

19.06 To verify which extensions have access to either 1-digit speed calling list 12 or 2-digit speed calling list 3:

A VY:SCL/
CTX 007/
SC 12 1/

```
SC 3 2/
END!
```

20. VERIFY EXTENSIONS IN SAME CALL PICKUP GROUP

20.01 Any number of centrex extensions may be part of a given call pickup group. To verify which extensions belong to a given group:

```
A VY:CPU/
CTX 002/
CPG 5/
END!
```

All extensions which have access to this call pickup group will have their telephone numbers printed out.

20.02 If 0 is inputted for the call pickup group, all extensions for the given centrex group which do ***not*** have the call pickup feature are printed out.

21. CONTROL GROUP

A. Defining a Control Group

21.01 A control group contains a control restriction code (CR) and up to four control restriction disposition types along with their TNs or RIs. To define a control group use:

```
A RC:CGP:1 4/
TYP NEW/
ORD 0001/
CR 0531/
DSP0 58/
DSP1 255 2200/
DSP2 255 2300/
DSP3 64.
END!
```

21.02 This example builds or removes control group 4 from centrex group 1. The control restriction code is 15 bits long where each bit corresponds to a control treatment code for stations that wish to control the stations within the control group (CR is similar in use to the restriction code [RES] in the digit interpreter table).

21.03 To remove a control group:

```
A RC:CGP:1 4/
TYP OUT/
ORD 0001/
END!
```

B. Changing a Control Group

21.04 To change any information within a control group, all the keywords used in example shown in paragraph 21.01 can be used. The only difference is that a TYP CHG would be used instead of TYP NEW.

```
A RC:CGP:1 4/
TYP CHG/
ORD 0001/
CR 1430/
DSP2/
END!
```

21.05 This example changes the control restriction code and removes disposition type 2 from control group 4 in centrex group 1.

C. Verifying a Control Group

21.06 To verify a control group:

```
A VY:CGP:1 4!
```

This example prints out the control restriction code along with any defined disposition types (TNs and RIs) for control group 4 in centrex group 1.

D. Adding and Removing an SP Key

21.07 An SP key can also be assigned to a control group. This key activates one of the control restrictions for all stations assigned to the group. This is done by using:

```
A RC:CGP:1 4/
TYP CHG/
ORD 0001/
SP 01 2301/
SKEY ADD 3/
END!
```

This example adds controlled total restriction (ADD 3) key to SPN 01 2301 for control group 4 centrex group 1.

21.08 To remove an SP key from a control group:

```
A RC:CGP:1 4/
TYP CHG/
ORD 0001/
SP 01 2301/
SKEY DLT/
END!
```

E. Control Restricted List

21.09 To activate one or more stations to control restriction, the following format is used:

```
A RC:CR/
TN 255 2126/
CR abcd/      (Note)
END!
```

Note: The meaning of the data field on the keyword CR is as follows:

a = 1 add attendant controlled total restriction

= 0 delete attendant controlled total restriction

b = 1 add attendant controlled outward restriction

= 0 delete attendant controlled outward restriction

c = 1 add attendant controlled do not disturb

= 0 delete attendant controlled do not disturb

d = 1 add station controlled do not disturb

= 0 delete station controlled do not disturb.

21.10 To remove a station or control group from the control restricted list:

```
A RC:CR/
CTX 001/
CGRP 11/
CR abcd/      (Note)
END!
```

Note: For an explanation of data fields refer to paragraph 21.11.

F. Print of Control Restricted List

12.11 The message A CR:PR! is used to print the entire control restricted list. The output is the telephone number or control group and the control restrictions active on that line or group at the time the message was typed. The output is:

```
AR CR PR
TN 255 2126
CR abcd
.
.
.
CTX 1
CGRP XX
CR abcd       (Note)
.
.
.
```

The last two lines are repeated until all the restricted lines are printed.

Note: For the meaning of the data field of the keyword CR refer to paragraph 21.11.

G. Punch of Controlled Restriction List

21.12 The message A CR:PUN! is used to punch on paper tape the entire contents of the control restricted list. The output is as follows:

```
AR CR PUN
A RC CR
TN 255 2126
CR abcd
.
.
.
A RC CR
CTX 1
CGRP XX
CR abcd       (Note)
.
.
.
```

The last three lines are repeated until there is a message for each control restricted line.

Note: For an explanation of the data fields refer to paragraph 21.11.

22. CENTREX FLEXIBLE STATION HUNT (FSH) GROUP

22.01 A number of functions can be performed by a single recent change message. Thus, it is not necessary to make a separate recent change message for each individual change to the flexible station hunt (FSH) group data. It is important to note that a recent change to the FSH group data is not active until the next recent change update.

FSH GROUP PROCEDURES

A. Assign a New FSH Group

22.02 To assign a new flexible station hunt group, the group must be currently unassigned. A centrex group must also be currently assigned and assigned to a FSH group. To assign a new FSH group, use the following recent change input message:

```
A RC:FHG:2 1/      (Note 1)
ORD 0001/
TYP NEW/
HTY 1/     (Note 2)
END!
```

Note 1: This recent change message is ***not*** active until a recent change update is performed. This first variable field in header message represents the flexible station hunt group number, range is 1 to 255. The second variable field represents the centrex group number that FSH group belongs to, range is 1 to 255.

Note 2: Hunt type, where:

1 = regular
2 = uniform call distribution
3 = preferential
4 = circular
5 = no-hunt.

22.03 To remove a FSH group, all members must be removed individually. To remove the group:

```
A RC:FHG:2/
ORD 0001/
TYP OUT/
END!
```

B. Assign a Different Attendant to a FSH Group

22.04 To change the attendant to which a FSH group is assigned:

```
A RC:FHG:2 1/
ORD 0001/
TYP CHG/
ATT 3/
END!
```

C. Assign an Overflow Member

22.05 The overflow member is the member of the FSH group to which hunting overflows if all hunt members are busy. To make number 24 an overflow member to FSH group 2 of centrex group 3:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
OVM 24/
END!
```

22.06 To remove an overflow member from FSH group 2 of centrex group 3.

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
OVM/
END!
```

D. Change the Hunt Type of a FSH Group

22.07 The type of hunting that a FSH group does is determined by its hunt type. To change the hunt type of a FSH group:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
HTY 3/
END!
```

Note: A hunt type can be added or changed but ***cannot*** be removed.

E. Assign a Last Hunt Member

22.08 The last hunt member together with the first hunt member defines the range of lines to hunt when a directory number having

regular hunting is called. The hunt proceeds sequentially (by member number) from the first hunt member to the last hunt member. To add a last hunt member of 6:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
FLHM 6/
END!
```

22.09 To remove last hunt member:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
FLHM/
END!
```

F. Assign a First Hunt Member

22.10 The first hunt member defines the member with which regular hunting should begin. To add a first hunt member of 3:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
FFHM 3/
END!
```

22.11 To remove first hunt member:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
FFHM/
END!
```

G. Assign Position Busy Data Feature

22.12 The position busy data feature indicates that a position busy scan point is provided for the FSH group associated with a simplified console attendant (SCA). To add an indication that a position busy scan point is available, use the following recent change input message:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
PBD ADD/
END!
```

22.13 To remove the indication that a position busy scan point number is available:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
PBD DLT/
END!
```

H. Assign Position Status Scan Point

22.14 The feature gives an indication that a position status scan point exists and is available for a FSH group associated with a simplified console. To add a position status scan point, use the following recent change input message:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
POSD ADD/
END!
```

22.15 To remove the feature indicating that a position status scan point is available:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
POSD DLT/
END!
```

I. Assign Night Stop Feature

22.16 The night stop feature is defined in a FSH group by assigning a scan point ferrod to the FSH group which is wired to a night stop key on the customer premises. A spare scan point in a control field must be obtained from the Network Administrator. A record of scan points is maintained on form ESS 2576-R (Scan Point Assignment Record).

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
SKEY ADD N/
SP 02 1809/
END!
```

This message will associate the given scan point (input line SP) with the night stop key (input line SKEY). In a single recent change message, only one key may be defined in this manner. A separate message is required for each control key to be

assigned. Only one night stop key may be assigned to a FSH group.

22.17 To remove the night stop feature in a FSH group:

```
A RC:FHG:2 3/
ORD 0001
TYP CHG
SKEY DLT N/
SP 02 1809/
END!
```

J. Designate a FSH Group Member as the Night Stop Member

22.18 Only one member of a FSH group may be specified as the night stop member. If desired, a remote make busy key associated with this member may be designated just as any other member. To designate a FSH group member as the night stop member, use the following recent change input message:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
FNHM 006/
END!
```

22.19 When the night stop key is activated, hunting proceeds from the first member of the FSH group and hunts night stop members. When night stop is in effect, preferential hunting does not take place.

22.20 To remove night stop feature:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
FNHM/
END!
```

K. Assign Stop Hunt Feature

22.21 The stop hunt feature is defined in a FSH group by assigning a scan point ferrod to the FSH group that is wired to a stop hunt key on the customer premises. A spare scan point must be obtained from the Network Administrator. A record of scan point assignments is maintained on form ESS 2576-R (Scan Point Assignment Record). To assign the stop hunt feature, use the following recent change input message:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
SKEY ADD S/
SP 02 1809/
END!
```

22.22 This message will associate the given scan point with the stop hunt key. In a single recent change message, only one key may be defined in this manner. A separate message is required for each control key to be assigned. Only one stop hunt key may be assigned to a FSH group.

22.23 To remove stop hunt feature in a FSH group:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
SKEY DLT S/
SP 02 1809/
END!
```

L. Assign Stop Hunt Member Feature

22.24 Only one member of a FSH group may be specified as the stop hunt member. A member may also be the night stop member and, if desired, have a remote make busy key associated with it just as any other member. To designate a FSH group member as the stop hunt member, use the following recent change input message:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
FSHM 006/
END!
```

22.25 When the stop hunt key is activated, the stop hunt member is the last line in all hunting sequences where the stop hunt member is greater than the first hunt member number and less than the last hunt member. For preferential list hunting, each member of the list is compared to the stop hunt member. If the stop hunt member is encountered before finding an idle station, the overflow member is not checked and busy treatment is returned.

M. Assign a Remote Overflow Register or Lamp

22.26 The remote overflow register or lamp indicates an overflow condition. Only one remote overflow register/lamp may be associated with a FSH group. A spare peripheral decoder point must be obtained from the Network Administrator to assign a remote overflow register to a FSH group. A record of peripheral decoder points is maintained on form ESS 2575-R (CPD and PD Assignment Record). To add a remote overflow register, use the following recent change input message:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
DPO 1245 21/
RLMP 1/          (Note)
END!
```

Note: The add a remote overflow lamp this keyword line would appear as RLMP 0/.

22.27 To remove overflow ***lamp*** or ***register:***

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
DPO/
RLMP/
END!
```

N. Assign Remote Make Busy Feature

22.28 Up to seven different remote make busy keys (1 through 7) may be associated with a FSH group. To define a remote make busy key in a FSH group, a scan point must be assigned to a remote make busy key on the customer premises. A spare scan point must be obtained from the Network Administrator. A record of scan points is maintained on form ESS 2576-R (Scan Point Assignment Record). To define a remote make busy key in a FSH group:

```
A RC:FHG:2 3/
ORD 0001/
TYP CHG/
SKEY ADD 1/
SP 02 1809/
END!
```

22.29 This message will associate the given scan point with the specified remote make busy key (key 1 in the above example). In a single recent change message, only one key may be defined in this manner. A separate message is required for each control key to be assigned.

22.30 Any member of the FSH group (including) the night hunt and stop hunt members) may be associated with any of the group remote make busy keys. There are no restrictions on the number of members which may be controlled by a given key, but a member may be controlled by only one remote make busy key. An example of a member associated with a given key follows:

```
A RC:FHG:2 3 7/
ORD 0001/
TYP CHG/
RMB 1/
END!
```

22.31 This message will associate member 7 of FSH group 2, centrex group 3, with remote make busy key 1. When a remote make busy is operated, all members which are assigned to that key are treated as busy for all incoming calls. These member lines may continue to originate calls normally. The hunt sequences of hunt groups remain the same except more busy lines are seen.

22.32 To remove remote make busy key assignment from a member:

```
A RC:FHG: 2 3/
ORD 0002/
TYP CHG/
RMB 01/
END!
```

22.33 If the remote make busy key is removed from all members to which it was assigned, the key position of that key will be ignored by the program; but the scan point assigned to the key for this FSH group will still be defined. Members may again be assigned to the remote make busy key.

FSH MEMBER PROCEDURES

A. Creating a New FSH Member

22.34 After a FSH group has been assigned, the members may be assigned by assigning

the FSH group and member number to a centrex line. The centrex line and the FSH group must be assigned to the same centrex group. The FSH member must be currently unassigned. An individual recent change is required to define each member line. The following message will assign TN 555 1212 to FSH group 2, member 1.

```
A RC:L/
ORD 0001/
TYP CHG/          (Note 1)
TN 555 1212/
OE 01 0233/       (Note 2)
CTX 001/
FSH 2 1/      (Note 3)
END!
```

Note: TYP NEW may be used if the line translation is being defined at the same time it is being assigned to a FSH group.

Note 2: The originating equipment number (line OE) is not used when assigning a listed directory number to a FSH group.

Note 3: The legal member numbers are 1 through 255 or the FSH member list size, whichever is smaller.

22.35 When a member is added, the working member count is updated in the FSH group.

22.36 To remove a member from a FSH group:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2152/
OE 00 1231/
CTX 001/
FSH/
END!
```

This message will delete this member from the FSH group member list. It will update the working member count of the FSH group. Any FSH features associated with this line will be deleted also. When a FSH member is placed on interrupt or removed completely using TYP OUT, the line is removed from the FSH member list, the working member count is updated, and all FSH features are removed.

B. Assign FSH Hunt Type

22.37 A hunt type may be added to a number if it is desired to have a hunt type different from its FSH group. There are five types of hunting, which can be executed on calls to a FSH member. The valid types are:

1—Regular Hunting

2—Uniform Call Distribution

3—Preferential Hunting

4—Circular Hunting

5—No Hunt

22.38 To add a hunt type to a line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 5102/
OE 01 2121/
CTX 001/
HTY 4/
END!
```

22.39 To remove hunt type from a line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 5102/
OE 01 2121/
CTX 001/
HTY/
END!
```

C. Assign a Preferential List (PRFL)

22.40 A preferential list is required if the line has a hunt type of 3 (preferential hunting). A preferential list is not allowed with any other hunt type. In order for a member line to have preferential hunting and a preferential list, the FSH group must have a preferential list defined. The preferential list number must be 64 or the number of the largest list defined for this group whichever is smaller.

22.41 To add a preferential list:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2152/
OE 01 1212/
CTX 001/
HTY 3/
PRFL 4/
END!
```

22.42 A preferential list can be changed one position at a time. To add a member to a position in the list:

```
A RC:PRF:2 15 3 4!
```

This would change list 15 in FSH group 2 by adding member number 4 to position 3. This action will replace whatever was previously in position 3.

22.43 To remove a preferential list from a FSH member:

```
A RC:L/
ORD 0002/
TYP CHG/
TN 255 2152/
OE 01 1212/
CTX 001/
HTY/
PRFL/
END!
```

D. Assign a FSH First Hunt Member (FFHM)

22.44 A FSH first hunt member may be added to a FSH group that does not have preferential hunting. The FSH first hunt member defines the member number at which hunting is to begin for the number. To add a FSH first hunt member:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2152/
OE 01 1212/
CTX 001/
FFHM 8/
END!
```

22.45 The member number assigned as the FSH last hunt member need not be assigned to a TN, although this is not a recommended procedure. It is required that the FSH last hunt member number be less than the maximum allowed member number for the FSH group.

22.46 To remove a FSH first hunt number:

```
A RC:L/
ORD 0002/
TYP CHG/
TN 255 1212/
OE 01 1212/
CTX 001/
FFHM/
END!
```

E. Assign FSH Last Hunt Member (FLHM)

22.47 A FSH last hunt member may be added to a FSH group. The FSH last hunt member defines the member number at which hunting is to stop for this member. To add a FSH last hunt member:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 255 2152/
OE 00 1231/
CTX 001/
FLHM 10/
END!
```

22.48 The member number assigned as the FSH last hunt member need not be assigned to a TN, although this is not a recommended procedure. It is required that the FSH last hunt member number be less than the maximum allowed member number for the FSH group.

22.49 To remove a FSH last hunt member:

```
A RC:L/
ORD 0002/
TYP CHG/
TN 255 2152/
OE 00 1231/
CTX 001/
FLHM/
END!
```

F. Removing a Member From a Preferential List

22.50 A member number of zero indicates that the specified position is to be zeroed. This action will zero position 3 in preferential list 15 in FSH group 2. To remove a member from a position in a preferential list:

A RC:PRF: 2 15 3 0!

23. SIMULATED FACILITIES GROUP

23.01 A simulated trunk group consists of eight program store words. Any number of words may be changed at one time. The old octal contents of the word to be changed, as well as the new information, must be entered. Before using the message consult TG-2H, Division 4, Section 2c and complete ESS 2202-4 (Centrex Trunk Group and Simulated Facilities Group Table No. 2 ESS) form for the group in question. Then using PA 2H204 or PA 2H205, Section 620, convert the data from the form to the octal representation for all words of the group. Then to change a given word of the simulated group data, use the following message:

A RC:SIM:2/
WD 3 1357753 1357357/
END!

The above message will change word 3 of simulated trunk group 2 from O(1357753) to O(1357357). Even parity is calculated by the program for the new information to be entered.

23.02 A recent change on word 0 of a simulated facilities group is effective immediately. However, a recent change update must be performed for any change to words 1 through 3 to be effective.

23.03 To verify the octal contents of all data words in both program store and recent change for a given simulated facilities group:

A VY:SIM:2/

The octal contents in recent change will be returned only different from that in program store.

24. CENTREX TRAFFIC AND PLANT MEASUREMENTS

A. Centrex Group

24.01 Any centrex group may have its traffic registers on the C or H schedule or appear on no schedule. To verify which schedule, if any, a central group is assigned (eg, centrex group 7), use the input message:

A TV:CTX:007!

24.02 To assign a centrex group to the H schedule:

A TC:CTX:007 0!

24.03 To assign a centrex group to the C schedule:

A TC:CTX:007 1!

24.04 To remove the centrex group from either the H or C schedule, use the same message as above but with the last field blank as shown:

A TC:CTX:007!

The assignment of a given centrex to a schedule is effective immediately.

B. Simulated Facilities Group

24.05 To assign a simulated facilities group (eg, group 17) to the C schedule:

A TC:SIM:17 1!

24.06 To assign a simulated facilities group to the H schedule:

A TC:SIM:17 0!

24.07 To remove a simulated facilities group from either schedule:

A TC:SIM:17!

24.08 To verify to which schedule, if any, the simulated facilities group is assigned:

A TV:SIM:17!

The assignment of a given simulated facilities group to a traffic schedule is effective immediately.

C. FSH Group Assignments

24.09 Any FSH group defined may have its traffic counters associated with the FSH section of the H schedule or C schedule or it appears on no schedule.

24.10 To verify which schedule, if any, a FSH group is assigned to, use input message:

A TV:FSH:3!

24.11 To assign a FSH group to the FSH section of the H schedule:

A TC:FSH:3 0!

24.12 To assign a FSH group to the FSH section of the C schedule:

A TC:FSH:3 1!

24.13 To remove a FSH group from an H or C schedule:

A TC:FSH:3!

25. CENTREX NONCONSOLE ATTENDANT (LISTED DIRECTORY NUMBER)

Note: The nonconsole attendant line is established and changed ***only*** from the maintenance TTY.

25.01 The translation used for the nonconsole attendant line (call director or keyset) is identical to that for a centrex line. All features discussed for the centrex line apply. The only distinguishing factor is that the line class code is for an attendant. Refer to Part 18 for a detailed description of the recent change procedure.

26. CENTREX UNIVERSAL ATTENDANT CONSOLE (LISTED DIRECTORY NUMBER)

Note: The universal attendant console line is established and changed ***only*** from the maintenance TTY (see TG-2H, Division 4, Section 1h).

26.01 The listed directory number (LDN) expansion associated with the universal attendant console can only be accessed by the directory number. It has no OE associated with it. Each centrex group may have one or more LDNs.

A. New Listed Directory Number (LDN)

26.02 To assign a new LDN to a universal attendant console, the TN must be currently unassigned. To assign a LDN:

```
A RC:L/
ORD 0001/
TYP NEW/
CTX 002/
TN 555 1212/
NSN 555 1313/
LCC ATT/
CIL 12/
END!
```

B. Line Class Code (LCC)

26.03 The line class code contained in translations must define this line as a universal attendant console, but not an attendant. In addition, the line class code will also specify whether this is a PBX-CO or Centrex-CO attendant. The line class code used must ***always*** be that for a universal attendant console and may never be recent changed to a line from an attendant.

C. Test Line Terminal (TLT)

26.04 The test line feature allows a listed directory number to be called before the office cutover. To assign the test line terminal feature to a listed directory number for a universal attendant console:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
CTX 001/
TLT ADD/        (Note)
END!
```

Note: This feature is not designed for use after cutover.

26.05 To remove the test line terminal feature from a listed directory number for a universal attendant console:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
CTX 001/
TLT DLT/
END!
```

D. Call Trace (TRC)

26.06 There are two types of call tracing available in the No. 2/2B ESS. The first type of trace identifies calls that are currently in progress on a one-shot basis, and the other type identifies either all calls to a given line in the office or all calls originating from a line in the office for a given number outside the office. A TTY printout will identify these calls as they occur. Call tracing is covered in detail in Section 232-110-301 (Calling Line Identification).

26.07 All calls to a given line may be identified by TTY printout as they occur by adding the trace feature. To add the trace feature to the listed directory number:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
TRC ADD/
END!
```

26.08 Whenever a call is made to this listed directory number, regardless of whether or not the call is completed, a TTY message is outputted.

26.09 To remove the call trace feature from a centrex line:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
CTX 002/
TRC DLT/
END!
```

26.10 To trace outgoing calls and calls in progress, refer to Input/Output Message Manuals (IM/OM-2H200-04 or IM/OM-2H200-05).

E. Incoming Call Identification Lamp Number (CIL)

26.11 The incoming call identification lamp number is the lamp number that is associated with a call to a particular listed directory number. To change the incoming call identification lamp number:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
CTX 002/
CIL 12/
END!
```

F. LDN Night Service Number (NSN)

26.12 This service provides an arrangement to route incoming exchange network (DID) or CCSA calls, normally directed to this listed directory number, to a preselected station line within the centrex system when the regular attendant position is placed in night service. The LDN night service number must be assigned and be a centrex station in this customer group. To change the LDN night service number, TN 555 1313 must be assigned and be a centrex station in this customer group:

```
A RC:L/
ORD 0001/
TYP CHG/
TN 555 1212/
CTX 002/
NSN 555 1313/
END!
```

26.13 To remove the LDN night service number from the listed directory number, the NSN input line is typed with a blank field:

```
A RC:L/
ORD 0001/
TYP CHG/
CTX 002/
TN 555 1212/
NSN/
END!
```

Removal of the night service number should be done with caution! If the attendant position is

placed in night service, calls will attempt to complete to the indicated NSN (all zero) and will receive reorder tone.

27. CENTREX SIMPLIFIED CONSOLE ATTENDANT (SCA)

27.01 This feature provides simplified console attendant capabilities from 50A Customer Premises System (CPS) consoles or from standard key telephone sets and CALL DIRECTORS® without requiring data link equipment. The attendant can use the simplified consoles to assist incoming and outgoing listed directory number (LDN), dial "0", foreign exchange, and wide area telecommunication service (WATS) calls. The No. 2/2B ESS routes these calls to the appropriate attendant line. The attendant may then transfer or route the calls according to the desires of the calling party.

27.02 Implementation of SCA may begin after verification is received that the centrex group allows SCA and the FSH group data has been defined for the associated SCA. It must be noted that a given centrex group cannot be defined to contain both SCA and universal console attendants (UCAs). To specify each of the lines which will be SCA and members of the FSH group, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 01 2331/
TN 227 3962/
LCC SCO/
CTX 002/
FSH 127/
END!
```

A. Defining a New SCA Group

27.03 To define a new SCA group use:

```
A RC:SCA:1 2/
TYP NEW/
FSH 1/          (Note)
END!
```

Note: On a type **NEW**, the SCA attendant number is updated within the FSH group using this message.

B. Modifying the Definition of an Existing Simplified Console Attendant

27.04 There are three characteristics that are unique to a single SCA: the associated FSH group number, the first and last hunt members of the various subgroups of the FSH group, and the scan point number definitions. Each of the three characteristics can be modified after the SCA has been established.

To change the associated FSH group:

```
A RC:SCA:2 3/
TYP CHG/
FSH 4/
END!
```

To change the subgroup specifications:

```
A RC:SCA:2 3/
TYP CHG/
BASE/
SBGP 4/
FFHM 2/
FLHM 12/
RPT/
SBGP 6/
FFHM 1/
FLHM 5/
END!        (Note)
```

Note: This message will verify that the last hunt member is not less than the first hunt member number for the same subgroup. Keywords BASE and RPT are used to show multiple or bulk orders.

To change the scan point number data:

```
A RC:SCA:4 1/
TYP CHG/
SP 1742 50/
SKEY ADD 2/
END!
```

C. Specifying SCA Lamp Table Data

27.05 An SCA lamp table can be specified for each centrex group. The length of the table is defined in the centrex group attendant list translator. All of the information within the SCA lamp table is recent changeable. To specify an

SCA lamp table, use the following recent change input message:

```
A RC:LMP:2/
PDA 1121 30/
LAMP 11/
PDB 7405 60/
END!
```

Note: The program will verify that the lamp number does not exceed the length of the SCA lamp table.

D. Changing the Attendant Idle List/Call Waiting Queue for the Centrex Group

27.06 An attendant idle list/call waiting queue may be either added or removed from the centrex group via a recent change message as follows:

```
A RC:CTX:4/
ORD 0001/
TYP CHG/
NIQ 0/
END!
```

E. Adding Attendant Lines to SCA

27.07 Single lines can be added to an SCA after defining the SCA. The recent change message is identical to that used when defining a new SCA. The line must be a member of the FSH group associated with the SCA. In the following example, the SCA feature is added to a line at the same time the line becomes a member of a FSH group. It is ***not*** necessary to explicitly identify the SCA to which the line is to be added because the SCA number is contained in the specified FSH group. To add an attendant line to the SCA, use the following recent change input message:

```
A RC:L/
ORD 0001/
TYP CHG/
OE 00 1202/
TN 562 2530/
CTX 002/
LCC SCO/
FSH 5 4/
END!
```

F. Removing Attendant Lines From the SCA

27.08 Removing an attendant line from the SCA can be accomplished by clearing the data that identifies the line as a FSH group member and as an SCA line. To remove a line:

```
A RC:SCA:2 1/
TYP OUT/
END!
```

G. Removing a FSH Group Associated With an SCA

27.09 To remove all of the data within the SCA block, use the following recent change input message:

```
A RC:SCA:2 1/
TYP OUT/
END!
```

H. Removing a FSH Group Associated With an SCA

27.10 The FSH group that is associated with an SCA can be removed from a line. However, if the FSH group is not removed it is necessary to manually, line by line, remove the SCA feature from the lines associated with the SCA and FSH group.

I. Defining a New Simplified Console Attendant Block

27.11 The following input message will also verify that a skeleton SCA block had been created for the centrex group and SCA number, and FSH group has been defined. The length of an SCA block is contained in the second word of the SCA block. Each specified subgroup number (SBGR) is compared with the length of the SCA block to ensure that the data outside the SCA block is not overwritten with illegal subgroup data. For each subgroup, the first hunt member number (FFHM) is verified to be not greater than the last hunt member number (FLHM), and last hunt member number is verified to be not higher than the number of members defined for the FSH group.

27.12 When the new SCA block is created, the SCA number is written into the associated FSH group translation block. If the new SCA number is higher than any currently defined SCAs for the centrex group, then the new SCA number is written into the first word of the centrex group expansion block. To define a new SCA block:

```
A RC:SCA:2 1/
TYP NEW/
FSH 125/
SP 01 2213/
SKEY ADD 1/
BASE/
SBGP 23/
FFHM 141/
FLHM 156/
RPT/
SBGP 25/
FFHM 166/
FLHM 182/
END!
```

J. Verify an SCA Block

27.13 To verify an SCA block, use the following input message:

```
A VY:SCA:002 123 1!
```

27.14 The resulting output message will include the FSH group associated with the SCA block, the subgroup number, FSH first hunt member number, and the FSH last hunt member number.

K. Verify SCA Lamp Data for a Centrex Group

27.15 To verify the data that is contained in the SCA lamp table for a centrex data, the following input message should be used:

```
A VY:LMP:113 1!
```

> ***Note:*** Variable field 113 represents the centrex group number, while 1 of the field following 113 indicates that the verified data is to be from call store. Verification of data from the program store would be represented by zero (0).

27.16 The resulting output message will include the call waiting lamp peripheral decoder address, lamp number and an ACOF/TGB lamp peripheral decoder buffer. For each nonzero ACOF/TGB lamp peripheral decoder buffer, two keywords are printed as the resulting output message (LAMP) and (PDB). Up to 31 ACOF/TGB lamps can be identified in the lamp table.

28. UNIVERSAL ATTENDANT EQUIPMENT (FRAME, DATA LINK, CONSOLE)

A. Adding a New Universal Attendant

28.01 To add a new universal attendant to a centrex group, a spare attendant must have been established by the ODA. A spare attendant is one whose frame, data link, and console (FDC) is unassigned and whose centrex group number is zero. When adding an attendant to a centrex group, the following rules must be followed (see TG-2H, Division 4, Sections 1g and 1h):

(1) The console to be moved (old FDC) must be marked out of service. See message M AC RMV in IM-2H200-04 or IM-2H200-05.

(2) If the customer is to have more than one console, console zero must be added first new (FDC). Additional consoles must be in sequential order. For a single console customer any console position may be used. The first console assigned is the primary attendant consoles.

28.02 To add a universal attendant to centrex group 5 which has no attendants assigned:

```
A RC:ATT/
TYP NEW/
ORD 0001/
OFD 210/
NFD 012/
CTX 005/
END!        (Note)
```

This will result in frame 2, data link 1, and console 0 (OFD 210) being reassigned as frame 0, data link 1, console 2 (NFD 012). This attendant will then be assigned to centrex group 5 and assigned attendant console number 1. The attendant console number is assigned by the program. The new console position will be marked out of service.

> ***Note:*** This change is not effective until a recent change update has been performed.

B. Removing a Universal Attendant

28.03 To remove an attendant from a centrex group, the only restriction is that the primary console be removed last. To remove a console which has been marked out of service:

```
A RC:ATT/
TYP OUT/
ORD 0001/
OFD 012/
NFD 210/
CTX 005/
END!
```

The centrex group specified is the group to which the attendant equipment group is presently assigned. The new FDC must be presently unassigned. The attendant equipment group assigned to FDC 012 in centrex group 5 will be removed to FDC 210 and the centrex group number zeroed. The attendant equipment group is now spare, marked out of service, and may be reassigned. In addition, conference and night service features are removed if they had been assigned. This change is not effective until a recent change update is performed.

C. Changing a Universal Attendant

28.04 To move an attendant from one FDC position to another and still associate the attendant with the same centrex group, the new FDC must presently be unassigned and the old FDC out of service. To move an attendant equipment group:

```
A RC:ATT/
TYP CHG/
ORD 0001/
OFD 012/
NFD 022/
CTX 005/
END!
```

This change is not effective until a recent change update is performed.

D. Trunk Busy Memory

28.05 A centrex customer may have type 2 universal attendant consoles equipped with the trunk group busy memory option. Console position one is assigned the trunk busy memory feature and is not available for assignment to an attendant. When changing trunk busy memory, the FDC need not be marked out of service.

28.06 To assign trunk busy memory:

```
A RC:ATT/
TYP CHG/
ORD 001/
NFD 011/
CTX 005/
TBM ADD/
END!
```

28.07 To remove trunk busy memory:

```
A RC:ATT/
TYP CHG/
ORD 0001/
OFD 011/
CTX 005/
TBM DLT/
END!
```

28.08 It is also possible to delete trunk busy memory and assign a new attendant to the FDC in one order:

```
A RC:ATT/
TYP NEW/
ORD 0001/
OFD 210/
NFD 011/
CTX 005/
TBM DLT/
END!
```

This removes trunk busy memory from FDC 011 and moves a spare attendant from FDC 210 to FDC 011. The old FDC must be taken out of service before this change can be made. The change is not effective until a recent change update is performed.

E. Night Service

28.09 Only the primary attendant console can have the night service feature. When the attendant position is in night service, all calls directed to the attendant will be taken to the proper night service number (see paragraphs 16.09 and 22.16). To add night service:

```
A RC:ATT/
TYP CHG/
ORD 0001/
OFD 010/
NFD 010/
CTX 005/
NHT ADD/
END!
```

28.10 To remove the night service feature:

```
A RC:ATT/
TYP CHG/
ORD 0001/
OFD 010/
NFD 010/
CTX 005/
NHT DLT/
END!
```

F. Conference

28.11 Universal attendant consoles may have keys designated "CONF 1" and "CONF 2." To make both keys operational:

```
A RC:ATT/
TYP CHG/
ORD 0001/
OFD 012/
NFD 012/
CTX 005/
CNF ADD 1/
CNF ADD 2/
END!        (Note)
```

Note: This change is not effective until a recent change update is performed.

28.12 To make "CONF 2" nonoperational:

```
A RC:ATT/
TYP CHG/
ORD 0001/
OFD 012/
NFD 012/
CTX 005/
CNF DLT 2/
END!        (Note)
```

Note: This change is not effective until a recent change update is performed.

G. Change OE of Loop and Port

28.13 To change the OE assigned to a loop and port of a universal attendant console:

```
A RC:ATT/
TYP CHG/
ORD 0001/
OFD 012/
NFD 012/
OE 01 0232/
IOE 01 0233/
END!        (Note)
```

Note: This change is effective immediately.

H. Verify

28.14 To verify the contents in program store for the universal attendant:

```
A VY:ATT:0/
OFD 012/
END!
```

28.15 To verify the contents in recent change (or program store if the information has not been changed):

```
A VY:ATT:1/
OFD 012/
END!
```

The only information that is effective immediately is a change in the TEN for an attendant loop and port. All other attendant changes are only effective when a recent change update is performed. For further information, refer to the appropriate Input/Output Message Manual.

29. INTERNATIONAL DIRECT DISTANCE DIALING (IDDD)

29.01 International direct distance dialing (IDDD) allows a customer to place directly calls to points outside of the United States and Canada. With this feature, the customer is able to make overseas station-to-station, person-to-person, and

operator assisted calls. Country Access Code (CAC) tables are used to build dialing patterns for IDDD. Recent changing in the CAC tables can be accomplished, providing a CAC table exists for the desired code. IDDD in its present form can have new tables added via recent change. Other changes can also be accomplished via recent changes. Examples of recent changing are below.

A. Recent Change of the Country Access Code (CAC) Table

29.02 The minimum and maximum number of digits that can be dialed following a 2- or 3-digit IDDD prefix is changed with the recent change message as follows:

```
A RC:CAC:aaa/
MXDE nn/
NDE nn/
TYP CHG/
END!
```

aaa = the complete country access code (0-999).

MXDE nn = the maximum number of digits expected in the country access code plus the national telephone number. This should be equal to NDE if the exact number of digits is specified. Valid values are 7 through 12.

NDE nn = the exact number of digits expected in the CAC plus the national telephone number or, if the exact NDE cannot be specified, it specifies the minimum number of digits expected. Valid values are 7 through 12.

TYP CHG = indicates that an existing legal CAC is being changed. If the access code given does not exist, an error message is given.

B. Deleting an Access Code

29.03 To delete an access code from the list or make a legal code illegal, the following format is used:

```
A RC:CAC:aaa/
TYP OUT/
END!
```

aaa = the country access code to be removed.

TYP OUT = indicates that the terminating entry for the given CAC is to be zeroed. This indicates to call processing that the entry is illegal.

Only a terminal entry, an entry whose ENTRY TYPE bit (T) is already set to a "1," is zeroed. Only the keyword TYP is allowed for this type of message.

C. Creating a New Access Code

29.04 A new country access code may be created, providing the correct tables exist. For example, if 121 and 122 are legal CACs, then a third-level table exists for any other 12X code entry where X is any number from 0 to 9. In this case, the entry 12 is not a terminal entry but serves as a pointer to a third-level entry. If 12 were a terminal entry, the 12X would not exist, and no 3-digit CACs could be created which began with 12.

29.05 To create a new CAC, use the following message:

```
A RC:CAC:aaa/
TYP NEW/
MXDE nn/
NDE nn/
END!
```

aaa = the complete country access code (0-999).

MXDE nn = the maximum number of digits expected in the country access code plus the national telephone number. This should be equal to NDE if the exact number of digits is specified. Valid values are 7 through 12.

NDE nn = the exact number of digits expected in the CAC plus the national telephone number or, if the exact NDE cannot be specified, it specifies the minimum number of digits expected. Valid values are 7 through 12.

TYP NEW = indicates this is a new entry. It is entered if the proper tables exist and if the entry is currently unassigned. Otherwise, "NG" is returned with the appropriate error message on the TTY.

29.06 In some cases, it may be desirable to delete an entire level of entries to create a new CAC. In order to accomplish this, the pointer must be zeroed. This can be done via recent change if all entries in the table to be dropped have their entry type (T) set to a "1" and are unassigned.

29.07 For example, presume CAC codes 342 and 343 exist and that new CAC 34 is required. To create this new CAC, codes 342 and 343 must be deleted according to procedures in paragraph 29.03. The new CAC can then be created using the procedures in paragraph 29.05 of this section. Notice that in this example, every CAC in the 34X table must be unassigned, and that once this table is removed, only an ODA update can replace it.

D. Verifying Access Code

29.08 To verify a CAC, the following recent change message is used:

A VY:CAC:aaa

aaa = the complete country access code to be verified.

29.09 This message can verify the maximum number of digits expected (MXDE) and the exact number of digits expected (NDE) for an assigned CAC. If the CAC is unassigned, "UNA" will be printed at the TTY. Furthermore, if an attempt is made to verify a CAC whose entry-type bit (T) is not a "1," an error message is printed. This condition would indicate that this entry is a pointer to another table.

29.10 The output formats for the verify message are as follows:

For nonterminating codes

AR RC ERS nnnnnn

nnnnnn = the number of the exact error message. An explanation of this message can be found in the Output Message Manual (OM).

For unassigned codes

AR VY CAC aaa
UNA
END

aaa = the country access code verified.

For assigned codes

AR VY CAC aaa
MXDE m
NDE nn
END

aaa = the CAC verified.

MXDE = the maximum number of digits expected.

NDE = the number of digits expected or the minimum number of digits expected.

When the variable fields of MXDE and NDE are equal, that number specifies the exact number of digits expected.

E. Increasing the Size of the CAC Table

29.11 To add a 16-word digit table to the IDDD dialing tree, a spare digit table must have been established by the ODA. In addition, the terminal entry for the digit received must be unassigned.

29.12 Use the following message to increase the size of the CAC table:

```
A RC:DTB:  1/
DGT ddd/
TYP NEW/
END!
```

DGT ddd = the digit(s) (entry) in the dialing tree which is to have a table added. It may be one to three digits in length. The numbers 1 through 9 are valid digits.

This recent change is not effective until a recent change update is performed.

F. Decreasing the Size of the CAC Table

29.13 To remove a 16-word CAC digit table, the terminal entry for the digit received must point to the table to be removed and words 1 through 15 of the table must be zero. That is, all terminal entries must be unassigned.

29.14 To remove a digit table from an access code, use the following:

```
A RC:DTB: 1/
DGT ddd/
TYP OUT/
END
```

DGT ddd = the digit(s) (entry) in the dialing tree which is to have a table added. It may be one to three digits in length. The numbers 1 through 9 are valid digits.

This recent change is not effective until a recent change update is performed. Following the recent change update, the table may be reassigned.

30. THE CHANGING, PRINTING, AND PUNCHING OF THE CALL FORWARD LIST

30.01 Two methods exist for entering Call Forwarding recent changes. The first method described below is for use with EF-2 and later generics. The second method is for use in retrofitting a office from LO-1 or EF-1 to EF-2 and later generics.

METHODS FOR EF-2 AND LATER GENERICS

A. Adding to or Deleting From the Call Forward List

30.02 A recent change of a call forward list would have the following general format:

To add to the list

```
A RC:CF
TN nnx abcd/
CFN x xxx xxx xxx abcd/
END!
```

To delete from the list

```
A RC:CF/
TN nnx abcd
END!
```

TN nnx abcd = the telephone number to be forwarded. The data is all numeric (decimal).

CFN = the directory or extension (for centrex) to be forwarded to. The CFN can range from four to fourteen digits. In cases where an access code is used, it will be included in the digits as if being dialed in a normal call.

For the keyword CFN—to enter a #, type a -, and to enter a *, type a +.

B. Printing the Call Forward List

30.03 To print the call forward list use the following message:

```
A CF:PR!
```

30.04 The response will have the form of the example below for each entry in the call forward list. All entries on the list will print out together.

```
AR CF:PR
TN 562 2516
CFN 9 301 570 2531
TN 562 2533
CFN 522 2494
.
.
.
END
```

C. Punching the Call Forward List

30.05 To punch the call forward list use the following:

```
A CF:PUN!
```

30.06 The response will have the form of the example below for each entry in the call forward list. All entries on the list will punch out together.

```
A RC:CF/
TN 562 2516/
CFN 9 301 570 2531!
A RC:CF/
TN 562 2533/
CFN 562 2494!
.
.
.
A RC:CF/
END
```

METHODS FOR RETROFITTING FROM LO-1 OR EF-1 TO EF-2 AND LATER GENERICS

A. Adding a Directory Number to the List

30.07 To add a directory number to the call forward list, use the following:

```
A CF:ENT/
nnx abcd pnpa nnx abcd/ *
9999!
```

* Repeated for as many lines as necessary

nnx abcd = the forwarded line.

p npa nnx abcd = the number to which it is forwarded. The "p" and/or the "npa" digits may be omitted if they are not present in the "forward to" number.

B. Deleting a Directory Number From the List

30.08 To remove a directory number from the call forwarding list, use the following:

```
A CF:RMV:nn gcsl nnx abcd!
```

nn = the network number (00-14).

g = the concentrator group number (0-7).

c = the concentrator number (0-7).

s = the switch number (0-7).

l = the switch level number (0-3).

nnx abcd = the telephone number.

31. GLOSSARY

31.01 The following is a description of the conventional (new) keywords, keyword modifiers, and message types used in an ESS order:

ACC — One-digit code to be changed in the speed calling list.

ADD — Add: Indicates that a feature or an equipment is added to the ESS order. A feature or equipment may be added (one or all of them at the same time) when basic service is established on a NEW type ESS order or added on a CHG type ESS order by use of the keyword ADD following the feature.

ADND Attendant Do Not Disturb

ADR Beginning address of spare Block of Program Store or Call Store.

AFO Attendant Call Forward Outside

AFRI Attendant Call Forward Route Index

AOSL Automatic Line Insulation Test

AOUT Attendant Outward Restriction

ARI ACOF (Attendant Control of Facilities) Route Index: If ACOF is in effect, trunks so affected, go to either the attendant (if ACOF route index = 0), or to a specified route index.

ATC Attendant Type Code

ATF Attendant Speed Calling First List

ATOT Attendant Total Restriction

ATS Attendant Speed Calling Second Test

BASE Bulk Service Orders: Used after keywords that will be held constant for all of the bulk service orders and is used with keyword RPT.

BGP Barge-In Permitted

BHT First Hunt Member

BLC Bill Listed Number

BLN Special Toll Billing

BSY Busy Tone Feature

BTN Bill to Number. Used when a customer requests service be billed to a telephone number other than listed telephone number.

BV Busy Verify

CAC Access Central Office trunk for country access code tables. This keyword provides for the implementation of the International Direct Distance Dialing feature.

CAT Centrex Access Treatment Code Number

CD Customer Account Recording

CDRN Customer Dialed Account Recording

CFBA Call Forwarding—Busy Line All Calls

CFBN Call Fowarding—Busy Line Telephone Number

CFDA Call Forwarding—Don't Answer All Calls

CFDN Call Forwarding—Don't Answer Telephone Number

CFO Call Forwarding—Outside the Centrex Group

CGRP Do Not Disturb Control Group

CHI Charge Index

CIL Incoming Call Identification Lamp

CLO Customer Line Overflow Counter Number

CMP Camp-On Feature

CNF Conference Key

CNR Control Restrict Other Lines for FSH

CNRG Control Group Treatment Code

COB Complaint Observing

COFL Allow Calls on Forwarded Line

CPG Call Pickup Group Number Feature

CR Control Restriction Code

CSL Change Speed Calling

CTG 6-Port Conference Group Number

CTX Centrex Group Number

CWOR Call Waiting Originating

CWTA Call Waiting Terminating All Calls

DGE Number of Digits Expected

DGS Digits to be associated with speed calling dial code divided into a maximum of five fields.

DGT The Digits which point to the terminal entry to be changed.

DISP Controlled Restriction Disposition code

DIT A terminal entry in the digit interpreter table.

DLT Delete: Indicates that a feature or an equipment is deleted from an ESS order.

DLY Provide 800-ms Delay After Sleeve Is operated

DMA Directed Pickup Feature

DP Sleeve Lead Enable Number: This keyword specifies the peripheral decoder point used to operate an auxiliary line circuit for service observing fire, police, noise suppression, etc.

DPLR Destination Port Lamp Rate

DPM Message Register Enable Number: This keyword is used when a peripheral decoder buffer (PDB) must be assigned to obtain a message register.

DPO Remote Overflow Register Number: This keyword specifies the peripheral decoder point to be used when overflow from the PBX is to be registered remotely.

DPP Open Switch Interval Protection Enable Number. This keyword specifies the PD point used to operate or release the OSIP circuit.

DRI Dialing Error Route Index

DSP0 Disposition of DID calls to this station when total or DND restrictions are in effect.

DSP1 Disposition of non-DID calls to this station when total or DND restrictions are in effect.

DSP2 Disposition of DIAL 9 calls from this station when outward restriction is in effect.

DSP3 Disposition of originations from this station when total restriction is in effect.

DSPT Disposition Telephone Number or Route Index

DTP The Data Type presently stored in the terminal entry.

EAB Dial Call Hold

EAN Dialed Controlled Conference

EHT Stop Hunt Member

ESC Threeway Calling Add-on

ESF Two Digit 30-code Speed Calling

ESL One Digit 8-code Speed Calling

ESM Call Forwarding Variable

ESX Call Waiting

E2H Threeway Call Transfer Individual All Calls. This feature permits the centrex customer to place any existing call on hold, call another party in or out of the centrex group, and add the original

party to a 3-way call set-up or a call transfer to the second party (only one party may be outside centrex group).

E6G Call Forwarding—Busy Line

E9G Call Forwarding—Don't Answer

FFG Call Forward Simulated Facility Group

FFHM The FSH group First Hunt Member

FL Recall

FLHM FSH group Last Hunt Member

FNHM FSH group Night Hunt Member

FOFG Call Forward Outside Simulated Facility Group

FSH Flexible Station Hunting: This keyboard places the line on the FSH group.

FSHM FSH Group Stop Hunt Member

GRP Group Number

GST Ground Start

GSZ Group Size: This keyword specifies the maximum number of members (terminals) 2-way and out-dial only that the group may have. The number may be less than or equal to the maximum predefined size of the group, from the ODA input forms.

HML Multiline Hunt Group Number

HSZ Hunt Size: This keyword specifies the maximum number of members in the member list that can be hunted over when a call comes into the office in an attempt to find an idle number. The number may be less than or equal to the GSZ.

HTY Hunt Type

ICG Intercentrex Calling Group

ICTA Intercentrex (within ICCG) Call Transfer Allowed

IOE New Originating Equipment Number

ISG Intercom SIM Group

LAMP The keyword specifies the particular lamp in the lamp table being changed. Each lamp is associated with a PDB.

LBRI Loop Back Route Index

LCC Line Class Code: The LCCs are codes for all items of service. Each of the codes consists of three characters, each of which may be either a number or a letter. These characters indicate the major class of service of the customer.

LDS Simulated Trunk Facilities Group Number for Incoming Calls (Listed Directory Number)

LHT Last Hunt Member: This keyword specifies the last number hunted for a given directory number. The number may be less than or equal to the HSZ.

LIST The centrex list of the speed call change.

LS Look for Sharp (#): Indicates that the next digit dialed may be a sharp. It may be used to add or delete LS.

MBR Trunk Group Member Number

MN Manual Trunk Group: This keyword is used to indicate a manual tie trunk group.

MXDE Maximum Digits Expected

NCT Data Restriction

NDE Minimum Number of Digits Expected

NDT The New Data Tape to be stored in the terminal entry (See keyword DTP).

NFD New Frame Data Link and Console Number This keyword is the new frame data link and console number to which an attendant is to be changed.

NHT Night Service

NIQ No idle list or call waiting queue.

NNX The office code to be prefixed.

NSN Night Service Number

NST Night Hunt Member: This keyword specifies the last member to be hunted when night service is in effect. The number may be less than or equal to the hunt group size (HSZ).

NTN New Telephone Number: Used when changing the TN.

OE Originating Equipment Number

OFD Old Frame Data Link and Console Number. This keyword is the number combination for the old frame data link and console number to which the attendant was assigned.

OGP Old Service Circuit Group Number

OMB Old Service Circuit Member Number

OP Outpulse Access Code: This keyword indicates when the dialed access code is to be outpulsed.

ORD ESS Order Number: The ESS order number from 0 to 9999 is required on every ESS order.

OVM Hunt List Overflow Member: This keyword is the member to which hunting overflows if all hunt members are busy.

PBD Position Busy Data

PDA Peripheral Decoder Buffer Address: This keyword is used to specify the peripheral decoder buffer address used for trunk member.

PDB Peripheral Decoder Buffer: This keyword specifies the PD buffer point used to operate the trunk busy or ACOF lamps.

PFX Prefix Digits

PLIT Prohibit Line Insulation Test: This message type is used to prohibit automatic insulation test (ALIT) from being performed except restore verify.

PLM Prohibit Line Maintenance: This message prohibits ALIT, NETFAB and JASINT programs from performing maintenance tests.

POSD Position Status Data

PRFL FSH Preferential Hunt List

PSG 3-Port SIM Group

PTN Pack Telephone Number: This keyword actually packs telephone number into translation form and prints the results.

PTY Party Ringing Code Number

RAX Rate Area: The geographical area served by the ESS.

REC Record the centrex group peg usage and overflow for 3-port SIM group and intercom SIM group or AMA every hour.

RES Restriction code

RLMP Register or lamp for overflow

RMB Remote Make Busy: This keyword specifies what remote make busy key a given number is to be assigned.

ROH Carrier Line

RPT This keyword is used when doing bulk service orders. It is placed at the end of each individual order of a bulk service order. When ***RPT*** is used, that order will be executed using the ***BASE*** keyword along with those preceeding the RPT.

RTI Route Index: Used to indicate the type of intercepting and special routing information to be provided for different call types.

RTIM Manual Line Route Index: This keyword places an originating route index on manual line.

SAT Satellite Transfer

SBAC Source Billing on Attendant handled calls

SBGP SCA subgroup number that indicates a FSH first and last hunt member.

SBR Short Burst of Ring on line that is call forwarded.

SCA Simplified Console Attendant

SCCW Six seconds of audible ringing followed by silence on call waiting originating.

SDND Station Do Not Disturb

SDT Second Dial Tone returned: This keyword indicates whether or not second dial tone should be returned to the calling party after the specified access code is dialed.

SER Series Completion: This service is used to hunt telephone numbers in series and may be assigned only to one-party class of service.

SFG The Simulated Facilities Group number

SIEP Stable Information Entry provided for centrex group.

SIM Simulated Trunk Group

SKEY Key Number: This keyword specifies the key number that is associated with a scan point number.

SO Seven digit CCSA dialing only. If a centrex group has only 7-digit CCSA dialing, the information for the trunk group is stored in the terminal entry.

SP Scan Point

SPLR Source Port Lamp Rate

SSC Special Service Code

SSR Special Service Register

STRI Satellite Transfer Route Index

SUBB This keyword takes an octal miscellaneous subtranslator base address and finds an empty entry.

SUBG Subset of a Flexible Station Hunting Group: This keyword designates a BHT through an LHT.

TAS Trunk Answer Any Station

TBL Table and entry pointer

TBM Trunk Busy Memory

TCG Two common controlled switching access (CCSA) groups. If this centrex group has two CCSA groups (both 7 and 7/10 digit dialing), the information for the 7 digit only group is contained in terminal entry. Information for the 7/10 group is contained in the centrex group information.

TDG Ten-Digit CCSA Group Number

TDP Ten-Digit CCSA Dialing Permitted

TER Member terminal number

THD Through Dial feature

TN Telephone Number: The customer telephone number must be entered as all numbers; prefix letters are not accepted.

TOP Time-Out for speed calling

TP One-digit CCSA dialing permitted

TRC Trace (Calling Line Identification): This service traces all incoming calls to the customer telephone number and types a record on the maintenance TTY.

TTC TOUCH-TONE® Calling. This service allows the customer to tap out the called number, triggering electronic impulses to speed the call.

TTT Tie Trunk Type

TW 1 Call Transfer—Attendant feature: This feature permits the centrex customer to transfer an incoming call to the attendant.

TW 2 Call Transfer—Individual: This feature permits the centrex customer to place an existing incoming call on hold, call another party in or out of the centrex group, and to add the original party to a 3-way call setup or a call transfer to the second party (only one party may be outside the centrex (group).

TYP Type: The ESS must know what type of the centrex customer to place an existing incoming call on hold, call another party in or out of the centrex group, and to add the original party to a 3-way call setup or a call transfer to the second party (only one party may be outside the centrex group).

TYP Type: The ESS must know what type of order it is processing. One of the following codes must be associated with the TYP keyword in the ESS order.

(a) NEW (New Customer)—This code is used when telephone service is given to a new customer.

(b) CHG (Change)—This code is used when the data information stored in the ESS for an existing customer is to be changed.

(c) OUT (Disconnect Service)—This code is used when a customer service is to be disconnected and placed on machine intercept.

(d) ICP (Intercept)—This code is used when a customer service is to be disconnected and placed on operator intercept.

Note: Before a telephone number on ICP can be made available for unassignment, an OUT order must be prepared and transmitted.

VTI Variable Timing Index number

WD Change Word of Route Index

32. INDEX

32.01 This index contains a listing of the keywords used in this section and the paragraphs in which they appear. The keywords are alphabetically grouped with their respective recent change messages. Where keywords are not used with a particular RC message, the paragraphs in which the recent change message appears is listed.