Meridian 1

Option 11C Mini

Planning and Installation Guide

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Contents

About this guide

Who should read this guide

The *Option 11C Mini Planning and Installation Guide* is for persons responsible for planning and installing the Option 11C Mini system.

Use this guide as a reference tool for Option 11C Mini installations. The planning chapters describe the general design, features, limits, and site requirements of the Option 11C Mini system. The installation chapters provide complete installation instructions for installing a new Option 11C Mini system.

How this guide is organized

The *Option 11C Mini Planning and Installation Guide* includes 19 chapters and six appendixes. The first part of the guide (Chapters 1 through 5) contains information about planning for the installation of your Option 11C Mini system. The second part of the guide (Chapters 6 through 19) contains procedures for installing your Option 11C Mini system. The appendixes at the end of this guide provide information about preprogrammed data. The appendixes also contain additional information for installations in the United Kingdom (UK) and Germany.

Terminology used in this guide

The *Option 11C Mini Planning and Installation Guide* is a global document. This guide contains some terms which are not common in the UK. The following is a list of these terms and their equivalent in the UK.

North American term	UK term or meaning
analog (500/2500-type) set	Analog rotary dial/MF4 telephone
Central Office (CO)	Local Public Exchange
cross-connect wire	Jumper wire
Direct Inward Dialing (DID)	Direct Dialing In (DDI)
E1	2.0 Mbit, 32 channel digital carrier (Megastream)
Grounding	Earthing
Set	Telephone
Station	Extension telephone
TIE trunks	Private circuits
Toll trunks	Exchange lines
T1	1.5 Mbit, 24 channel digital carrier (North American equivalent to Megastream)
WATS, FEX (FX1 and FX2), CSA	Alternative public vendor network services (used only in North America)

Related documents

Refer to the following documents for additional information:

- *Option 11C Upgrade Procedures (Issue 5.00) (553-3021-250)*
- *Option 11C Technical Reference Guide (Issue 10.00) (553-3011-100)*
- *Option 11C Fault Clearing (Issue 10.00) (553-3011-500)*
- *Option 11C Central Answering Position Guide (553-3011-320)*
- *Option 11C Customer Configuration Backup and Control Guide (553-3011-330)*
- *Option 11C X11 Software Administration Guide (553-3001-311)*
- *Option 11C X11 Software Maintenance Guide (553-3001-511)*
- *Option 11C X11 Software System Messages Guide (553-3001-411)*
- *1.5 Mbit DTI / PRI Guide (553-3011-310)*
- *2.0 Mbit DTI / PRI Guide (553-3011-315)*
- *ISDN BRI Administration and Maintenance Guide (553-3011-311)*
- *BIX In-Building Cross-Connect System Material Description (631-4511-100)*
- *BIX In-Building Cross-Connect System Material Installation and Servicing (631-4511-200)*
- *Intelligent Peripheral Equipment Circuit Card Supplements*
- *Meridian Administration Tools User Guides*
- *Meridian Mail Enhanced Card Option Installation and Maintenance Guide (555-7071-210)*
- *Meridian 1 Set-Based Administration Guide* (553-3001-303)
- *Meridian 1 Telephone and Attendant Console Installation* (553-3001-215)
- *Meridian 1 European Digital Telephones* (553-3001-114)
- *M3900 Series Meridian Digital Telephone Description, Installation, and Administration* (553-3001-216)

Chapter 1 — Introducing the Option 11C Mini

This chapter provides an overview of the Option 11C Mini system.

Option 11C Mini system description

The Option 11C Mini is a small communications system based on existing Option 11C technology. The system provides full Meridian 1 feature functionality. The Option 11C Mini uses X11 global software which other Meridian 1 systems also use.

In an Option 11C Mini system, the Main Chassis can connect to a Chassis Expander. This increases line size to 144 lines. Two copper cables connect the Chassis Expander to the Main Chassis.

The Main Chassis and Chassis Expander each provide four Intelligent Peripheral Equipment (IPE) card slots. These card slots support line cards, trunk cards, and application cards used in other Meridian 1 systems. The Option 11C Mini introduces a 48-port Digital Line Card (NTDK16). You must insert the 48-port Digital Line Card in a dedicated slot (Slot 04) of the Main Chassis. The Main Chassis also provides a dedicated slot (slot 00) for the Mini System Controller (MSC) card.

A processor located on the Mini System Controller (MSC) card in the Main Chassis handles call processing, serial ports, and network traffic. Call processing on the MSC card is equivalent to that on the Option 11C Small System Controller (SSC) card. Use the MSC card for configurations with up to 144 lines.

The power supply for the Option 11C Mini is installed in the chassis before it is sent to the customer site. You do not have to install the power supply during system installation.

The Option 11C Mini can be configured as a non-blocking system. The Option 11C Mini does not have to be provisioned for speech paths or time slots.

The Option 11C Mini provides four chassis installation options. Install the Option 11C Mini chassis in the following positions:

- on a wall in a vertical position
- on a wall in a horizontal position
- in a 19 inch rack/cabinet
- on a table

Figure 1 shows the Option 11C Mini Main Chassis.

Figure 1
Option 11C Mini chassis

Installing software and configuring data

The Option 11C Mini supports a minimum of X11 Release 24.24 software. Everything from general business features to advanced applications are available. The software contains all of the components related to a release of software. These components include software patches, preconfigured customer database, feature sets, and other related databases and software.

When you perform an installation for the first time, use the MSC card for the installation. When you upgrade to new software releases, use a Software Delivery card (PCMCIA card).

Flash Drives

Two Flash Drives, located on the MSC card, perform Meridian software operation and customer data storage.

The first flash device is referred to as the Primary Flash Drive. The Primary Flash Drive contains Meridian system data and the first copy of customer data required to load and run the switch. The Primary Flash Drive is programmed with system software before it is shipped to the customer.

The second Flash Drive is referred to as the Backup Flash Drive. The Backup Flash Drive stores files that the user can change. Examples of these files are configuration data and the second copy of the customer database. If the Primary Flash Drive fails, you can retrieve a backup set of customer data. After the backup set of customer data is retrieved, you can load it into the system's active database.

Software Installation Program

The Software Installation Program is called up during initial installations of the Option 11C Mini system. This program is menu driven.The Software Installation Program installs the software and puts the Option 11C Mini into operation.

Software Delivery Card

The Option 11C Mini uses a Software Delivery card (PCMCIA) card to upgrade system software and provide storage for a backup copy of customer data. The Option 11C Mini uses the same Software Delivery card that the Option 11C uses.

Insert the Software Delivery card in the socket (slot A) located on the faceplate of the MSC card. When inserted, you can load software and customer databases from the Software Delivery card to the MSC card.

Security Device

A Security Device is provided with each new Option 11C Mini system. The installer attaches the Security Device to the component side of the MSC card at the time of initial installation. The security device remains on the MSC card for the life of the system. The Security Device is used for system identification. This device allows the activation of features assigned to the system, through the use of a series of keycodes. The system uses keycodes for validation purposes.

Configuring data

The Option 11C Mini provides several options for making data configuration easier.

Preprogrammed data

When you first install an Option 11C Mini system, you must enter customer data into the overlay programs. Telephones, for example, must have features assigned to their keys, in order for them to function correctly. Data can be preprogrammed. If you load preprogrammed data during the installation process, the system automatically configures some overlay entries on the telephones.

If the preprogrammed data does not apply to users at one of the sites, you can revise the data on-site with a TTY. You can also revise the preprogrammed data remotely over a modem connection. If you wish, start with a basic configuration. A basic configuration is the least possible amount of data required for initial software programming. You must perform this step while you are working in the Software Installation Program.

Model telephones

There are many different preprogrammed model telephone layouts from which to choose. Technicians can perform some basic steps at installation to activate multiple telephones, using telephone layouts or templates.

Administration telephones

If you use default model layouts for telephones and trunk routes, use an administrative telephone to make adjustments to items such as numbering plans and access codes. You do not need a TTY input terminal for programming the Option 11C Mini unless you require a custom layout.

You can use the M2616 and M2008 digital telephones for administrative functions. The administrative telephone can double as a user's working telephone.

Set-Based Administration

The Set-Based Administration feature makes system installation and administration easier. With Set-Based Administration, you can use a telephone set to perform several administrative and maintenance procedures. Use the Set-Based Administration feature to perform tasks, such as changing data for specific features related to sets or changing Calling Party Name Display on a set.

For more information about Set-Based Administration, refer to the *Meridian 1 Set-Based Administration Guide* (553-3001-303).

Database Archive feature

The Software Installation program allows the archiving of various databases which can be used to load a customer site. This feature allows multiple databases to be configured in an off-site lab environment. The Database Archive feature also allows databases to be saved (archived) on a Software Delivery (PCMCIA) card until the databases are required. The database can be loaded into the customer's system using the Software Delivery card.

The off-site programming of databases is subject to all security keycode restrictions. The off-site system must either use the Security Device that will be installed in the Option 11C Mini at the customer site, or must have its own keycodes for the feature set.

Refer to *Option 11C Upgrade Procedures (Issue 5.00) (553-3021-250)* for additional information.

Supported applications

The Option 11C Mini supports Meridian 1 applications, including the following:

- Call Pilot
- Meridian Mail Enhanced Card Option
- Meridian Administration Tools (MAT)
- Meridian Mobility (CT2, CT2+, PCI, and DECT)
- Meridian Integrated RAN (MIRAN)
- Meridian Integrated Conference Bridge (MICB)
- Meridian Home Office
- Meridian Call Center
- Meridian MAX
- Meridian Link / CCR
- Symposium Call Center
- Symposium Call Center Express
- Symposium Desktop Applications

Meridian Administration Tools

The Option 11C Mini interfaces with Meridian Administration Tools (MAT) Release 6.5 and later. MAT is an integrated suite of system management tools. You can use MAT to configure, control, and manage your Option 11C Mini system. MAT operates on a platform that is compatible with a standard IBM PC.

Refer to the *MAT User Guides* for information about the MAT application, its requirements, and how it is installed for the Option 11C Mini system.

Meridian Mail Enhanced Card Option

The Option 11C Mini supports Meridian Mail Enhanced Card Option Release 12.13 and later. Meridian Mail Enhanced Card Option provides up to 12 voice mail ports on an Option 11C Mini system. This application supports all optional features and capacity expansion.

The NT6R16AA Meridian Mail Enhanced Card Option double-width card contains four physical voice ports. To increase the capacity to a maximum of 12 ports, add up to two Digital Signaling Processor (DSP) daughterboards to the card.

The NT6R16AA card contains a SCSI connector. Use the SCSI connector to connect an external tape drive.

For more information about Meridian Mail, refer to the *Meridian Mail Enhanced Card Option Installation and Maintenance Guide (555-7071-210).*

System specifications

Number of card slots

The NTDK91 Option 11C Mini Main Chassis can hold a maximum of five cards. Slot 0 is dedicated to the NTDK97 MSC card; the fourth slot is dedicated to the NTDK16 48-port Digital Line Card. Program the NTDK16 in software as slots 04, 05, and 06. Slots 1-3 support existing IPE and CE cards (for example, PRI, PRI2, DTI, DTI2, MISP, and SDI/DCH).

The Chassis Expander provides four card slots. The Chassis Expander supports Meridian Mail Enhanced Card Option in Slot 10 only. You can place any IPE card in slots 07, 08, 09, and 10. The CE-MUX bus extends to slot 10 for Meridian Mail only.

An Option 11C Mini system, including a Main Chassis and a Chassis Expander, supports eight physical and ten logical card slots.

The following is an example of a common Main Chassis configuration:

- one MSC card in slot 00
- one analog line card in slot 01, 02, or 03
- one digital trunk card in slot 01, 02, or 03

- one analog trunk card in slot 01, 02, or 03
- one NTDK16, 48-port Digital Line Card in Slot 04

The following is an example of a common Chassis Expander configuration:

- A line card in slots 07, 08, and 09
- Meridian Mail Enhanced Card Option in slot 10

Trunk capacity

It is difficult to quote system capacities, as every installation varies depending on end-user needs. In a moderate to busy work environment, however, a common ratio of users to trunks normally falls between four and six users to each trunk.

Software Generic

The Option 11C Mini supports X11 Release 24.24 and later software.

Conference channels

The MSC card supports 16 conference channels.

Power supply

The power supply units are installed inside the chassis before the system is sent to the customer. The power supply units require no installation by the customer. The power supply has the following AC power input:

- 200-240VAC, 2.3A, 50 Hz (Europe)
- 100-120VAC (approximately), 4.6A, 60 Hz (North America)

Note: The Option 11C Mini system does not support DC power input.

Backup / reserve power

You can configure reserve power using an Uninterruptible Power Supply (UPS). The UPS is not included with the Option 11C Mini system. The Option 11C Mini does not support battery backup.

Power failure transfer occurs when the main power to the Option 11C Mini is cut off. When this power interruption occurs, the Power Failure Transfer Unit (PFTU) connects pre-determined analog telephones directly to the Central Office (CO) trunks. The PFTU is capable of supporting a maximum of five or eight telephones, depending on the PFTU used.

Data backup and restore methods

The Option 11C Mini provides several methods of backing up customer-configured data. These methods are placed in one of the following categories:

- on-site backup
- remote backup over a modem connection

On-site backup

You can perform three different types of on-site backup using Overlay 143. You can backup customer data from the database in use to one of the following:

- Primary Flash Drive
- Backup Flash Drive
- external Software Delivery card (PCMCIA)

Remote backup

You can perform remote backup in Overlay 143, using the Customer Configuration Backup and Restore (CCBR) feature. The CCBR feature allows you to backup customer-configured data to an external IBM-type PC or a Macintosh computer over a modem connection. For more information about the remote backup feature, refer to the *Customer Configuration Backup and Restore Guide* (553-3011-330).

You can perform both the on-site and remote methods of backup during normal system operation.

Restoring data

If data becomes corrupt or inoperable, you can restore backup data to the main database and Primary Flash Drive from one of the following:

- External PCMCIA Drive
- Backup Flash Drive
- a computer over a modem connection

Repair facilities

The following are the addresses for global repair facilities for the Option 11C Mini:

Asia Pacific, Caribbean and Latin America, and North America

Nortel Networks
640 Massman Drive
Nashville, Tennessee
37210
USA

Europe

Nortel Networks (Ireland) Limited
Mervue Business Park
Mervue, Galway
Ireland

Chapter 2 — Identifying the Option 11C Mini equipment

This chapter describes the main components used to install the Option 11C Mini. This chapter also describes the differences between the Option 11C Mini and Option 11C systems.

Main components of the Option 11C Mini

NTDK91 Main Chassis
NTDK92 Chassis Expander

The Main Chassis for the Option 11C Mini system is the NTDK91. The NTDK92 is the Chassis Expander. You can connect the Main Chassis to the Chassis Expander to increase the line capacity of your system.

The Main Chassis supports the following:

- NTDK97 Mini System Controller (MSC) installed in Slot 0
- any IPE or CE card in Slots 1, 2, and 3
- a dedicated 48-port Digital Line Card (NTDK16) in Slot 4

The Chassis Expander supports the following:

- Meridian Mail Enhanced Card Option in Slot 10 only
- With Meridian Mail Enhanced Card Option in Slot 10, you can insert any IPE card in Slots 7, 8, and 9.

Chassis installation options

You can install the Main Chassis and Chassis Expander in the following positions:

- on a wall
  - — vertically on a wall
  - — horizontally on a wall
- in a rack/cabinet
- on a table

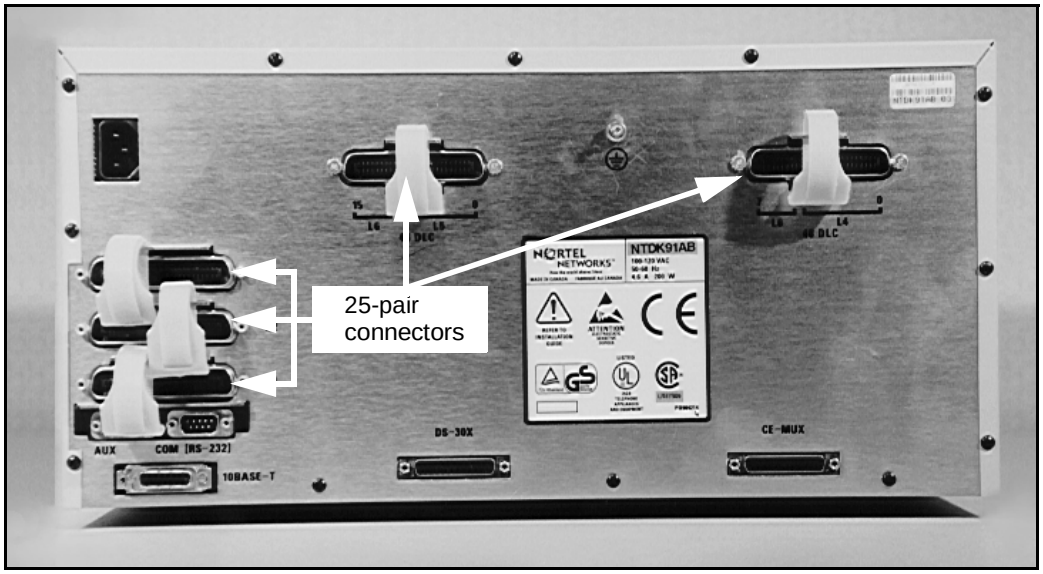
The following chassis installation kits are available:

- NTTK08AA: for vertical, wall installation
- NTTK09AA: for rack/cabinet installation
- NTTK10AA: for table-top installation
- NTTK11AA: for horizontal, wall installation

Cable connectors

25-pair cables connect cards to the cross-connect terminal. Connectors for these cables are located on the back of the Main Chassis and the Chassis Expander. See Figure 2 on page 13.

Figure 2
25-pair cable connectors on the back of the Main Chassis



The Auxiliary (AUX), Serial Data Interface (SDI), and Ethernet connectors are located at the back left-hand side of the Main Chassis. See Figure 3.

The AUX port connects auxiliary equipment, such as a Power Failure Transfer Unit (PFTU), to the Option 11C Mini. The SDI connector in the Main Chassis interfaces three SDI ports using a three-port SDI cable. The Ethernet connector in the Main Chassis provides a 10 Mbit Ethernet port. The Ethernet port accepts an industry-standard Medium Access Unit (MAU). Insert the Ethernet cable into this MAU.

The back of the Main Chassis also contains connectors for connecting the Main Chassis and the Chassis Expander. These connectors are for the DS-30X and CE-MUX connections. See Figure 3.

The power connector is located at the back of the chassis on the upper left-hand side. See Figure 3.

Figure 3
Connectors on the back of the Main Chassis

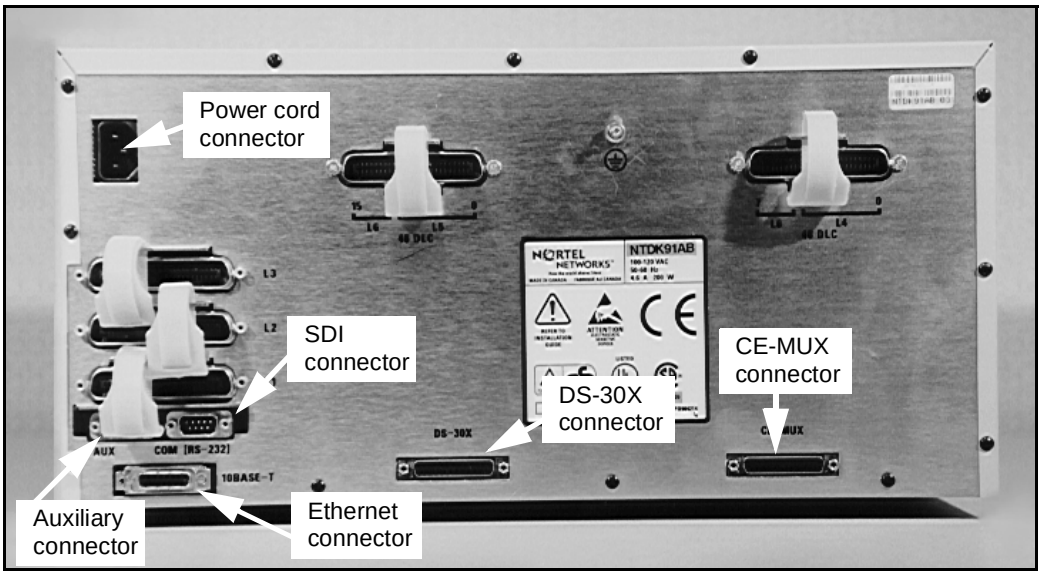
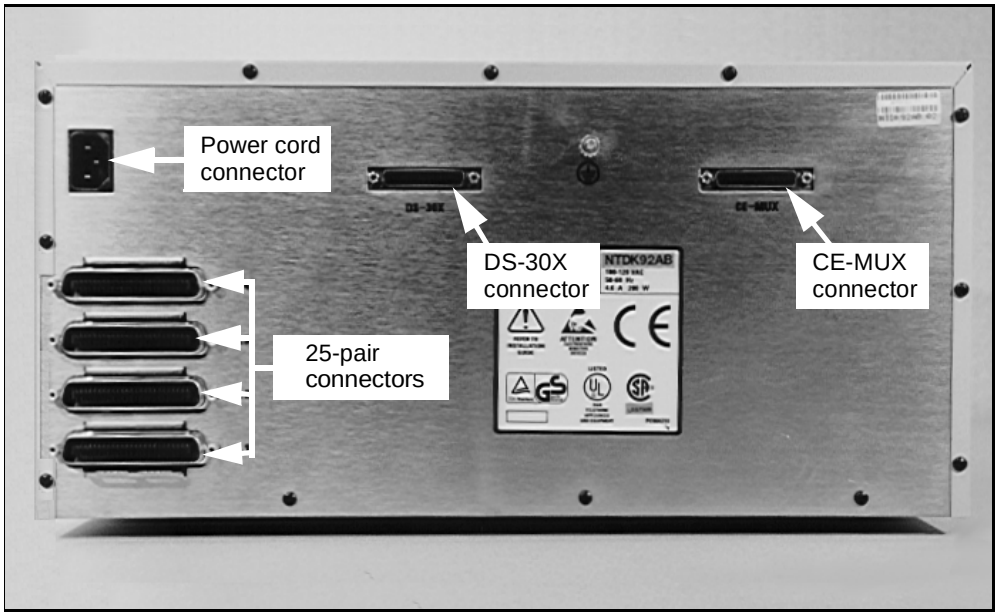


Figure 4 shows the connectors on the back of the Chassis Expander.

Figure 4
Connectors on the back of the Chassis Expander



Cooling

The NTDK91 Main Chassis and the NTDK92 Chassis Expander have forced air cooling. As a result, you can install the chassis in a horizontal or vertical position.

CAUTION
Do not block chassis ventilation.

Power supply

The Option 11C Mini power supply uses AC input. The power supply is installed in the chassis before it is shipped to the customer. The power supply is not customer replaceable. The Option 11C Mini system does not support DC input.

Reserve power supply

An Uninterruptible Power Supply (UPS) can provide a backup power supply for the NTDK91 and the NTDK92 chassis. A UPS provides a continuous AC power supply. Install the UPS unit according to the manufacturer's instructions. Worksheets to help determine the power draw for the UPS are included in the *Option 11C Technical Reference Guide* (553-3011-100)

Circuit cards

The Option 11C Mini introduces the NTDK97 Mini System Controller (MSC) card and the NTDK16 48-port Digital Line Card. This section provides a short overview of these two cards. For more information about these cards and the other circuit cards supported on the Option 11C Mini, refer to "Chapter 12 — Installing the circuit cards" on page 125.

NTDK97 Mini System Controller card

The NTDK97 Mini System Controller (MSC) card is based on the Option 11C NTDK20 Small System Controller (SSC) card. The MSC card includes a Central Processing Unit (CPU) which handles call processing for the system. The MSC card also includes an Ethernet controller, storage for system and customer data, and system memory.

The MSC card stores system and customer data. This card is preprogrammed with system software before it is shipped to the customer. Additional memory on the MSC card temporarily stores and processes automated routines and user-programmed commands. The MSC card also keeps a copy of customer files in the event of data loss on the Backup Flash Drive.

You must install the MSC card in Slot 00 of the Main Chassis.

Security Device

The MSC card is equipped with a socket. This socket holds the Security Device. The Security Device is shipped with each new Option 11C Mini system. When the MSC card is shipped, the Security Device is normally not attached to the socket on the MSC card. You must attach the Security Device to the MSC card during initial installation.

PCMCIA interface

The NTDK97 MSC card has a 2-slot PCMCIA interface socket located on its faceplate. You can insert a Software Delivery card into the socket. Use the Software Delivery card for software upgrades on an existing Option 11C Mini system. You can also use this socket for creating an external backup copy of the customer database.

NTDK16 48-port Digital Line Card

The NTDK16 48-port Digital Line Card provides an interface to a maximum of 48 digital integrated voice and data sets. The NTDK16 Digital Line Card is functionally equivalent to three NT8D02 Digital Line Cards.

CAUTION

Only install the NTDK16 48-port Digital Line Card in Slot 04 of the Main Chassis. If you install another card in Slot 04, system damage may result.

Telephones and Attendant Consoles

The following is a list of the telephones and Attendant Consoles supported by the Option 11C Mini:

- Analog (500/2500 type) telephones, with or without message waiting lamps
- Meridian Digital Telephones (M2006, M2008, M2009, M2018, M2112, M2216, M2616, and M3000)
- Meridian Digital Telephones (M3110, M3310, and M3820)

  Note: The M3110, M3310, and M3820 Meridian Digital Telephones are available in Europe only.

- Meridian Digital Telephones (M3901, M3902, M3903, M3904, and M3905)

  Note: Only the M3901 and the M3905 Meridian Digital Telephones are supported in Europe.

- M2616 or M2216 Central Answering Position (CAP). These telephones must have an ACD LCD display installed to function as a CAP telephone.
- Meridian 2250 (TCM) Attendant Consoles

Cables and wires

Table 1 lists the Option 11C Mini cable kits and their contents.

Table 1
Option 11C Mini cable kits

Cable or wire	Purpose/description
NTDK88 Main cable kit	
NTBK48 three-port SDI cable	The NTBK48 connects equipment, such as TTYs and modems to the Option 11C Mini.The NTBK48 is used with the NTDK97 MSC card.
NTAK1104 AUX cable	The NTAK1104 connects a PFTU to a system chassis.
A0601396 F-M DCE to DTE converter	The A0601396 may be required when connecting SDI ports to equipment, such as TTYs and modems.
A0601397 F-F DCE to DTE converter	The A0501397 may be required when connecting SDI ports to equipment such as TTYs and modems.
A037683	Ferrite filter
NTDK89 Chassis Expander cable kit	
NTDK95 CE-MUX/DS-30X bus cable	The NTDK95 connects the Main Chassis to the Chassis Expander. Two of these cables are required to connect the Main Chassis and the Chassis Expander. Length: 2 ft (610 mm)
NTTK15 cable kit for Australia/New Zealand	
A0386023 power cord for Australia and New Zealand	The A0386023 connects a system chassis to a 220 V AC commercial power source. Length: 8 ft (2438 mm)
A0376837	Ferrite filter
NTTK16 cable kit for Europe	
A0381307 power cord for Europe	The A0381307 connects a system chassis to a 220 V AC commercial power source. Length: 8 ft (2438 mm)
A0376837	Ferrite filter

Table 1
Option 11C Mini cable kits (Continued)

Cable or wire	Purpose/description
NTTK14 cable kit for North America	
A0317094 power cord	The A0317094 connects a system chassis to a 110 V AC commercial power source. Length: 9 ft 10 in. (3000 mm)
NTTK17 cable kit for Switzerland	
A0386024 power cord for Switzerland	The A0386024 connects a system chassis to a 220 V AC commercial power source Length: 8 ft (2438 mm)
A0376837	Ferrite filter
NTTK18 cable kit for the UK	
A0381306 power cord for the UK	The A0381306 connects a system chassis to a 220 V AC commercial power source. Length: 8 ft (2438 mm)

Table 2 lists miscellaneous cables and wires used with the Option 11C Mini.

Table 2
Option 11C Mini miscellaneous cables and wires

Cable and wire	Purpose / description
A0379411 power cord (International)	The A0379411 connects the chassis to a 220 V AC commercial power source Length: 8 ft. 2 in. (2492 mm)
NE-A25B 25-pair cable	The NE-A25B connects Peripheral Equipment cards to the cross-connect terminal. NE-A25B connectors are located on the back of each chassis.
NTAK19FA/FB cable	The NTAK19FA/FB is a four-port SDI cable used with the NTAK02 circuit card (see Note 1).
NTAK19EC cable	The NTAK19EC is a two-port SDI cable used with the NTAK03 circuit card.
NTAK1108/1118 9-to-25 pin RS232 converter cable	The NTAK1108/1118 connects SDI ports and terminals (see Note 1).
A0378652 F-F DCE to DTE converter, or A0381016 F-M DCE to DTE converter	The A0378652 connects SDI ports to equipment, such as TTYs and modems.

Table 2
Option 11C Mini miscellaneous cables and wires (Continued)

NTBK04 1.5 Mbit DTI/PRI carrier cable (A0394216)	The NTBK04 connects the NTAK09 1.5 Mbit DTI/PRI card to the Channel Service Unit (CSU). The NTBK04 carries Tx and Rx pairs to a standard 5-pin connector.
NTBK05AA/DA 2.0 Mbit DTI/PRI carrier cable A0394217	The NTBK05AA/DA carries Tx and Rx pairs to a standard 120-Ohm D-connector (see Note 1).
NT8D7205	DTI/PRI carrier cable
NTBK05CA coaxial cable NTBK05DA twisted pair cable NTAK10 2.0 Mbit DTI cable NTAK79 2.0 Mbit PRI cable NTAK50 2.0 Mbit PRI cable	These cables provide DTI/PRI connections. They carry Tx and Rx pairs to a standard 5-pin connector (see Note 2).
25-pair inside wiring cables equipped with amphenol-type connectors	25-pair inside wiring cables extend the Peripheral Equipment connections from the system chassis to the cross-connect terminal, and connect PFTUs.
#6 AWG (#40 Metric Wire Gauge) insulated ground wire	The #6 AWG (#40 Metric Wire Gauge) connects a system chassis to a building ground source.
10 mm^2 (#6 AWG) insulated ground wire (UK)	The 10 mm^2 (#6 AWG) insulated ground wire connects a system chassis to a building ground source.
#6 AWG (20 mm^2) insulated ground wire (Europe)	The #6 AWG (20 mm^2) insulated ground wire connects a chassis to a building ground source.
#8 AWG (10 mm^2) insulated ground wire (Germany)	The #8 AWG (10 mm^2) connects a chassis to a building ground source.
Cross-connecting wire	The cross-connecting wire makes cross connections at the cross-connect terminal.
Note 1: This cable is available in different versions, depending on local EMC specifications. ***Note 2:*** These cables are not supported under EMC specifications VL43.140P.	

Miscellaneous items for installation

The following is a list of miscellaneous items that can be used as part of Option 11C Mini system installation. Quantities needed depend on the site and customer requirements:

- QUA6 Power Failure Transfer Units (PFTU) to transfer lines during a power or system failure
- NTBK80 grounding bar
- modems or Data Communication Equipment (DCE) for remote access to the system
- on-site Data Terminating Equipment (DTE) or TTY terminal for accessing the system
- connecting blocks for the cross-connect terminal
- transformers and centralized power supplies for items such as digit displays on telephones
- optional equipment such as music sources, RAN machines, paging equipment, and CDR devices
- NTAK92 Off-Premise Protection Module for connecting up to four off-premise analog telephones
- additional Modem Eliminator (NULL Modem without hardware handshaking). The A0601397 converter may be required to interface the DTE to the system.
- industry-standard Ethernet Medium Access Unit (MAU)

Differences between Option 11C Mini and Option 11C

Refer to Table 3 for a comparison of the Option 11C Mini and Option 11C systems.

Table 3
Comparison of Option 11C Mini and Option 11C

Item	Option 11C Mini	Option 11C
Physical packaging	Main Chassis NTDK91 Chassis Expander NTDK92	Main cabinet NTAK11
	Two copper cables connect the Main Chassis to the Chassis Expander.	Fiber-optic cable connects the Main Cabinet to the Expansion Cabinet (upgraded systems may still have copper cable connection).
Capacity	Main Chassis: • 4 physical slots • logical slots (slots 1-6) Chassis Expander • 4 physical slots slots (slots 7-10)	Main Cabinet: • 10 physical slots (slots 1-10) Expansion Cabinet • Up to 4 additional NTAK11 cabinets can be connected with fiber-optic slots (slots 20-50)
	Supports up to 144 lines	Supports up to 700 lines
Chassis installation	Four chassis installation options: • vertically on a wall • horizontally on a wall • rack/cabinet • table	Two chassis installation options: • wall • floor
Cooling	Forced air cooling (Fan installed inside chassis)	convection cooling
Power	• AC power only • power supply installed in chassis before the chassis is sent to customer • not field replaceable • no power switch on chassis	• AC or DC power • NTDK78/NTDK75/ NTAK04/NTAK05 • field replaceable

Table 3
Comparison of Option 11C Mini and Option 11C (Continued)

Item	Option 11C Mini	Option 11C
Reserve power	UPS only	UPS and battery backup
Cables	New NTDK95 cable introduced (Two NTDK95 cables connect the Main Chassis to the Chassis Expander)	
	Auxiliary cable used only for PFTU.	Auxiliary cable used for PFTU or to provide power for Attendant Console.
Ethernet	• standard 15-pin AUI on chassis • NTDK27 ethernet adapter cable not required • no jumper settings required	• NTDK27 ethernet adapter cable required • May need to set J7 jumper
CPU	NTDK97 Mini System Controller (MSC) • PCMCIA interface • 3 SDI ports • 30 channels TDS • 8 units DTR or XTD • 4 units of MFC, MFE/MFK5/MFK6/MFR or 8 DTR/XTD units	NTDK20 Small System Controller (SSC) • PCMCIA interface • 3 SDI ports • 30 channels TDS • 8 units DTR or XTD • 4 units of MFC, MFE/MFK5/MFK6/MFR or 8 DTR/XTD units
	• Maximum 16 conference channels	• 32 channels on SSC • 16 channels per fiber-optic daughterboard

Table 3
Comparison of Option 11C Mini and Option 11C (Continued)

Item	Option 11C Mini	Option 11C
	• C: drive on NTDK97 is 8 Mbytes • Z: drive on NTDK97 is 1.5 Mbytes • NTDK97 program store is 32 Mbytes • DRAM on NTDK97 is 16 Mbytes	• C: drive on NTDK21/NTDK81 is 8 Mbytes • Z: drive on NTDK20 is 1.5 Mbytes • NTDK21 program store is 24 Mbytes • NTDK81 program store is 32 Mbytes • DRAM - 8 or 16 Mbytes SIMM
Daughterboards	None	• NTDK21/NTDK81 Software Daughterboard • NTDK22, NTDK24, NTDK79, NTDK84, and NTDK85, Fiber-optic Expansion Daughterboards
Software	X11 Release 24B and later	X11 Release 22 and later
Software Installation	Software is preprogrammed on MSC card.	Software is preprogrammed on Software Daughterboard.
	Option 11C Mini uses the same feature sets, ISM parameters, and keycode format as the Option 11C.	
Software upgrades	Software upgrades are performed using the same PCMCIA card as the Option 11C.	Software upgrades are performed using a PCMCIA card.
IPE and CE cards	The Option 11C Mini supports the same IPE and CE cards as the Option 11C The supported CE cards are: PRI, DTI, PRI2, DTI2, SDI/DCH, TDS/DTR, MISP	
	Only slots 1-3 in the Main Chassis support CE cards.	Only slots 1-9 in the Main Cabinet support CE cards.

Table 3
Comparison of Option 11C Mini and Option 11C (Continued)

Item	Option 11C Mini	Option 11C
48-port Digital Line Card	NTDK16 48-port DLC is unique to the Option 11C Mini • required in dedicated slot 4 of the Main Chassis • configured as slots 4, 5, and 6	NTDK16 not supported
Meridian Mail	Only slot 10 in the Chassis Expander supports Meridian Mail Enhanced Card Option.	Slot 10 in the Main Cabinet supports Meridian Mail Card Option and Meridian Mail Enhanced Card Option.

Chapter 3 — System and site requirements

Before you install the Option 11C Mini system, make sure that the site meets all environmental, grounding, power, and cross-connect terminal requirements.

Environmental requirements

The Meridian 1 Option 11C Mini system is designed to operate in an environment that meets the following general conditions:

- Make sure that the room is clean and well ventilated. Each chassis can dissipate up to 370 Watts of power. Equipment room ventilation must be sufficient, in order to maintain the temperature at an acceptable level.
- Maintain the temperature between 0° and 45° C (32° and 113° F) when the chassis are installed.
- Maintain the humidity between 5% and 95% non-condensing.
- Select a location for installing the equipment that is not subject to constant vibration.
- Locate the equipment at least 12 ft (3660 mm) away from sources of electrostatic, electromagnetic, or radio frequency interference. These sources can include:
  - — power tools
  - — appliances (such as vacuum cleaners)
  - — office business machines (such as copying machines)
  - — all electric motors
  - — electrical transformers

Earthquake bracing requirements for chassis installed on a wall in a vertical position

IMPORTANT

The following earthquake bracing guidelines comply with the requirements for the state of California specifications in the United States. Requirements may be different in other regions or countries.

CAUTION

To be braced against earthquakes, the Option 11C Mini chassis must be installed in a vertical wall-mount position.

Note: The earthquake bracing method for the Option 11C Mini does not guarantee that the system will continue to operate during or after an earthquake.

Install the chassis on a wall using a piece of 3/4 in. (20 mm) plywood as a backboard. Secure the plywood to the wall with a minimum of six fasteners. (Refer to Table 5 on page 29 for a description of the appropriate fasteners.)

Table 4 identifies the maximum acceptable wall height for different types of stud wall construction in areas prone to earthquakes.

Table 4
Minimum wall requirements – stud construction

Wall Studs	Spacing off center	Maximum Height of Wall
2 in. x 4 in. wooden studs	16 in. or 24 in.	10 ft
2 in. x 6 in. wooden studs	16 in. or 24 in.	16 ft
3 5/8 in. 20 gauge metal studs	16 in. or 24 in.	12 ft
3 5/8 in. 18 gauge metal studs	16 in. or 24 in.	16 ft

Table 5
Minimum fastener requirements

Type of wall	Fasteners	
Wooden studs	#10 wood screws	Embedded a minimum of 1 in. in wood studs
Metal studs	# 14 sheet metal screws	Embedded a minimum of 1 in. in metal studs
Concrete (2000 PSI)	1/4 in. HILTI KB-II	Embedded a minimum of 1 1/8 in.
Masonry	1/4 in. Ramset Redhead Dynabolt sleeve anchor	

Fasten the mounting bracket for each chassis to the piece of plywood with the five, 1 in. #14 screws supplied with the bracket.

"Chapter 8 — Installing a backboard for bracing chassis against earthquakes" on page 83 of this guide contains a detailed procedure for earthquake bracing.

Grounding requirements

WARNING

Failure to follow grounding recommendations can result in a system installation that is:

- unsafe for personnel working on, or using the equipment
- not properly protected from lightning or power transients
- subject to service interruptions

Grounding requirements

Before you install an Option 11C Mini and before you apply AC power, measure the impedance of the building ground reference. An ECOS 1023 POW-R-MATE or similar meter is acceptable for this purpose. If the ground path connected to the Option 11C Mini has an impedance of 5 Ohms or more, make better grounding arrangements. Make any improvements to the grounding system before you install the Option 11C Mini.

The following are additional grounding requirements:

CAUTION

Never connect the single point ground conductor from the Option 11C Mini system to structural steel members or electrical conduit. In particular, never tie this conductor to a ground source or grounded electrode that is not hard-wired to the building reference conductor.

- Ground conductors for the Option 11C Mini system:
  - — must not be smaller than #6 AWG (#40 metric) at any point (see Table 6 on page 31 for a list of grounding wire requirements specific to certain regions)
  - — must be routed through the same conduit as the phase conductors serving the system
  - — must not be smaller than any phase conductor in the same conduit
  - — do not carry current under normal operating conditions
- All ground conductors in the building:
  - — must be isolated from the neutral bus except at the service entrance to the building
  - — must be hardwired to the main ground reference
- Avoid spliced conductors. Continuous conductors have lower impedance and are more reliable than spliced conductors.

- All conductors must be terminated in a permanent way. Make sure all terminations are easily visible and available for maintenance purposes.
- Tag ground connections clearly with a message such as “CRITICAL CONNECTION: DO NOT REMOVE OR DISCONNECT”.

Table 6
Region-specific grounding wire requirements

Region	Grounding wire requirements
Germany	#8 AWG (10 mm^2) green/yellow wire
Other regions in Europe	not smaller than #6 AWG (16 mm^2) at any point
UK	two green/yellow wires no thinner than two 10 mm^2

CAUTION

When the Option 11C Mini is installed, the impedance of the link between the ground post of the Main Chassis and the single point ground to which it is connected must be less than 0.25 Ohms.

CAUTION

Reliable Option 11C Mini operation depends on high-precision internal circuitry, which can be damaged by transients in its supply conductors and ground system. Damage to sensitive devices, due to transients, is not always immediately apparent: degradation can occur over longer periods of time.

Ground bus isolation (Canada and the United States)

The exception to article 384-20 in the United States National Electrical Code (NEC) states that a panel's ground bus can be isolated from the housing, provided that the panel is not at the main service entrance. This applies to some Canadian locations also. For more information about ground bus isolation, refer to local electrical codes.

CAUTION

Do not isolate the ground bus from the housing unless permitted by local electrical codes. Do not perform work inside electrical panels unless you are a qualified electrician. Do not try to remove bonding conductors without approval from qualified personnel.

CAUTION

Route ground conductors, between supply panels, through the same conduit as the supply conductors. This is a safety requirement of both the National Electrical Code (NEC) and the Canadian Electrical Code (CEC).

Single Point Grounding (SPG)

Proper grounding of communications systems is essential for protecting equipment from the hazards of surge and noise interference. The single point grounding (SPG) method of protecting communication equipment is the Nortel Networks standard for Meridian 1 systems.

The requirement for Single Point Grounding is divided into the following major categories: Safety, Protection, EMC, Installation and Maintenance concerns, Power and Advancements in Technology.

Safety

In order to ensure a safe working environment for company personnel, the grounding system in the customers premises must be able to dissipate unwanted surge energies, such as lighting on the outside plant. The grounding system must be designed so that fuse or breakers operate to disrupt the excessive current flow caused by a power fault.

Protection

A proper ground is an essential component of the protection system for equipment. This includes grounding for outside plant cable shields and protectors, as well as the grounds associated with framework, battery, and logic references.

EMC

Grounding concerns with respect to Electromagnetic Compatibility (EMC), must be considered to ensure good emission and susceptibility performance of the equipment.

Installation and Maintenance

A grounding system is cost effective to install and maintain when it is part of the initial electrical installation for the customers premises. Attempts to correct violations of national codes after the initial installation are both difficult and costly.

Powering

The grounding system must consider the powering options for the equipment. The grounding system must consider whether the equipment is backed up with batteries or an Uninterruptible Power Supply (UPS). The grounding and powering of all equipment associated with the telecommunication system must be considered one large system. Installation must be carried out taking this into consideration.

Advancements in Technology

The component density on circuit packs continues to increase due to miniaturization and multi-layering of printed circuit boards. The operating speeds of the integrated circuits are ever increasing. The role of grounding in providing protection for these components cannot be overemphasized.

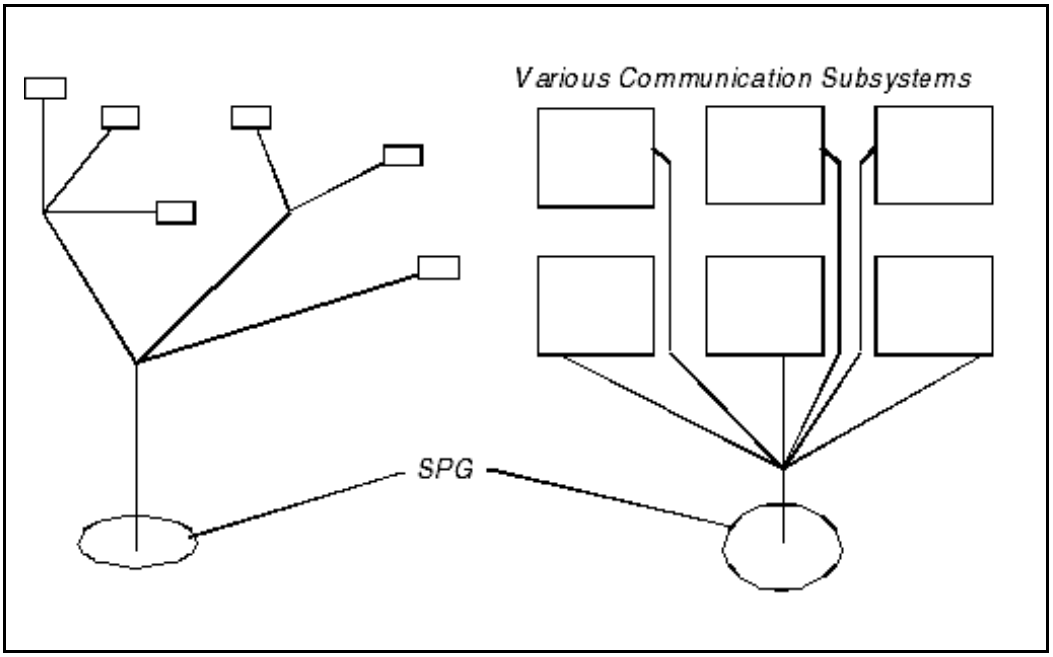
The SPG of a system is the point at which telecommunications equipment is bonded to the ground. Physically, the system SPG is usually implemented as a copper busbar.

Any of the following busbars can be used as system SPG:

- building principal ground, normally in single floor buildings
- floor ground bar, normally in multi-floor buildings
- dedicated SPG bar bonded to the building grounding system
- a section of the battery return bar of the power plant

Various subsystems, such as groups of frames or equipment, of a telecommunications system can be configured as separate single point ground entities connected in a star configuration to the system SPG.

Figure 5
Single point grounding



Grounding method

CAUTION

To prevent ground loops, power all chassis from the same dedicated power panel. Ground all chassis to the power panel through the grounding block.

The method of grounding used for the Option 11C Mini depends on whether all chassis are powered by the same service panel.

The following three grounding scenarios are possible:

1 A single-chassis system

2 A multiple-chassis system powered by the same service panel

3 A multiple-chassis system powered by different service panels

Single-chassis system or chassis powered by one service panel

For each system chassis, a #6 AWG (#40 Metric Wire Gauge) ground wire is connected from the chassis to the NTBK80 grounding block. See Table 6 on page 31 for region-specific grounding wire requirements. The grounding block is connected to a ground source (the ground bus in the AC power service panel) and the Chassis Expander.

Chassis powered by different service panels

For each system chassis, a #6 AWG (#40 Metric Wire Gauge) ground wire is connected from the chassis to the NTBK80 grounding block. See Table 6 on page 31 for region-specific grounding wire requirements. If any chassis cannot be powered from the same service panel, ground it separately from the others back to the service panel that supplies it.

Note 1: A separately grounded chassis is grounded the same as a single-chassis system.

Note 2: In the UK, the grounding wire can be connected from the chassis to an NTBK80 grounding block or through a Krone Test Jack Frame.

Grounding multiple pieces of equipment in a rack/cabinet

You must ground each piece of equipment in a rack/cabinet. If a piece of equipment does not have a ground lug, then ground the whole rack/cabinet.

Conduit requirements

Conductive conduit linking panels and equipment are legal for use as a grounding network in most countries. For all Option 11C Mini system ground paths, use the correct size of insulated copper conductors routed inside conduit when possible. A ground link that depends on conduit can compromise or defeat the improvements made by installing dedicated panels and transformers. The following are the reasons why:

- Conduit links can be separated by personnel servicing unrelated equipment. If such a separation occurs between the Option 11C Mini system and the building ground reference, the conduit cannot provide a ground path. This situation is hazardous.
- Metallic conduit tends to corrode, particularly at threaded connections. Corrosion increases resistance significantly. This problem is compounded when multiple links are involved. If you apply paint over the conduit, the corrosion process may accelerate.
- Conduit must be fastened to secure surfaces. Often, conduit is bolted to structural steel members, which can function as ground conductors to noisy equipment, such as compressors and motors. The coupling of these noisy signals into the Option 11C Mini grounding system can impair its performance. The resulting intermittent malfunctions can be difficult to trace.

Lightning protection

Refer to “Lightning protection” on page 409 for UK-specific lightning protection requirements.

Refer to “Lightning protection” on page 414 for Germany-specific lightning protection requirements.

Commercial power requirements

The Option 11C Mini system is available with AC-power only.

The optimal installation of an AC-powered Option 11C Mini system includes a direct connection to the electrical system in the building, provided certain requirements are met. Refer to AC-powered installation later in this chapter for detailed information.

You can use an approved isolation transformer for AC-powered systems when meeting the optimum requirements is not possible or is too expensive. See “Alternative AC-powered installation” on page 40.

AC power installation for systems installed on a wall or table

Use a dedicated AC service panel with the Option 11C Mini system. Do not connect equipment unrelated to the Option 11C Mini to this panel. Keep all lighting, fans, motors, air conditioning equipment, and the like, as “electrically separate” from the Option 11C Mini system as possible.

AC power installation for systems installed in a rack/cabinet

If other data communications equipment is in the same rack/cabinet as the Option 11C Mini, it is recommended that each piece of equipment be powered from an isolated ground outlet. All outlets must be serviced from the same service panel.

Power from each outlet must meet the input requirements of at least one Option 11C Mini power supply as listed in Tables 7 through 9. Please check power requirements for other system equipment and install additional outlets if required.

Table 7
AC input requirements for each NTDK91AB and NTDK92AB

Voltage	Recommended: 100-120 volts Maximum limits: 90 and 132 volts Single phase
Frequency	50-60 Hz
Power (I/P max)	550 VA maximum
Outlet Type	120 volt, 15 Amp supply

Table 8
AC input requirements for each NTDK91AA and NTDK92AA (Europe and UK)

Voltage	Recommended: 208/220 volts Maximum limits: 180 and 250 volts Single phase
Frequency	50-60 Hz
Power (I/P max)	550 VA maximum
Outlet Type	208/240 volt, 15 Amp supply
Note 1: As local power specifications can vary, consult with a qualified local electrician when planning your power requirements. ***Note 2:*** The Supplied power must be single-phase 240 or three-phase 208 Y, and must have a system ground conductor.	

Table 9
AC input requirements for each NTDK91AA and NTDK92AA (Germany)

Voltage	Recommended: 230 volts Maximum limits: 180 and 250 volts Single phase
Frequency	50 Hz
Power (I/P max)	550 VA maximum
Fuse	16A
Outlet Type	Receptacles by DIN regulation

Site requirements

The following is a list of required site features for an optimal Option 11C Mini AC-powered system installation.

If the conditions below cannot be provided with a dedicated panel, use an Isolation Transformer, as described under the heading "Alternative AC-powered installation" on page 40.

- **Dedicated circuit breaker panel**

  A dedicated circuit breaker panel provides power only to the Option 11C Mini system and its related hardware, such as TTYs and printers

  Note: You can not always power a complete system from a single circuit-breaker panel. For example, when chassis are located remotely.

- **Insulated copper ground conductor**

  Insulated copper ground conductor connects the ground bus in the dedicated panel to the main service panel ground or building ground reference. The insulated copper ground conductor must be routed through the same conduit as the supply conductors that feed the panel.

- **Isolated-ground receptacles**

  All outlets connected to the dedicated panel must be of the isolated ground type. Use a separate circuit for each device connected to the panel. Outlets that serve the chassis must be close enough so that the power cord can reach the chassis power supply.

  For systems that have a Chassis Expander, a separate outlet for each chassis must be provided. Each outlet must be from separate circuits in the same panel.

- **Isolated ground bus in the electrical panel, where permitted by local codes**

Location of power outlets

The maximum distance between a power outlet and the system chassis depends on the length of the power cord. In North America, the power cord is 9 ft 10 in. (3000 mm). In countries outside North America, the power cord is 8 ft 2 in. (2490 mm).

Alternative AC-powered installation

If optimal conditions cannot be provided with a dedicated panel, use an Isolation Transformer with the following characteristics:

- 120/208/240 VAC input, over-current protected at primary
- 120/208/240 VAC available at secondary outputs, each circuit breaker-protected
- Primary and secondary windings must be completely isolated from one another
- Certified for use locally as a stand alone user product (CSA, UL, or other locally recognized clear markings)
- Capable of providing power to all Option 11C Mini system equipment operating simultaneously at full load
- Equipment unrelated to the Option 11C Mini system must not be powered from a transformer that serves the Option 11C Mini system.

Uninterruptible Power Supply

For backup AC power, an Uninterruptable Power Supply (UPS) can be used to feed the Option 11C Mini. The power requirement for a UPS is 550 VA per system. Install the UPS according to the manufacturer's instructions.

Isolation transformer ground

The transformer ground must have the following characteristics:

- Separate grounds for primary and secondary windings rather than common ground
- A "clean" and permanent SPG reference at the transformer secondary for the Option 11C Mini system

Make sure that the ground conductors inside the transformer are sized correctly.

Receptacles

Receptacle requirements are as follows:

- When installed on the wall, receptacles must be installed within reach of the chassis power cords.
- All receptacles served by the secondary must be of the isolated ground type
- The ground prong of each outlet must be connected by an insulated conductor to the system SPG.

If the transformer has an isolated secondary ground lug, use it as the SPG. If it does not, use the chassis ground of the transformer as the Single Point Ground.

Installing an Isolation Transformer

Transformers with pluggable power cords:

1 Connect the power cords of all Option 11C Mini system equipment to the outlets on the transformer secondary.

2 Secure an insulated conductor between the ground lug on the main chassis of the Option 11C Mini and the SPG lug on the transformer. Place a "DO NOT DISCONNECT" tag on it.

Do not fasten or tie this conductor to the power cable feeding the Option 11C Mini.

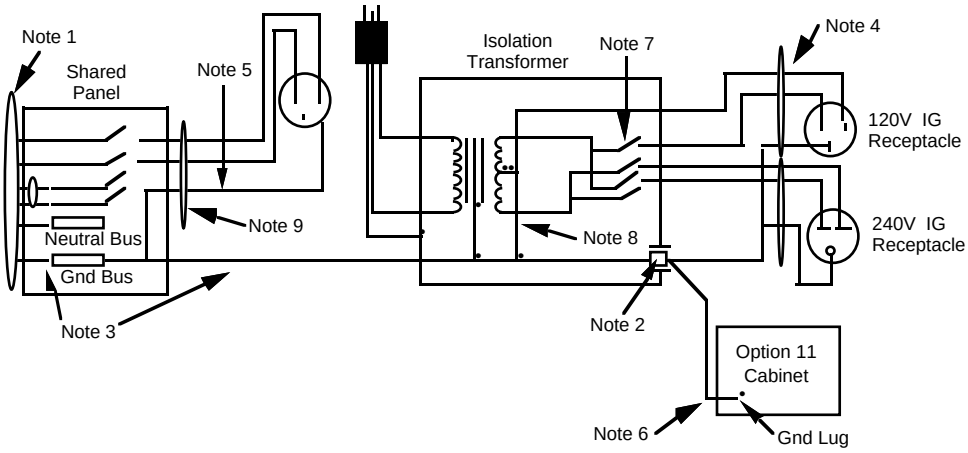
Note: Power all equipment related with the Option 11C Mini from the secondary of the transformer only. Ground all equipment to the secondary isolated ground lug. Do not connect equipment unrelated to the Option 11C Mini system to the isolation transformer that powers it.

Power the transformer primary through a dedicated circuit. If the primary has a pluggable cord, make an additional ground connection between the Option 11C Mini SPG and a known building ground reference. This connection is vital for safe and reliable operation.

CAUTION

Do not connect any Option 11C system ground lines to structural steel or water pipes, or other unreliable ground paths. Use a ground point known to be "clean" and permanent. Place a "DO NOT DISCONNECT" tag on it. Figure 6 on page 43 shows the pluggable cord connections.

Figure 6
Typical pluggable cord Isolation Transformer wiring plan



Notes:

1 Power source is site dependent. It may be from a shared panel or transformer. Wiring may vary accordingly. Wiring to panel must be housed in conduit.

2 Make SPG at the transformer secondary. If the transformer secondary has no isolated secondary ground lug, make SPG by tieing all system ground lines to the chassis lug on the transformer case. An insulated ground connection must be made between the SPG and a known building ground reference, as per Note 3.

3 Terminate the option 11 SPG insulated ground conductor as near as possible to the main building ground reference. Isolate the ground bus from panel housing if permitted by local codes. Conductor should be minimum AWG #6 (metric #40) at all points.

4 Wiring to receptacles must be in conduit unless they are mounted on the transformer case.

5 Connection may be made by metallic conduit. Additional copper conductor recommended.

6 Minimum AWG #6 (metric #40) insulated copper conductor connected to FGND lug on the Option 11 cabinet. Route separately from AC power cable.

7 Separate breaker required for each Option 11 cabinet. Breakers must be mounted on transformer if the receptacles are. If they are in a panel served by the transformer secondary, all connections between the receptacles and transformer must be in conduit.

8 Connect secondary neutral (X0) to system SPG.

9 Conduit required.

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Transformers without pluggable power cords

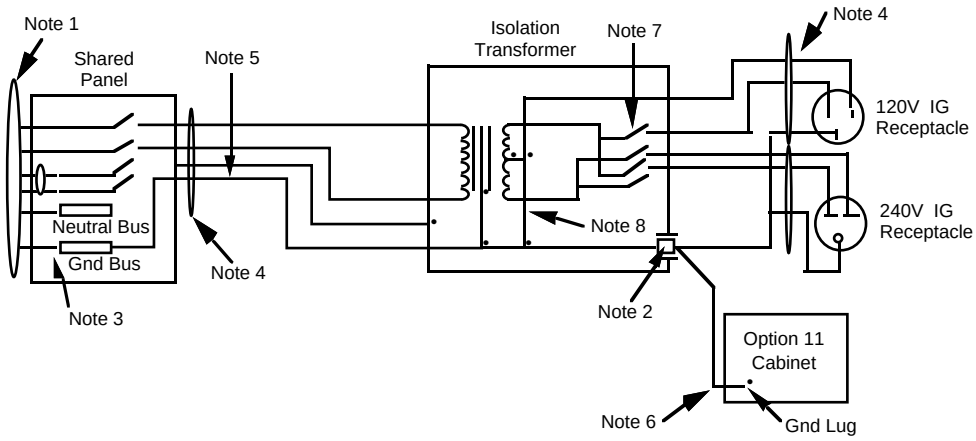
If the transformer does not have a pluggable cord, hardwire the transformer to an electrical panel. Route all wires (including grounds) through a single conduit.

Some electrical codes permit the use of conduit as the only ground conductor between pieces of equipment.

Run a separate insulated ground conductor through the conduit to bond chassis grounds together. Such a conductor maintains the safety ground connection in the event that the conduit becomes corroded or disconnected.

Run all ground lines through the same conduit as the phase conductors that serve the equipment. Figure 7 on page 45 shows the Isolation transformer connections.

Figure 7
Typical hardwired Isolation Transformer wiring plan



Notes:

1 Power source is site dependent. It may be from a shared panel or transformer. Wiring may vary accordingly. Wiring to panel must be housed in conduit.

2 Make SPG at the transformer secondary. If the transformer secondary has no isolated secondary ground lug, make SPG by tieing all system ground lines to the chassis lug on the transformer case. An insulated ground connection must be made between the SPG and a known building ground reference, as per Note 3.

3 Terminate the option 11 SPG insulated ground conductor as near as possible to the main building ground reference. Isolate the ground bus from panel housing if permitted by local codes. Conductor should be minimum AWG #6 (metric #40) at all points.

4 Transformer primary wires must be in conduit. Wiring to receptacles must be in conduit unless they are mounted on the transformer case.

5 Connection may be made by metallic conduit. Additional copper conductor recommended.

6 Minimum AWG #6 (metric #40) insulated copper conductor connected to FGND lug on the Option 11 cabinet. Route separately from AC power cable.

7 Separate breaker required for each Option 11 cabinet. Breakers must be mounted on transformer if the receptacles are. If they are in a panel served by the transformer secondary, all connections between the receptacles and transformer must be in conduit.

8 Connect secondary neutral (X0) to system SPG.

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Auxiliary equipment power

Terminals, printers, modems, and other data units used with the Option 11C Mini require special wiring considerations.

Power for system equipment in the switch room must:

- be powered from the same panel or transformer as the Option 11C Mini
- be grounded to the same panel or transformer as the Option 11C Mini
- be tagged at the panel to prevent interruption that is not authorized
- not be controlled by a switch between the breaker and the equipment

Service receptacles for Option 11C Mini AC systems and related equipment must be:

- of the isolated ground type, such as NEMA IG5-15
- rated for 120 or 240 V, 15 or 20A, 50-60 Hz, 3-pole, 3-wire, grounded
- grounded to the same location so as to form a Single Point Ground

Modem requirements

Equip the system with a modem to allow remote access. You can find set-up information for modems recommended for use with the Option 11C Mini system in “Modem setup requirements” on page 252.

> ***Note:*** In the UK, British Telecom RACE modems require a Modem Eliminator (NULL Modem without hardware handshaking) A0378652 F-F converter or A0381016 M-F converter.

With or without Meridian Mail

The minimum requirement is a 1200 bps auto-answer modem.

If an error-correcting modem is connected to the Meridian 1 Option 11C Mini system, all flow-control and error-correcting functionality of the modem must be disabled to ensure proper operation. Refer to the modem manufacturer’s instructions for information.

Maintenance and administration terminals

Refer to "Terminal setup" on page 261 for set-up information for Option 11C Mini recommended terminals.

A Modem Eliminator (NULL Modem without hardware handshaking) A0601397 F-F converter or A0601396 M-F may be required to interface the TTY to the system.

The following describes the minimum requirements for a TTY device:

Without Meridian Mail

The minimum requirement is a VT100 compatible device when Meridian Mail is not installed, and will not be installed in the future.

With Meridian Mail

With Meridian Mail, use a VT220 compatible device.

On-site access

Equip each system with an M2616 or M2008 telephone with display. These telephones act as maintenance telephones.

You can use many different TTY terminals to access the Option 11C Mini. However, a VT220 terminal is recommended as an on-site terminal. You can use this terminal to perform service changes, maintenance and diagnostic functions, and Meridian Mail administration activities.

Remote access

Although you can use several types of modems to access the system, a 2400 baud auto-answer modem is the recommended modem. A 1200 baud modem is the minimum requirement. You can use the modem to perform service changes, maintenance and diagnostic functions, and Meridian Mail administration activities from a remote location.

> ***Note:*** You can perform additional maintenance functions through remote access on the Option 11C Mini. For additional information, refer to the *Customer Configuration Backup and Restore Guide (*553-3011-330).

Meridian Administration Tools

The Option 11C Mini supports the Meridian Administration Tools (MAT) application. For information about MAT requirements and installing MAT for the Option 11C Mini, refer to the *MAT User Guides*.

Cross-connect terminal requirements

Allow for future expansion and equipment changes at the cross-connect terminal.

The cross-connect terminal must have enough space for connecting blocks to terminate the following wires:

- five 25-pair cables from each Main Chassis
- four 25-pair cables from the Chassis Expander
- four conductors for the AUX cable from the Main Chassis
- one 25-pair cable from each QUA6 PFTU
- wiring from telephone sets and trunks

The BIX cross-connect system is recommended for use with the Option 11C Mini system. However, use of this system is not mandatory. You can use other similar cross-connect systems (for example, the Krone Test Jack Frame for the UK and the Reichle Masari cross-connect terminal for Germany).

Only allow authorized personnel to access the Krone Test Jack Frame. Install the Krone Test Jack Frame in a locked room or an environment that prevents free access to the equipment. If the Krone Test Jack Frame does not meet this safety requirement, it will not receive approval.

You can find information about the BIX cross-connect system in the following documents:

- *BIX In-Building Cross-Connect System Material Description* (631-4511-100)
- *BIX In-Building Cross-Connect System Material Installation and Servicing* (631-4511-200)

Refer to “Chapter 13 — Installing and connecting the cross-connect terminal” on page 229 for additional information about the BIX, Krone Test Jack Frame, and Reichle Masari cross-connect terminals.

Chapter 4 — Creating an equipment layout plan and a card slot assignment plan

Take some time to plan the installation of the Option 11C Mini. Planning helps to make sure that the system performs correctly. Develop an equipment layout plan to determine where you will position each system component.

Give consideration to the lengths of the different cables, so that you make the best use of available space. Refer to “Table 1 lists the Option 11C Mini cable kits and their contents.” on page 18 of this guide for a description of Option 11C Mini cable and wire specifications.

Preparation of the site according to the plan is very important. Make sure that the site is ready to accept the equipment and that items, such as power outlets and backboards, are correctly installed.

Equipment layout plan

General layout guidelines

CAUTION

Make sure that the mounting surface can support at least 100 lb (45 kg).

The following are the installation options for the Option 11C Mini chassis:

- wall installation

  - — vertically on a wall
  - — horizontally on a wall
- in a rack/cabinet
- on a table

Each Option 11C Mini chassis measures 8.4 in. (213 mm) high by 17.2 in. (437 mm) wide by 12.8 in. (325 mm) deep.

Equipment layout plan for installing the chassis on a wall horizontally and vertically

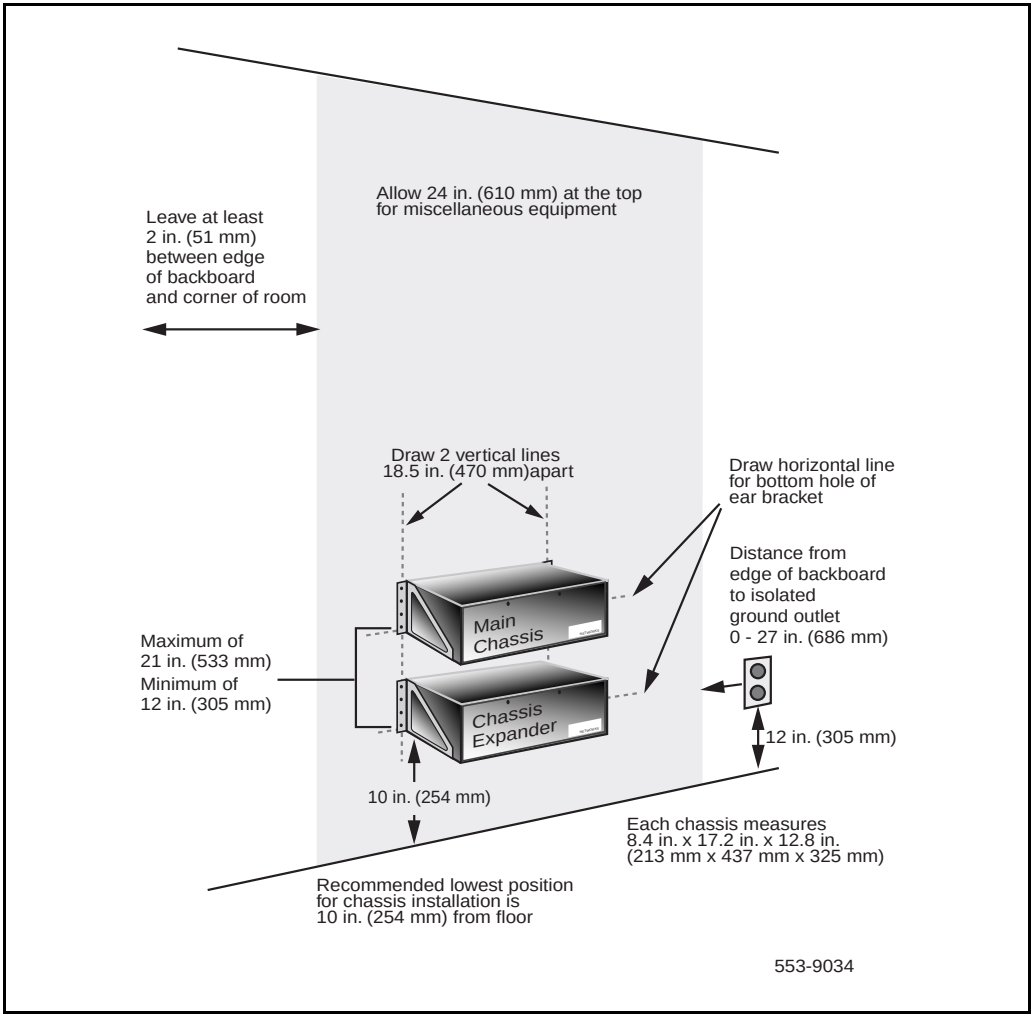
Figure 8 on page 53 shows a typical wall layout, using BIX cross-connect equipment, for installing the chassis on a wall in a horizontal position. Figure 9 on page 54 shows a typical wall layout, using BIX cross-connect equipment, for installing the chassis on a wall in a vertical position. Use of other types of terminal blocks and equipment can change the layout. As a result, if required, adjust the height at which you place the chassis in relation to other equipment. If required, also adjust the distances between the power outlets and the backboard.

Use the following guidelines to position the system equipment on a wall.

- It is recommended that you fasten a 3/4 in. (20 mm) plywood (or other similar material) backboard to the surface of the wall. Fasten the Option 11C Mini equipment to this backboard.
- When planning for a system with DTI/PRI capability, allow space on the backboard for the channel service unit (CSU).
- Leave at least 6 in. (155 mm) above the mounting bracket and any obstruction (such as a pipe or conduit) so that there is room to lift the chassis on and off the bracket.
- Leave at least 12 in. (305 mm) between the top of a chassis and the ceiling to make sure that there is enough ventilation for the system.
- Leave 10 in. (255 mm) between the bottom of the lower chassis and the floor to prevent water damage.
- If you use the NTAK92 Off-premises protection module, allow for proper installation (according to local practices).

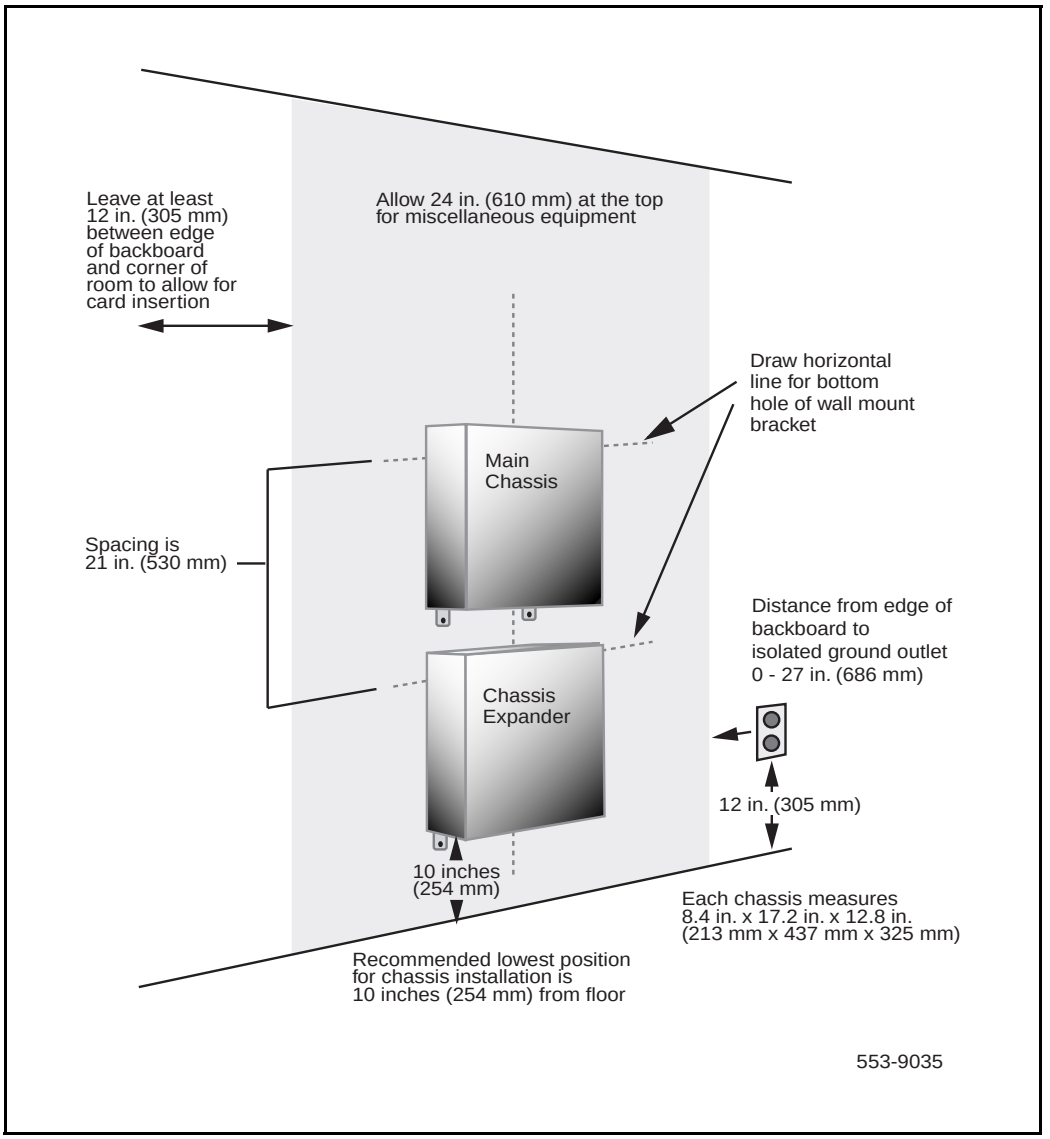
- Make sure power outlets are within reach of each system chassis. See Table 1 on page 18 for cable and wire specifications.

Figure 8
Typical layout for a installing the chassis on a wall in a horizontal position



Note: Leave wall space for the cross-connect terminal.

Figure 9
Typical layout for installing the chassis on a wall in a vertical position



Note: Leave wall space for the cross-connect terminal.

Equipment layout plan for installing the chassis on a table

To install an Option 11C Mini on a table, the available table-top space must be large enough to hold the Main Chassis and Chassis Expander. See Figure 10.

Note 1: If you are installing only a Main Chassis now, leave enough space for additional chassis to avoid problems in the future.

Note 2: You can place the Main Chassis directly on top of the Chassis Expander.

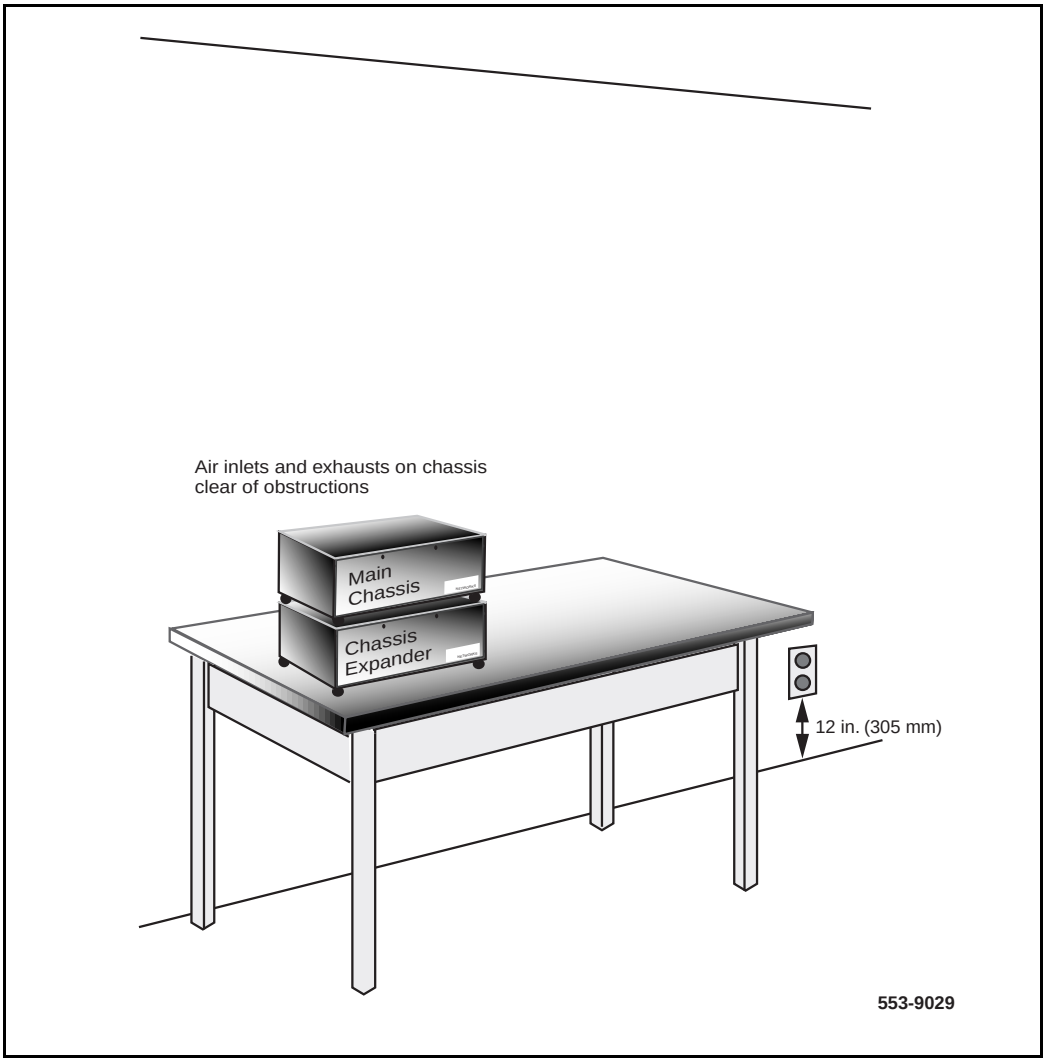
Wall space must be available for the cross-connect terminal, the cross-connect cables, and any miscellaneous equipment (such as a power supply for digit displays on telephones).

CAUTION

Leave at least 12 in. (305 mm) of space between the top of the chassis and any obstruction (such as a shelf) to permit enough air circulation.

Do not place the chassis on the floor, as dust can enter the system. This results in damage to the system.

Figure 10
Typical layout for installing the chassis on a table



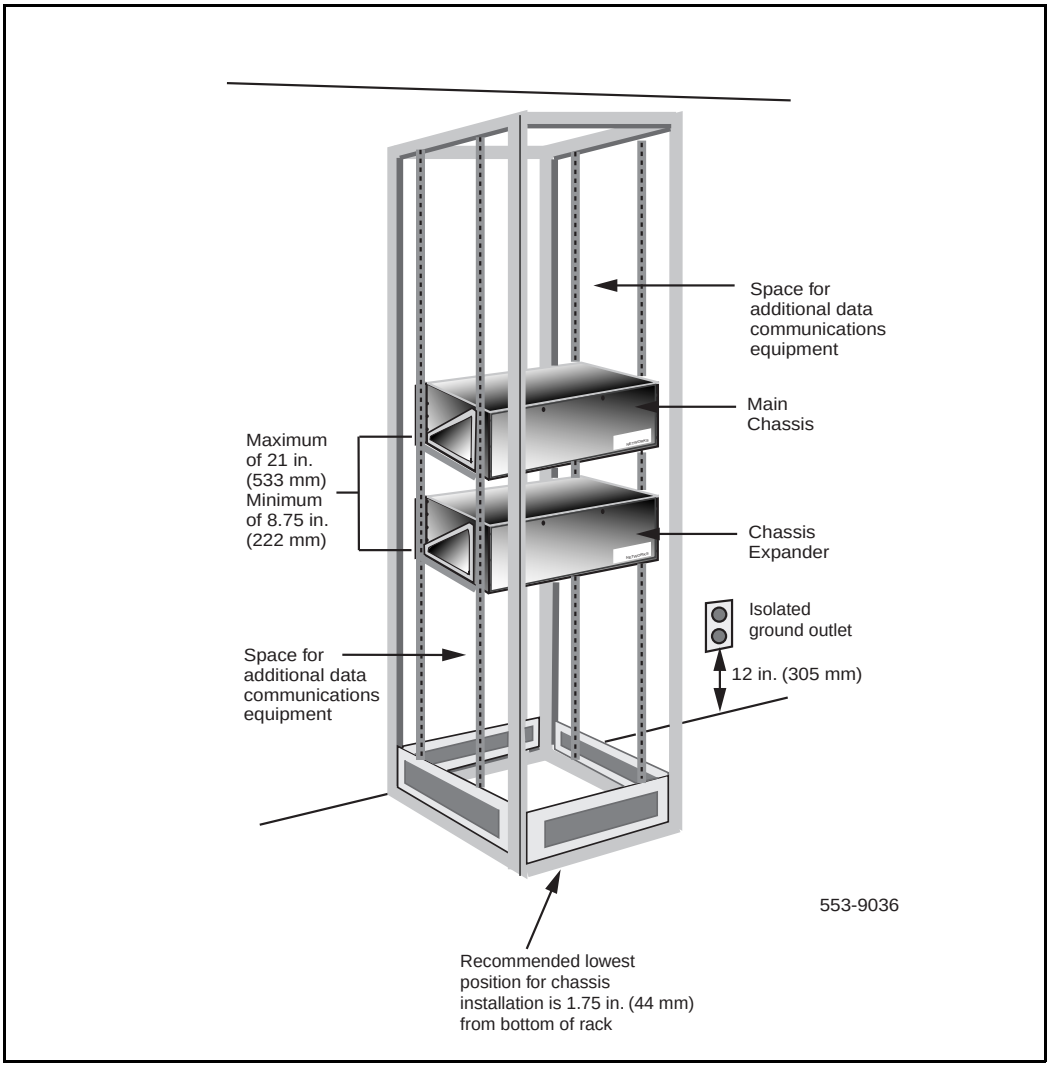
Note: Leave wall space for the cross-connect terminal.

Equipment layout plan for installing the chassis in a rack/cabinet

You can install the Main Chassis and Chassis Expander in a 19 inch rack/cabinet. There is also space in the rack/cabinet for additional pieces of Data Communications Equipment. In a rack/cabinet configuration, the lowest recommended installation position for the chassis is 1.75 inches (44 mm) from the floor. See Figure 11.

Note: The 19 inch rack/cabinet is not included with the Option 11C Mini system.

Figure 11
Typical layout for installing the chassis in a rack/cabinet



Note: Leave wall space for the cross-connect terminal.

Card slot assignments

Prepare a card slot assignment plan in advance. The card slot allocation plan shows circuit card to slot assignments. See the most current Option 11C Mini product bulletins for minimum version requirements.

Note: You must insert the NTDK97 MSC card in Slot 0 of the Main Chassis. The MSC card does not support any optional daughterboards.

CAUTION

Only install the NTDK16 48-port Digital Line Card in Slot 4 of the Main Chassis. Do not install another card in Slot 4, as system damage will result.

You can install the following cards in slots 1, 2, and 3 of the Main Chassis:

- NTAK09
- NTAK10
- NTBK50
- NTAK79
- NTBK22
- NT6D70 (when used as a clock controller)
- NTRB21

The NTAK09 supports the following optional daughterboards,

- the NTAK20 Clock Controller
- the NTAK93 D-channel Interface
- the NTBK51 DDCH Daughterboard

The NTBK50 supports the following optional daughterboards:

- NTAK20 Clock Controller
- NTBK51 DDCH daughterboard or the NTAK93 D-channel Interface

To prepare a plan for card slot assignment, write the total number of circuit cards required for the installation in Table 10.

Table 10
Card slot assignment plan

Card	Card slot	Number of cards
Used only in the Main Chassis		
NTDK97 MSC	00 only	1
NTDK16 48-port DLC	04 only	1
NTAK02 SDI/DCH		
NTAK03 TDS/DTR		
NTAK09 1.5 Mbit DTI/PRI		
NTRB21 1.5 Mbit DTI/PRI		
NTAK10 2.0 Mbit DTI		
NTAK79 2.0 Mbit PRI		
NTBK50 2.0 Mbit PRI		
NT5K20 Tone Detector		
NT5K48 Tone Detector		
NTBK22 MISP		
NT6D70 SILC		
Used only in the Chassis Expander		
NT6R16 Meridian Mail Enhanced Card Option	10 only	
Used in the Main Chassis and the Chassis Expander		
NT8D02 Digital Line Card		
NT8D03 Analog line card		
NT8D09 Message Waiting		

Table 10
Card slot assignment plan (Continued)

Card	Card slot	Number of cards
NT8D14 Universal Trunk		
NT8D16 Digitone Receiver		
NT8D15 E&M Trunk		
NT7D16 Data Access		
NT6D70 SILC (See Note 1)		
NT6D71 UILC		
NT5K02 XFALC		
NT5K18 XFCOT		
NT5K17 XDDI		
NT5K19 XFEM		
NT5K36 XDID/DOD		
NT5K21 XMFC/MFE		
NTAG26 XMFR		

Note 1: Install the NT6D70 SILC card in the Main Chassis (Slots 1, 2, or 3) if it is used as a clock controller.

CAUTION

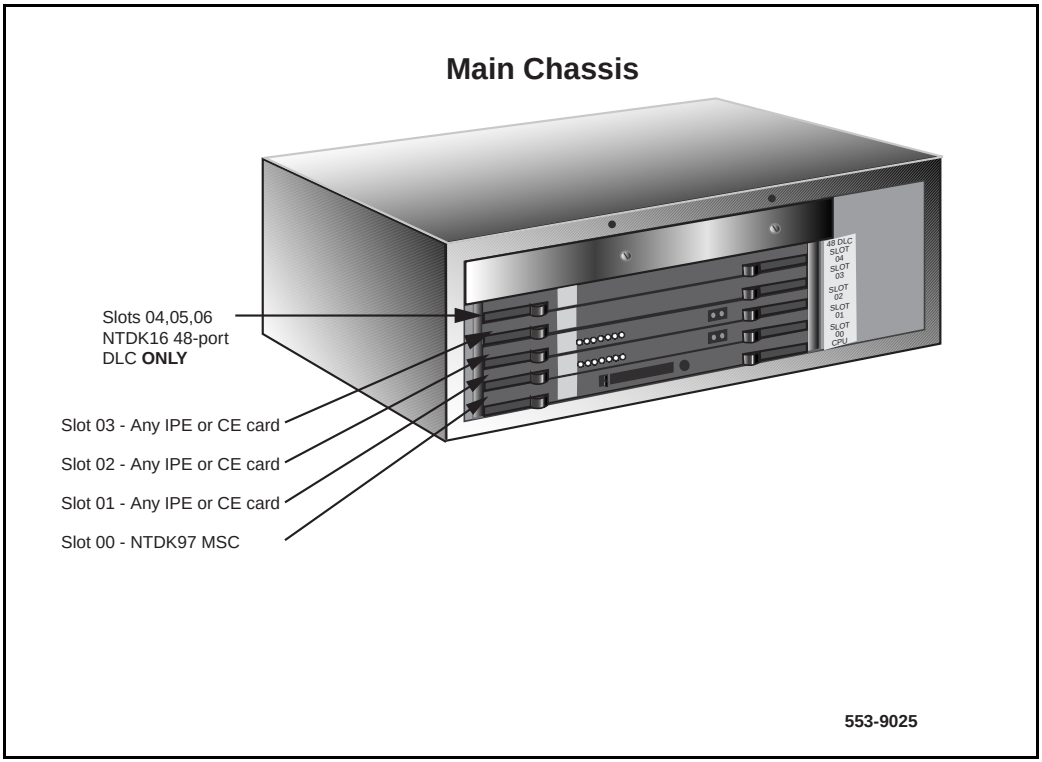
If you use NE-A25B cables instead of NTAK19AA and NTAK19BA cables with the NTAK02 and NTAK03 cards, continue with caution. NE-A25B cables are not wired out to station equipment or trunk circuits. NE-A25B cables can only be wired out to SDI circuits.

Make sure to first allocate the cards that you must install in the Main Chassis. Fill the remaining card slots as required.

If you plan on using the preassigned numbering plan with consecutive numbers, make sure you assign all line cards in consecutive card slots.

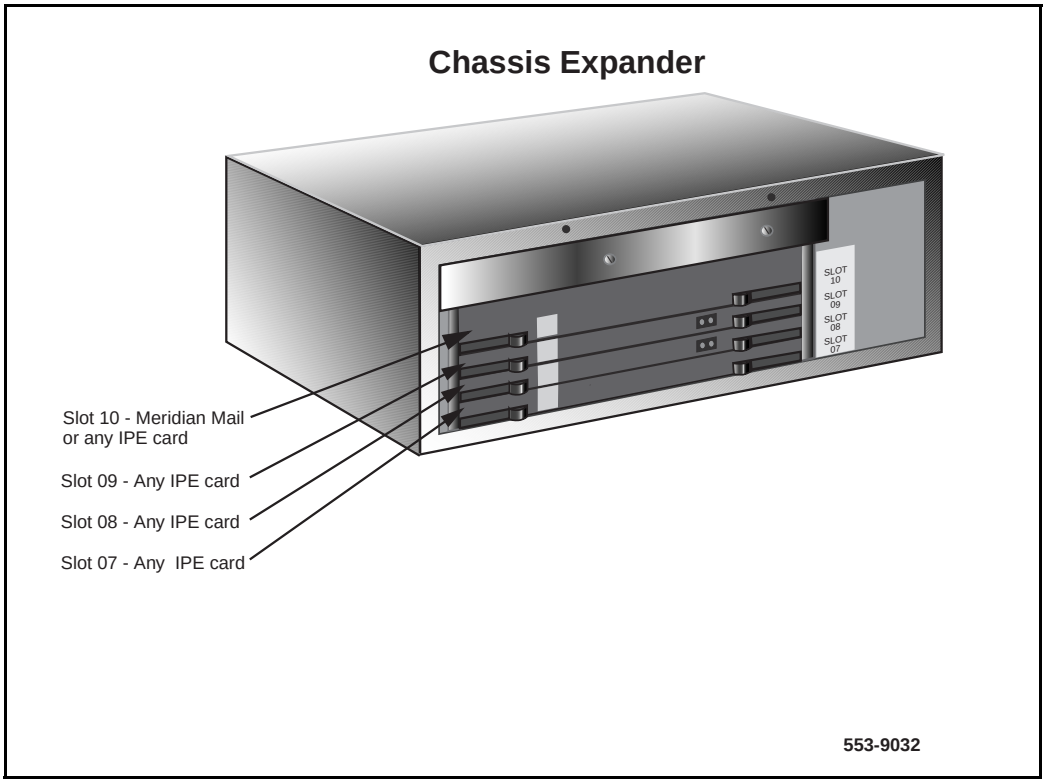
See Figures 12 and 13 for the card slot assignments in the Main Chassis and Chassis Expander.

Figure 12
Card slot assignments for the Main Chassis



Note: Refer to Table 10 on page 60 for a list of cards that you can insert in the Main Chassis.

Figure 13
Card slot assignments for the Chassis Expander



Note: Refer to Table 10 on page 60 for a list of cards that you can insert in the Chassis Expander.

Chapter 5 — Regulatory information

This chapter includes regulatory information for American, Canadian, and International installations of the Option 11C Mini. This chapter also provides other information related to the Option 11C Mini system installation.

Refer to “Appendix A – General information for the United Kingdom” on page 347 for additional regulatory information for the UK. Refer to “Appendix B – Additional information for installations in Germany” on page 411 for additional regulatory information for Germany.

Notice for United States installations

The Option 11C Mini system complies with Part 68 of the FCC rules. A label containing the FCC registration number and Ringer Equivalence Number (REN) for this equipment is on the back of each system chassis. If requested, you must provide this information to the telephone company.

Importance of Ringer Equivalence Number

The FCC regulation label includes the Ringer Equivalence Number (REN). This number represents the electrical load that will be applied to your telephone line after the PBX is plugged into the wall jack. The telephone line serving your premises will not operate correctly if the total ringer load exceeds the capability of the telephone company’s Central Office (CO) equipment. That is, if too many ringers are connected to the line, there may not be enough energy to ring your system. If the ringer load is excessive, you may also have problems dialing telephone numbers.

For more information about the total REN permitted for your telephone line, contact your local telephone company. However, as a guideline, a total REN of five should allow normal operation of your equipment.

If your Meridian 1 Option 11C Mini equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. The telephone company may ask you to disconnect the equipment from the network until the problem is corrected, or you are sure that the equipment is working correctly. If it is possible,the telephone company will notify you in advance of the pending disconnection. You will be advised of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be given advance notice so as to provide you with the opportunity to maintain uninterrupted service.

If you experience trouble with your Meridian 1 Option 11C Mini equipment, contact your authorized distributor or service center in the United States for repair or warranty information.

Hearing aid compatibility

All proprietary telephones used with the Meridian 1 Option 11C Mini meet with the requirements of FCC Part 68 Rule 68.316 for hearing aid compatibility.

Notice for Canadian installations

Industry Canada - previously called the Canadian Department of Communications - label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee that the equipment will operate to the user's satisfaction.

The Load Number (LN) assigned to each terminal device is the percentage of the total load that can be connected to a telephone loop using the device. This number prevents overloading. The termination on a loop can consist of any combination of devices, provided that the total of the Load Numbers does not exceed 100. An alphabetical suffix is also specified in the Load Number for the appropriate ringing type (A or B), if applicable. For example, LN = 20 A designates a Load Number of 20 and an "A" type ringer.

Before installing any equipment, users must make sure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment must be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or modifications made by the user to this equipment, or equipment malfunctions, may give the telephone company cause to request the user to disconnect the equipment.

Users must make sure, for their protection, that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution is particularly important in rural areas.

CAUTION

The Option 11C Mini frame ground of each system chassis must be tied to a reliable building ground reference.

WARNING

Do not make electrical ground connections yourself. Contact your local electrical inspection authority or electrician.

Canada and United States Network connections

Give the information contained in Table 11 on page 69 to the local telephone company when ordering standard network interface jacks for the Option 11C Mini system.

Note: Table 8 includes columns for system port identification, Facility Interface Code (FIC), Service Order Code (SOC), USOC jack identification, and the related Nortel Networks equipment part numbers.

FCC compliance: registered equipment for Direct Inward Dial (DID) calls

Equipment registered for Direct Inward Dial (DID) calls must provide proper answer supervision. Failure to meet this requirement is a violation of part 68 of the FCC's rules.

Proper answer supervision is defined as follows:

- DID equipment returns answer supervision to the Central Office when DID calls are:
  - — answered by the called station
  - — answered by the attendant
  - — routed to a recorded announcement that can be administered by the CPE user
  - — routed to a dial prompt.
- DID equipment returns answer supervision on all DID calls forwarded to the Central Office. Acceptable exceptions are if:
  - — a call is not answered
  - — a busy tone is received
  - — a reorder tone is received.

Table 11
Network connection specifications

Ports MTS/WATS	Facility Interface Code	Service Order Code	REN	Network Jacks	Manufacturer network interface port designation
2-Wire, LSA, L-S (2-Wire, Local Switched Access, Loop-Start)	02LS2	9.0F	1.1B	RJ21X CA21X*	NT8D14
2-Wire, LSA, G-S (2-Wire, Local Switched Access, Ground-Start)	02GS2	9.0F	1.1B	RJ21X CA21X*	NT8D14
2-Wire, LSA, R-B (2-Wire, Local Switched Access, Reverse-Battery)	02RV2-T	9.0F	0.0B	RJ21X CA21X*	NT8D14
1.544 Mbps OSI, SF	04DV9-B	6.0P	N/A	RJ48 CA48*	NTAK09
1.544 Mbps OSI, SF	04Dv9-C	6.0P	N/A	RJ48 CA48*	NTAK09
Analog PL facilities					
E&M Tie Trunk (TIE line, lossless, 2-wire type 1 E&M)	TL11M	9.0F	N/A	RJ2EX CA2EX*	NT8D15
E&M 4-Wire DRTT (TIE line, lossless, dial repeating, 2-wire type 1 E&M)	TL31M	9.0F	N/A	RJ2GX CA2GX*	NT8D15
E&M 4-Wire DRTT (TIE line, lossless, dial repeating, 2-wire type 2 E&M)	TL32M	9.0F	N/A	RJ2HX CA2HX*	NT8D15

* RJ with CA for Canada

Notice for international installations

If there is not enough planning or technical information available for your country of operation, contact your regional telecommunications distributor or authority for help.

Radio and TV interference

Information for the United States

The Option 11C Mini complies with Part 15 of the FCC rules in the United States. Operation is subject to the following two conditions:

- The Option 11C Mini must not cause harmful interference.
- The Option 11C Mini must accept any interference received, including interference that may cause undesirable operation.

If the Option 11C Mini causes interference to radio or television reception, try to correct the interference using the following measures. You can determine if there is interference by placing a telephone call while monitoring.

- Reorient the receiving TV or radio antenna where this may be done safely.
- To the extent possible, move the receiver with respect to the telephone equipment.

If necessary, consult with the dealer or an qualified radio or television technician for additional information. You may also find the document “How to Identify and Resolve Radio-TV Interference”, prepared by the Federal Communications Commission, helpful. This document is available from:

U.S. Government Printing Office
Washington DC 20402

Information for Canada

The Option 11C Mini system does not exceed Class A limits for radio noise emissions from digital apparatus, as set out in the radio interference regulations of Industry Canada.

Chapter 6 — Getting started installing the Option 11C Mini

This chapter contains tools and readiness checklists. Before beginning the installation, make sure you have all the tools necessary to install the Option 11C Mini. Make sure you have checked all site requirements, received all equipment, and have prepared an equipment layout plan and a card slot assignment plan

This chapter also provides a high-level summary of installation procedures for the Option 11C Mini. Where applicable, the summary contains references to the chapter that describes the procedure in more detail.

Tools checklist

To install the system correctly, make sure that the following tools are available before you begin to assemble the components:

- ☐ different types of screwdrivers
- ☐ a tape measure
- ☐ a level
- ☐ pliers such as side cutters and longnose pliers
- ☐ an ECOS 1023 POW-R-MATE or similar type test meter
- ☐ appropriate cable terminating tools
- ☐ a drill for drilling lead holes for screws

Readiness checklist

Have you:

- ☐ read all ***safety instructions*** in "Chapter 7 — Important safety instructions" on page 79?
- ☐ Made sure that you received all the equipment that you ordered?
- ☐ made sure your area meets all environmental requirements?
- ☐ checked for all power requirements?
- ☐ checked for proper grounding facilities?
- ☐ developed an equipment layout plan for the system? See "Equipment layout plan" on page 51.
- ☐ completed the card slot assignment plan? See "Card slot assignments" on page 59.
- ☐ assembled all the tools required to proceed with the installation?

If you have completed all of the above items, you are ready to start the installation of the Option 11C Mini system.

Summary of installation procedures

The following list provides a summary of the Option 11C Mini installation procedures. Refer to the chapters indicated at the end of each step for important and detailed information related to installation.

1 Read the safety instructions in "Chapter 7 — Important safety instructions" on page 79.

2 Make sure that you have read and completed the instructions contained in the Planning section of this guide.

3 Make sure that system and site requirements have been met. See "Chapter 3 — System and site requirements" on page 27.

4 Make sure that you have created the equipment layout plan and card slot assignment plan. See "Chapter 4 — Creating an equipment layout plan and a card slot assignment plan" on page 51.

5 Locate the carton containing the Main Chassis and the Chassis Expander that you will install at this site.

6 Install the Main Chassis. See “Chapter 9 — Installing the chassis” on page 93.

7 Install the Chassis Expander. See “Chapter 10 — Connecting the Chassis Expander to the Main Chassis” on page 113. You can skip this step if your system only has one chassis.

8 Install the chassis ground wire for the Main Chassis and Chassis Expander at this site. See “Chapter 11 – Installing the system ground” on page 117.

9 If you require a UPS, install the UPS according to manufacturer’s instructions.

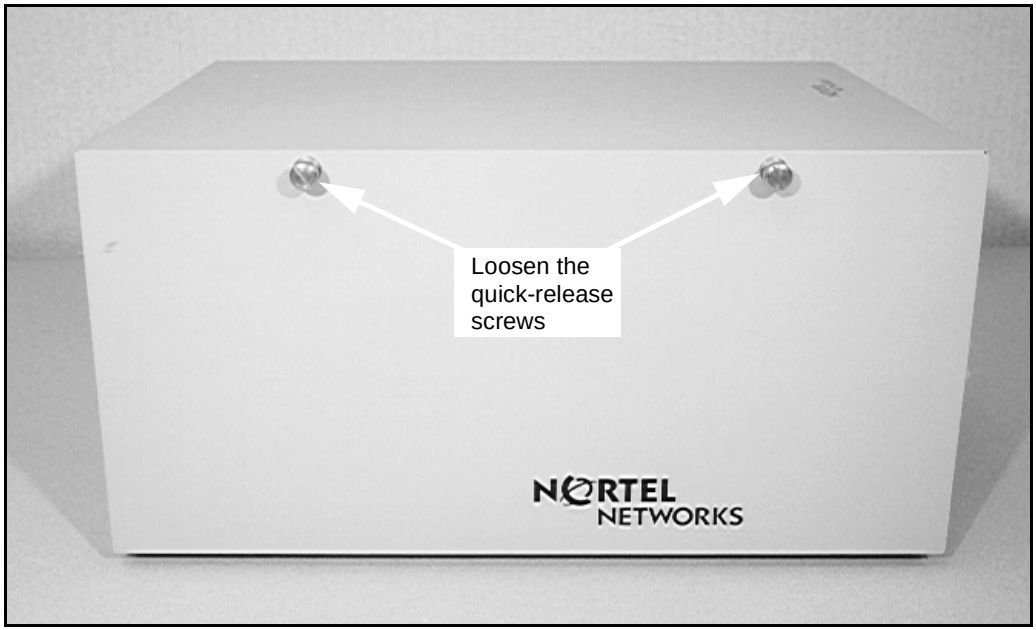
10 If you have not already done so, remove the faceplate of the chassis.

a Loosen the quick-release screws on the faceplate of the chassis. See Figure 14.

b Lift the faceplate up.

c Remove the faceplate.

Figure 14
Faceplate on the Option 11C Mini chassis



11 Install the Mini System Controller (MSC) card in CPU slot 00 of the Main Chassis. See "NTDK97 Mini System Controller (MSC) card" on page 129.

12 Install the 48-port Digital Line Card in Slot 04 of the Main Chassis. Refer to "NTDK16 48-port Digital Line Card" on page 133.

13 Install the other circuit cards that you wish to have in your Option 11C Mini system. Refer to your card slot assignment plan and "Chapter 12 — Installing the circuit cards" on page 125.

14 Install the cross-connect terminal. "Chapter 13 — Installing and connecting the cross-connect terminal" on page 229.

15 Install the cables from the chassis to the cross-connect terminal. See "Chapter 13 — Installing and connecting the cross-connect terminal" on page 229.

16 Install the PFTUs, if provided. See “Chapter 14 — Installing Power Failure Transfer Units” on page 245.

17 Connect the SDI port cable at the back of the chassis. If Ethernet is required, insert an industry-standard Medium Access Unit (MAU) directly into the Ethernet connector at the back of the chassis. The Option 11C Mini system does not include the MAU. Insert the Ethernet cable into this MAU. See “Chapter 15 — Installing and connecting SDI and ethernet ports” on page 251.

18 Connect the system to an AC power source. Make sure that the source matches the label on the back of the chassis.

19 Start and test system. See “Starting the Option 11C Mini” on page 269.

20 Install the system software. See “Installing software in a new system” on page 275.

21 Connect the M2616 or the M2008 administration and maintenance telephone with display. See “Chapter 17 — Connecting the telephones” on page 289.

22 Install, if you have not already installed, and activate the telephones. See “Chapter 17 — Connecting the telephones” on page 289.

23 Connect the trunks to the system. See “Chapter 18 — Connecting the trunks” on page 313.

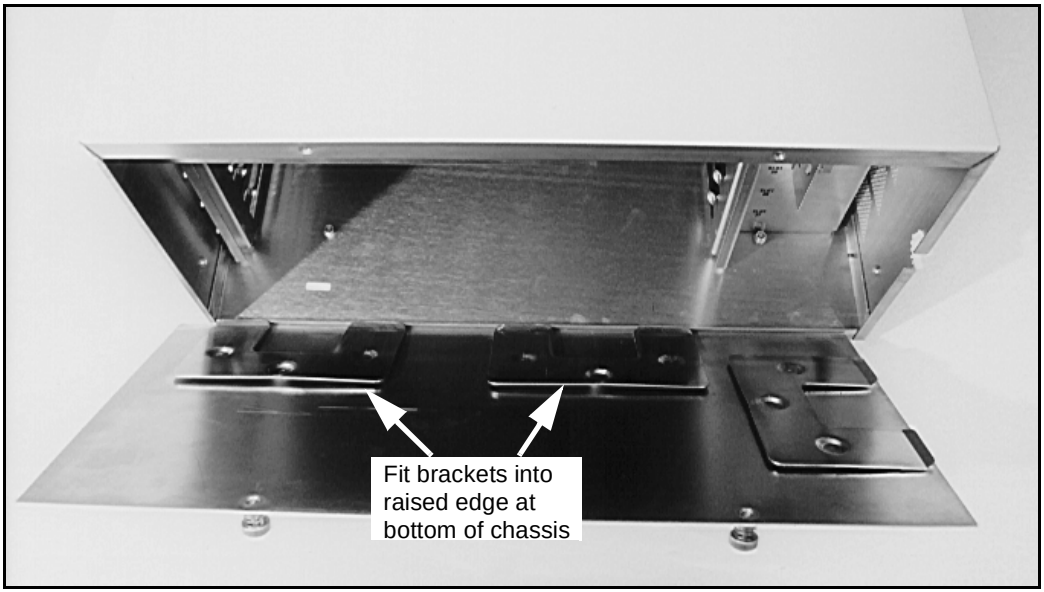
24 Perform a system backup using Overlay 43.

25 Install any remaining equipment. See “Chapter 19 — Connecting an external alarm” on page 341.

26 Replace the faceplate.

a Fit the brackets at the bottom of the faceplate into the raised edge at the bottom of the chassis. See Figure 15.

Figure 15
The brackets on the bottom of the faceplate fit into the raised edge on the bottom of the chassis



b Move the faceplate slightly to the left. See Figure 16.

Figure 16
The faceplate moved slightly to the left

c Push the faceplate down. See Figure 17.

Figure 17
The faceplate pushed down

d Slide the faceplate to the right. Fit the quick-release screws into the two holes at the top of the chassis.

e Tighten the quick-release screws.

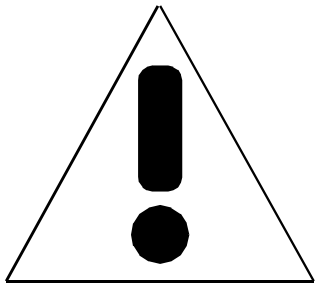
Chapter 7 — Important safety instructions

SAVE THESE INSTRUCTIONS

This chapter provides important safety information for installing and using your telephone equipment. Make sure you have quick access to this chapter, so that you can use it as a reference tool.

Symbols you must recognize

When you see the symbol shown below on Option 11C Mini equipment or documentation, look for important operating and maintenance instructions.



Safety instructions when installing telephone equipment

The following are safety instructions for installing telephone equipment:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Safety instructions when using telephone equipment

Always follow basic safety precautions when using telephone equipment. Following these safety precautions reduces the risk of fire, electric shock, and injury to persons, including the following:

- Follow all warnings and instructions marked on the product.
- Before you clean a telephone, remove the plug from the wall outlet. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use the telephone near water (for example, near a bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool).
- Do not place the telephone on a table, cart, or stand that is not stable. The product may fall, causing serious damage to the product.
- Slots and openings in the cabinet and the back or bottom of the telephone are for ventilation. These ventilation slots protect the telephone from overheating. Never block or cover these openings.

  Never block the openings on a telephone by placing the product on a bed, sofa, rug, or other similar surface. Never place the product near or over a radiator or heat register. Do not place the product in a built-in installation, unless proper ventilation is provided.
- Only operate the product from the type of power source indicated on the marking label. If you are not sure of the type of power supply, check with your distributor.

- Some equipment has a three-wire grounding type plug. This type of plug has a third grounding pin. As a safety feature, the plug only fits into an isolated ground outlet. If you cannot insert the plug completely into the outlet, contact your electrician to replace the outlet. Do not defeat the purpose of the grounding-type plug.

  Some equipment has a polarized line plug. This type of plug has one blade wider than the other. As a safety feature, this plug fits into the power outlet one way only. If you cannot insert the plug completely into the outlet, try reversing the plug. If the plug still does not fit, contact your electrician to replace the plug. Do not defeat the purpose of the polarized plug.

- Do not place objects on the power cord. Do not locate the product where persons can walk on the plug.
- Do not overload wall outlets and extension cords, as fire or electrical shock can result.
- Never push objects of any kind into the product through the cabinet slots. The objects may come in contact with dangerous voltage points. Also, parts may short out, resulting in the risk of fire or electrical shock. Never spill liquid of any kind on to the product.
- To reduce the risk of electrical shock, do not disassemble a telephone product.
- Remove the telephone plug from the wall outlet and refer servicing to qualified personnel under the following conditions:
  - When the power supply cord or plug is damaged or worn
  - If liquid has spilled into the telephone
  - If the telephone has been exposed to rain or water
  - If the telephone has been dropped or the cabinet has been damaged
  - If the product shows a distinct change in performance
  - If the telephone does not function properly under normal operating conditions

- Avoid using a telephone (except a type without a cord) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the area of the leak.

Chapter 8 — Installing a backboard for bracing chassis against earthquakes

This chapter provides the recommended installation method for bracing the Option 11C Mini system against earthquakes. This method does not guarantee that the system will continue to operate during or after an earthquake.

CAUTION

In order to be braced against earthquakes, you must install the Option 11C Mini chassis in on a wall in a vertical position.

Method for earthquake bracing

To earthquake brace your Option 11C Mini system, securely fasten a 3/4 in. (20 mm) piece of plywood to the wall. Then, place the system components on the backboard. Do not attach the system components directly to the wall.

Procedure 1
Earthquake bracing method

1 Determine the size of the backboard.

You need a backboard that is large enough to hold all of the components that you will install on the wall. To determine the backboard size, refer to the wall plan that you developed using the guidelines in “Earthquake bracing requirements for chassis installed on a wall in a vertical position” on page 28. If you have not developed a wall plan, please develop one immediately.

When you have determined the required backboard size, make sure the measurements are within the limits listed in Table 12.

Table 12
Backboard size limits

	Backboard size
Minimum	2 ft by 6 ft (600 mm by 1800 mm)
Maximum	4 ft by 8 ft (1200 mm by 2400 mm)

2 Determine fastener requirements

You need the following information to determine fastener requirements:

- What fasteners you must use.
- How deeply you must embed the fasteners into the wall.
- The vertical distance between fasteners.
- The horizontal distance between fasteners.
  For wood and metal stud walls, determine this spacing by the spacing between wall studs. Wall stud spacing must be within the range listed in Table 13.

Table 13
Stud spacing

	Stud spacing
Minimum	16 in. (400 mm)
Maximum	24 in. (600 mm)

- The required wall stud sizes for wood and metal stud walls

Table 14 provides the hardware recommendations for earthquake bracing.

Table 14
Hardware recommendations

Type of wall	Fastener	Vertical spacing between fasteners	Minimum depth fasteners must be embedded in the wall
Wood stud	#10 Wood Screws	12 in. (300 mm) on center	1 in. (25 mm)
Metal stud	#14 Sheet Metal Screws	12 in. (300 mm) on center	
Concrete	1/4 in. (6 mm) Hilti KB-II	24 in. (600 mm) on center	1 1/8 in. (28 mm)
Masonry	1/4 in. (6 mm) Ramset Redhead Dynabolt Sleeve Anchor	24 in. (600 mm) on center	

Table 15 lists the minimum sizes of wall studs with a 16-inch spacing.

Table 15
Minimum wall stud sizes — 16 inch spacing

Wall Studs	Maximum Height of wall
Wood Studs	
2 X 4 (DF #2)	11 ft (3300 mm)
2 X 6 (DF #2)	19 ft (5700 mm)
Metal Studs	
2 1/2 X 20 Gauge	9 ft (2700 mm)
2 1/2 X 16 Gauge	10 ft (3000 mm)
2 1/2 X 14 Gauge	11 ft (3300 mm)
3 5/8 X 20 Gauge	12 ft (3600 mm)
3 5/8 X 18 Gauge	13 ft (3900 mm)
3 5/8 X 16 Gauge	14 ft (4200 mm)
3 5/8 X 14 Gauge	16 ft (4800 mm)
4 X 20 Gauge	14 ft (4200 mm)
4 X 18 Gauge	15 ft (4500 mm)
4 X 16 Gauge	16 ft (4800 mm)
4 X 14 Gauge	17 ft (5100 mm)

Table 15
Minimum wall stud sizes — 16 inch spacing (Continued)

6 X 18 Gauge	20 ft (6000 mm)

Table 16 lists the minimum sizes of wall studs with a 24-inch spacing.

Table 16
Minimum wall stud sizes - 24 inch spacing

Wall Studs	Maximum Height of wall
Wood Studs	
2 X 4 (DF #2)	10 ft (3000 mm)
2 X 6 (DF #2)	17 ft (5100 mm)
Metal Studs	
2 1/2 X 20 Gauge	8 ft (2400 mm)
2 1/2 X 18 Gauge	9 ft (2700 mm)
2 1/2 X 14 Gauge	10 ft (3000 mm)
3 5/8 X 20 Gauge	11 ft (3300 mm)
3 5/8 X 18 Gauge	12 ft (3600 mm)
3 5/8 X 16 Gauge	13 ft (3900 mm)
3 5/8 X 14 Gauge	15 ft (4500 mm)
4 X 20 Gauge	12 ft (3600 mm)
4 X 18 Gauge	13 ft (3900 mm)
4 X 16 Gauge	14 ft (4200 mm)
4 X 14 Gauge	16 ft (4800 mm)
6 X 18 Gauge	18 ft (5400 mm)

3 Determine where to place the fasteners

Refer to Figures 18 through 20 if you need help with where to place the fasteners on the backboard. In each figure, the minimum (2 ft by 6 ft) and maximum (4 ft by 8 ft) sizes of the backboard are used as examples.

- **Figure 18 on page 88** provides the fastener locations for wood and metal stud walls with the minimum acceptable stud spacing of 16 in. (400 mm).
- **Figure 19 on page 89** provides the fastener locations for wood and metal stud walls with the maximum acceptable stud spacing of 24 in. (600 mm).
- **Figure 20 on page 90** provides the fastener locations for concrete and masonry walls.

Figure 18
Plywood fastener locations for wood and metal stud walls — 16 inch spacing

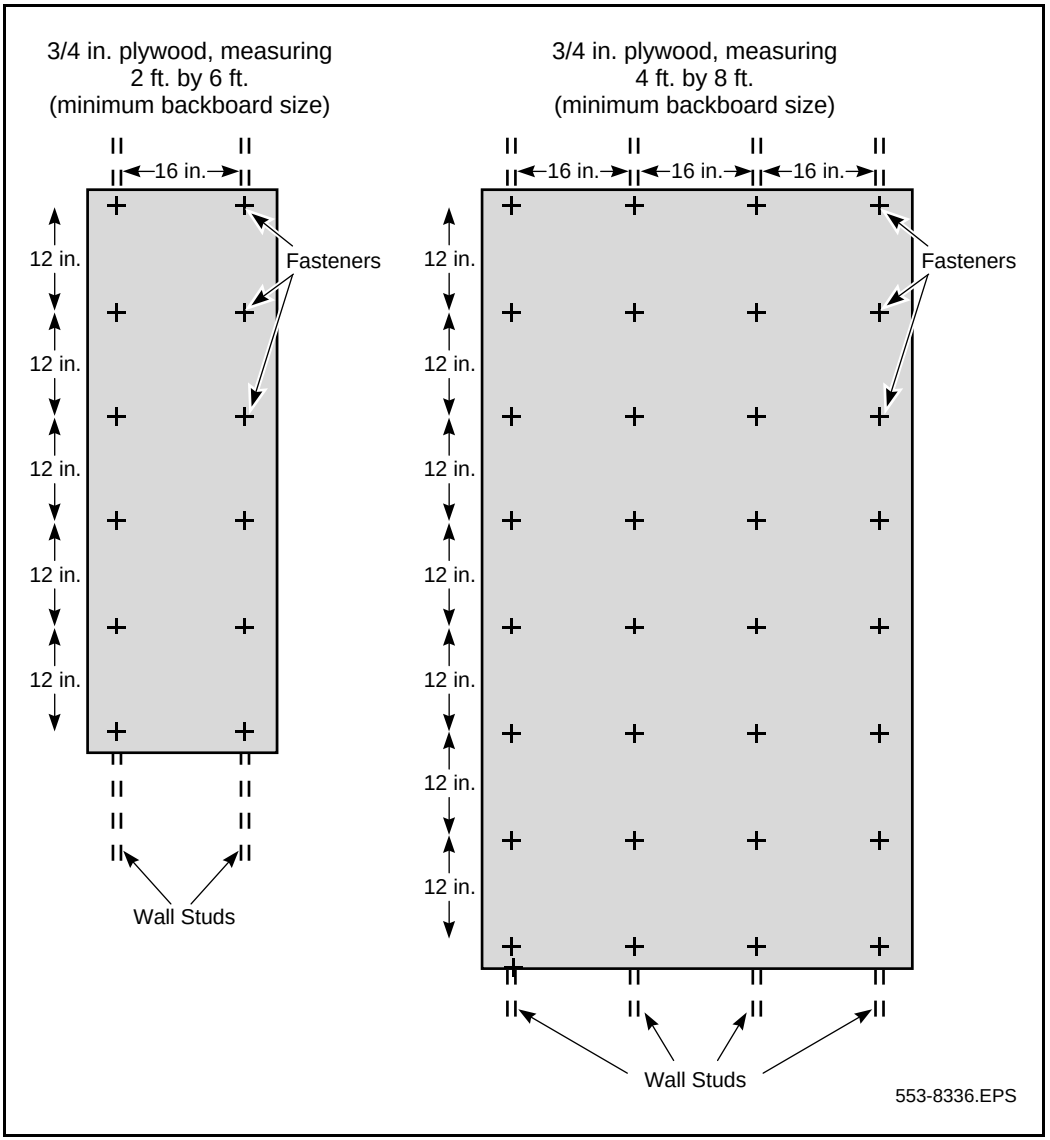


Figure 19
Plywood fastener locations for wood and metal stud walls — 24 inch spacing

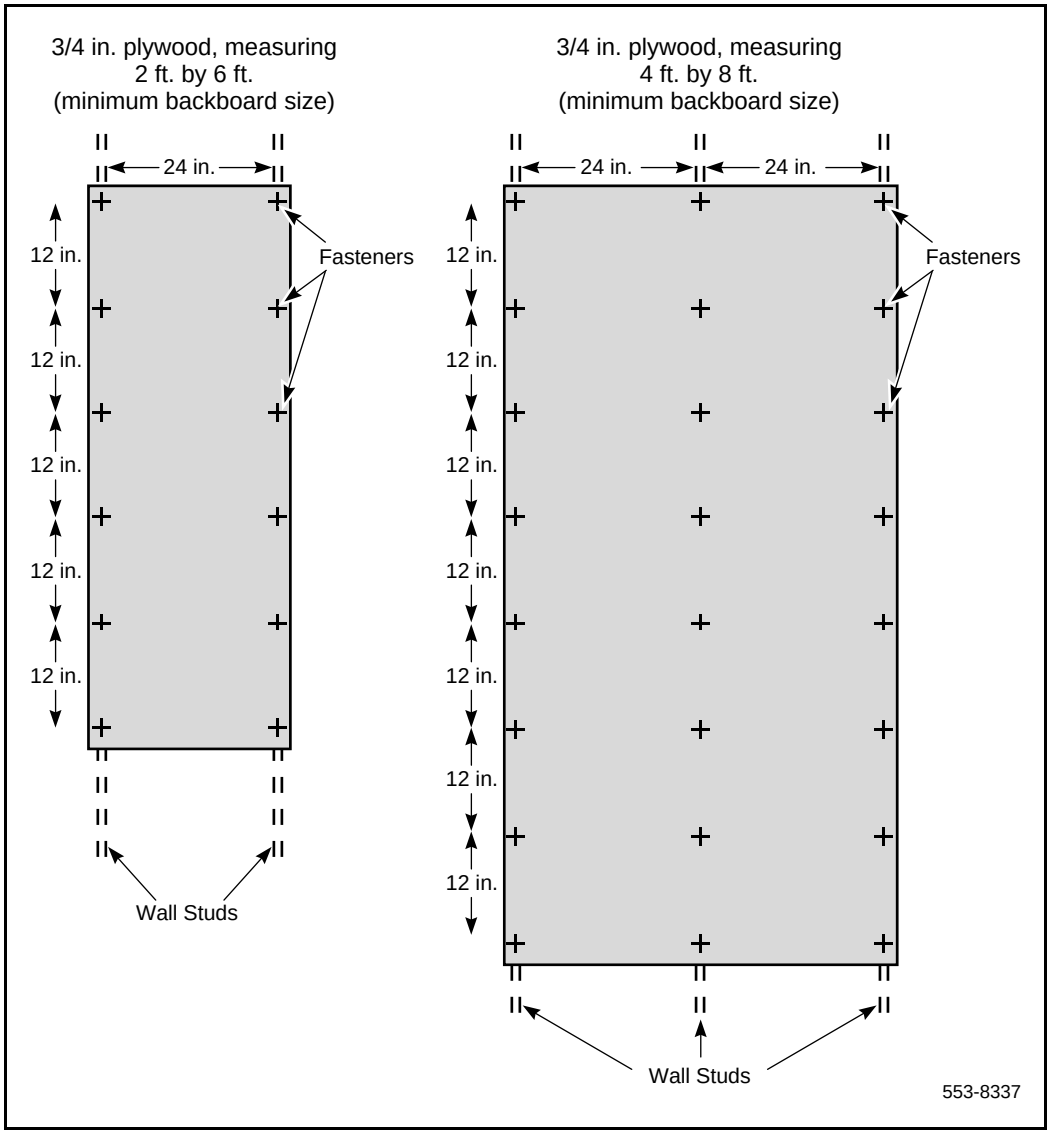
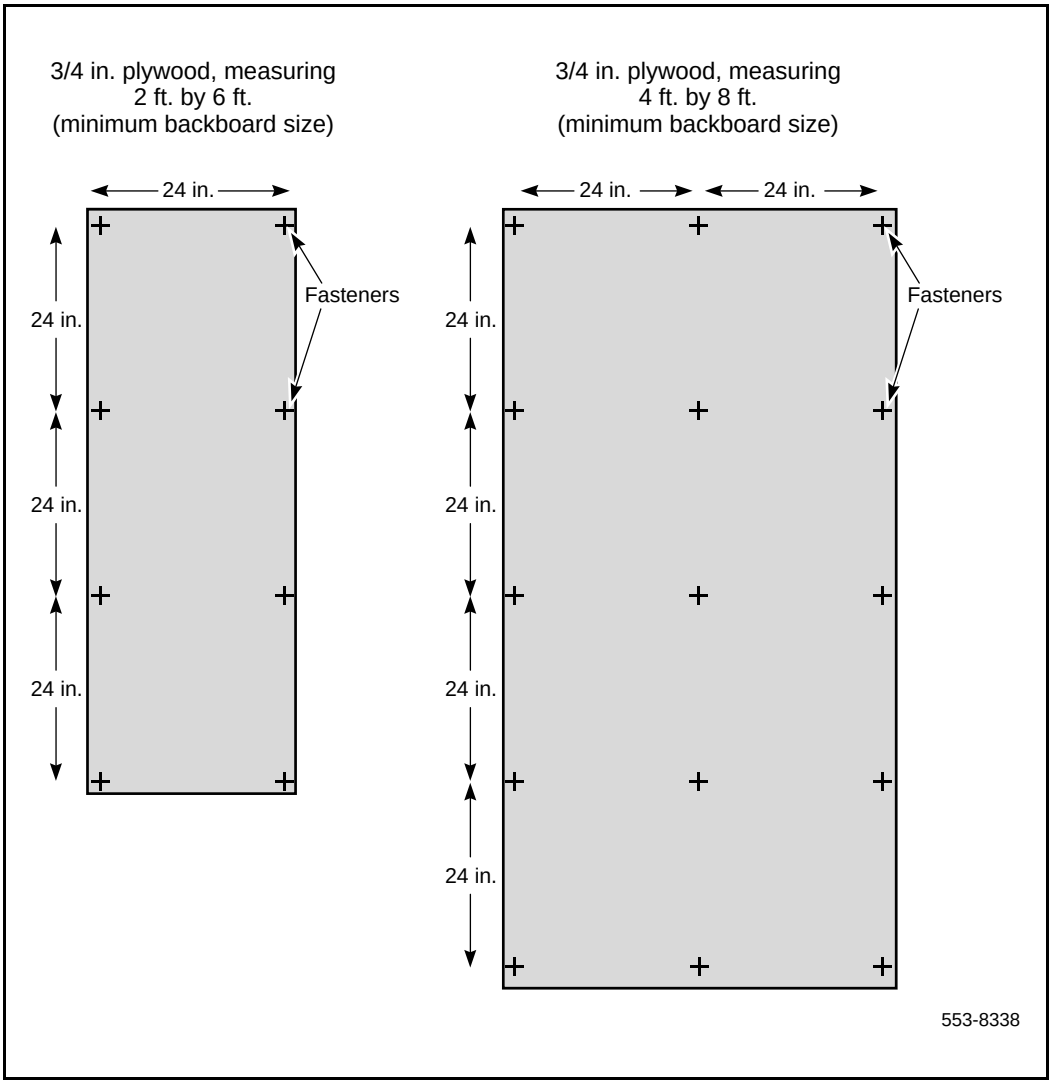


Figure 20
Plywood fastener locations for concrete and masonry walls



4 Continue with Option 11C Mini system installation

Now that you have securely fastened the backboard to the wall, you can continue with the Option 11C Mini system Installation.

End of Procedure

Chapter 9 — Installing the chassis

This chapter describes the following four methods you can use to install the Option 11C Mini chassis:

- on a wall in a vertical position
- on a wall in a horizontal position
- in a rack/cabinet
- on a table

This chapter also provides guidelines for how to position system components. See Figures 21, 25, 29, and 31. Also refer to “Chapter 4 — Creating an equipment layout plan and a card slot assignment plan” on page 51 for additional information.

CAUTION

If the Option 11C Mini chassis requires earthquake bracing, you must install the chassis on a wall in a vertical position. Refer to “Earthquake bracing requirements for chassis installed on a wall in a vertical position” on page 28 and “Chapter 8 — Installing a backboard for bracing chassis against earthquakes” on page 83.

WARNING

An Option 11C Mini chassis with circuit cards installed weighs 30 lb. (13.5 kg). An Option 11C Mini chassis without circuit cards installed weighs 26 lb (12 kg). Get help lifting the chassis if necessary.

Installing the chassis on a wall in a vertical position

Items required

To install the chassis on a wall in a vertical position, you require the following items:

- equipment layout plan
- chassis bracket
- wall bracket
- five 1 in. #12 wood screws provided in the bracket kit (or other appropriate fasteners) to hold the wall brackets and chassis on the wall
- four #8 - 32 machine screws, used to attach the chassis brackets to the wall
- one 3/4 in. (20 mm) piece of plywood fastened to the wall

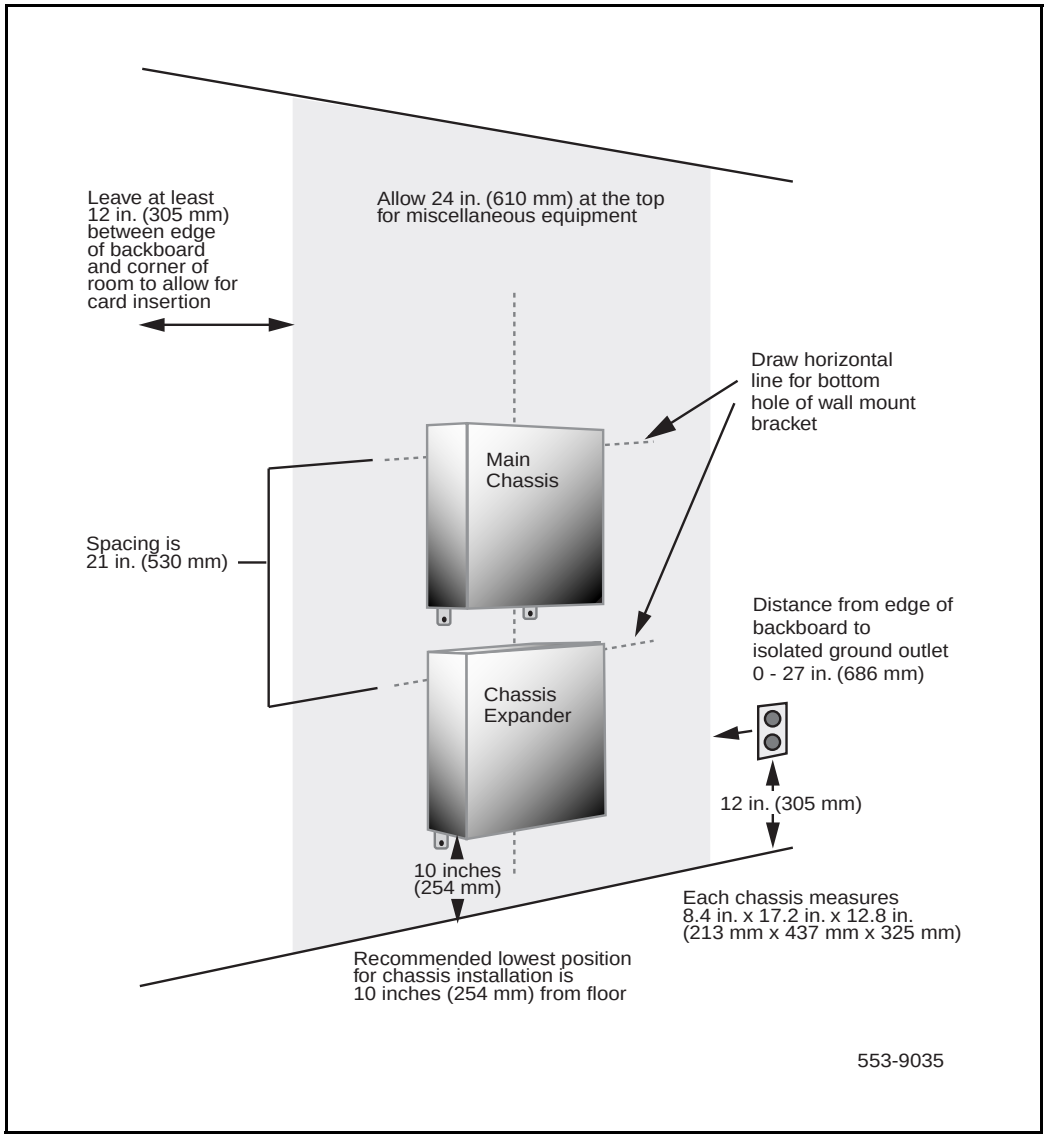
The NTTK08 bracket kit contains all of the above items, with the exception of the equipment layout plan and the plywood.

CAUTION

An Option 11C Mini chassis with circuit cards installed weighs 30 lb. (13.5 kg). Make sure that you fasten the equipment securely to the wall. Use fasteners designed to hold securely to the type of surface chosen to support the equipment. When using 3/4 in. (20 mm) plywood or other similar material as a backboard, make sure to attach backboard directly to the wall studs in a minimum of six locations.

Refer to Figure 21 on page 95 for guidelines on how to position the system components.

Figure 21
Typical layout for installing the chassis on a wall in a vertical position



Note: Leave space for the cross-connect terminal.

Procedure 2
Installing the Option 11C Mini chassis on a wall in a vertical position

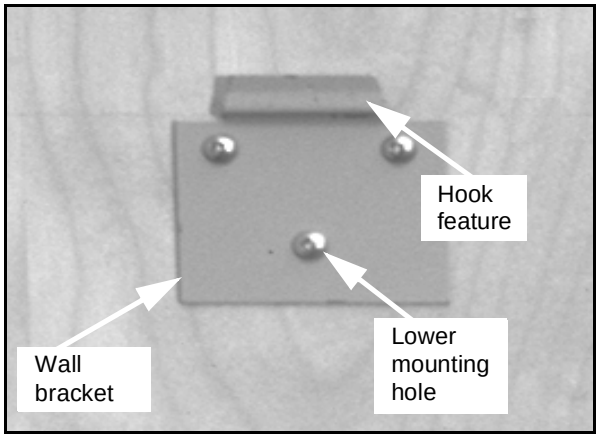
1 **Draw the vertical center line of the chassis on the plywood backboard.**
Allow for clearance on the left and right of the chassis for cables and card access. Refer to Figure 21 on page 95.

2 **Draw a horizontal line on the plywood backboard.**
This line indicates the vertical position of the lower hole of the wall bracket.

Place the wall bracket against the plywood backboard. Place the lower mounting hole over the intersection of the vertical and horizontal lines. Fasten the wall bracket securely to the plywood backboard with three #12 wood screws provided (or other appropriate fasteners). See Figure 22.

Note: Make sure that the hook feature on the wall bracket points toward the top of the backboard.

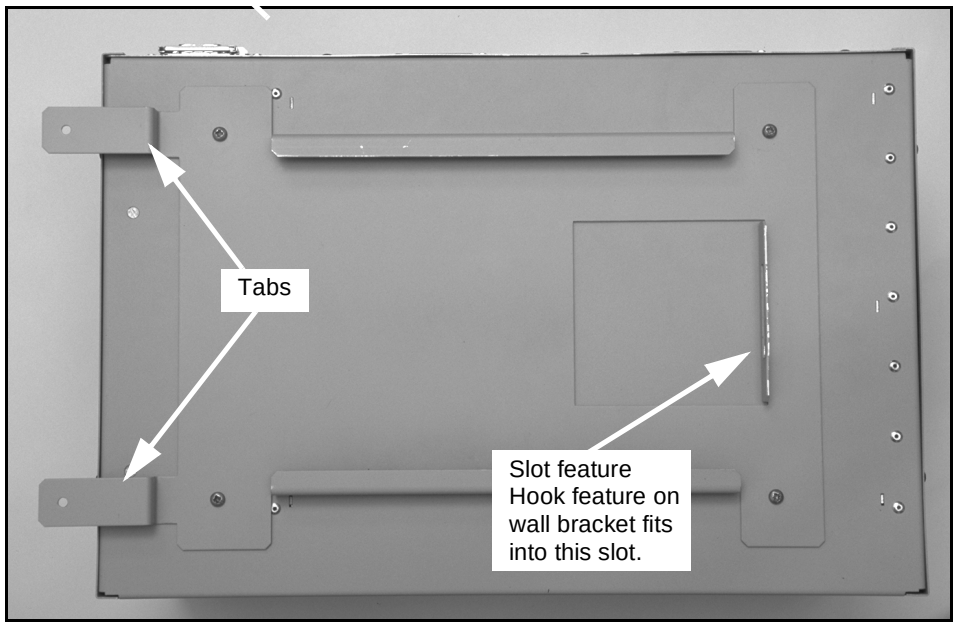
Figure 22
Wall bracket fastened to backboard



3 **Fasten the chassis bracket to the back of the chassis using the four #8-32 machine screws supplied with the bracket kit. See Figure 23.**

Note: Make sure that the slot feature on the chassis bracket is at the top of the chassis. Also, the two tabs on the chassis bracket must extend past the bottom of the chassis.

Figure 23
Chassis bracket installed on the back of the chassis



4 **Lift the chassis into place so that the slot on the chassis bracket engages the hook feature on the wall bracket.**
Carefully lower the chassis until the hook on the wall bracket fits securely into the slot on the chassis bracket.

5 **Fasten the chassis in position.**
Fasten the tabs, that extend past the bottom of the chassis, to the plywood backboard. Use the two remaining #12 wood screws from the bracket kit to fasten the tabs to the backboard. See Figure 24.

Figure 24
Chassis on a wall in a vertical position

6 **If you want to install a Chassis Expander, repeat the above steps.**
Refer to the equipment layout plan for the measurements and where to place the Chassis Expander.

End of Procedure

Installing the chassis on a wall in a horizontal position

Items required

To install the chassis on a wall in a horizontal position, you require the following items:

- equipment layout plan
- one left shelf bracket
- one right shelf bracket
- eight 1 in. #12 wood screws supplied in the bracket kit (or other appropriate fasteners) to fasten the wall shelf brackets to the wall
- one 3/4 in. (20 mm.) piece of plywood fastened to the wall

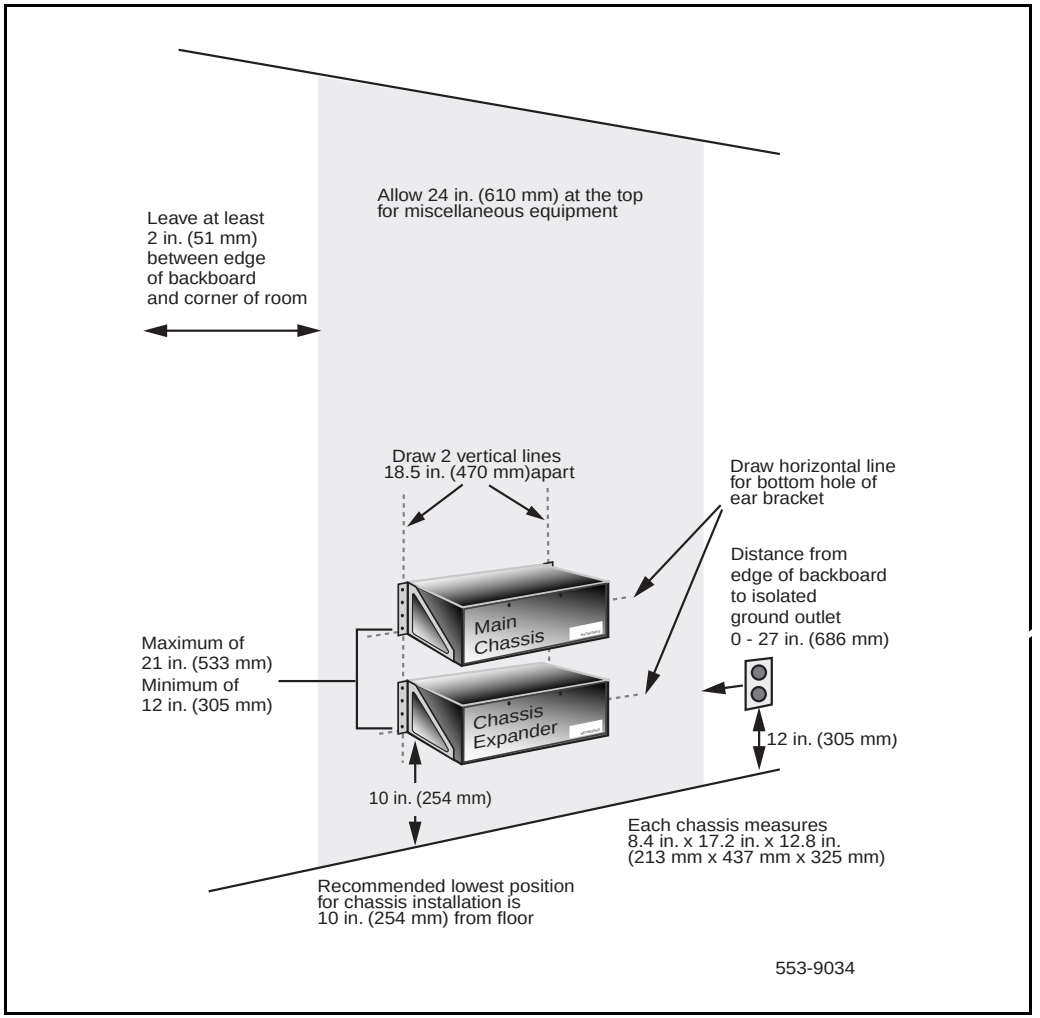
The NTTK11 bracket kit contains all of the above items, with the exception of the equipment layout plan and the plywood.

CAUTION

An Option 11C Mini chassis with circuit cards installed weighs 30 lb. (13.5 kg). Make sure that you fasten the equipment securely to the wall. Use fasteners that are designed to hold securely the type of surface selected to support the equipment. When using 3/4 in. (20 mm) plywood or other similar material as a backboard, make sure you attach it directly to the wall studs in a minimum of six places.

Refer to Figure 25 on page 100 for guidelines on how to position system components.

Figure 25
Typical layout for installing the chassis on a wall in a horizontal position



Note: Leave space for the cross-connect terminal.

Procedure 3
Installing the Option 11C Mini chassis on a wall in a horizontal position

1 **Draw two vertical lines 18.5 inches apart on the plywood backboard.**
Allow for clearance on the left and right of the chassis for cables and air flow. Refer to the equipment layout plan for measurements.

2 **Draw a horizontal line on the plywood backboard.**
This line indicates the vertical position of the bottom hole on the horizontal wall shelf bracket. Refer to the equipment layout plan for measurements.

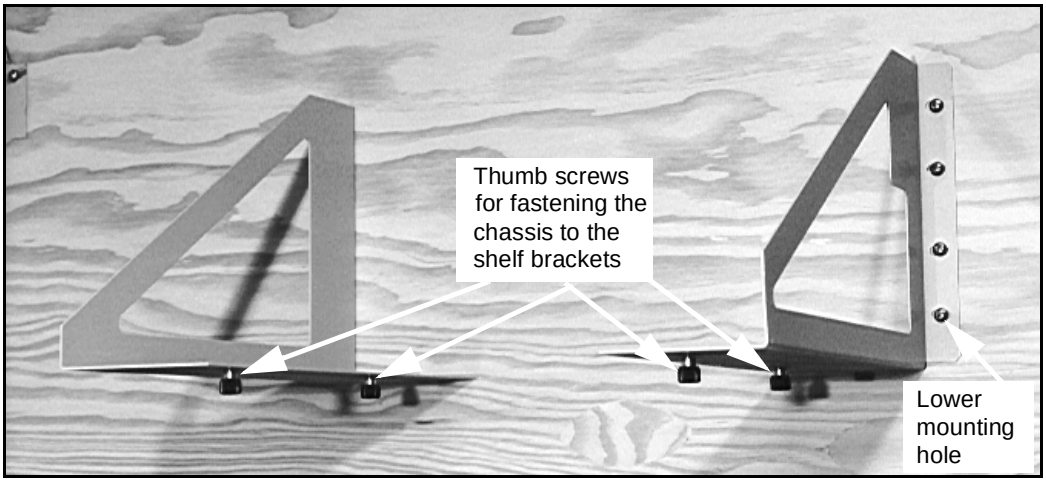
3 **Place the left shelf bracket against the plywood backboard. Place the lower mounting hole over the intersection of the left vertical line and the horizontal line.**
Fasten the shelf bracket securely to the plywood backboard. Use four #12 wood screws provided in the bracket kit (or other appropriate fasteners) to fasten the shelf bracket to the backboard.

Note: Position the shelf bracket so that the two thumb screws, located on the bottom of the bracket, face downward. Leave the screws slightly loose, so you can adjust the brackets to the width of the chassis if necessary.

4 **Place the right shelf bracket against the plywood backboard. Place the lower mounting hole over the intersection of the right vertical line and the horizontal line.** Fasten the shelf bracket securely to the plywood backboard with the remaining four #12 wood screws provided in the bracket kit (or other suitable fasteners). See Figure 26.

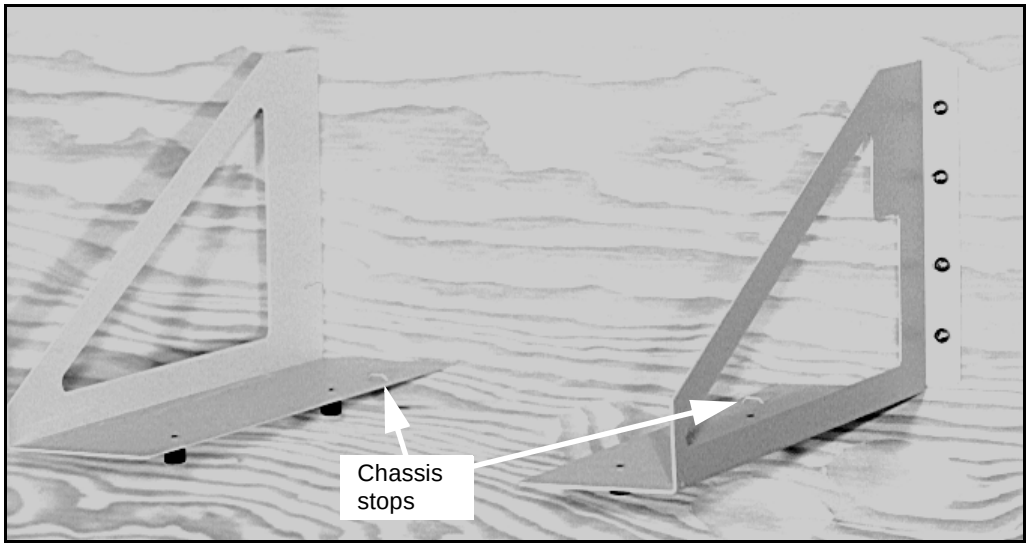
Note: Make sure the shelf bracket is oriented with the two thumb screws, located on the bottom face of the bracket, facing downwards. Leave the screws slightly loose, so you can adjust the brackets to the width of the chassis if necessary.

Figure 26
Thumb screws on the wall shelf brackets



5 **Place the chassis on the shelf brackets.**
Carefully slide the chassis on the wall shelf brackets until it touches the chassis stops on the brackets. See Figure 27.

Figure 27
Chassis stops on the wall shelf brackets



6 **Fasten the chassis in position using the four thumb screws, located on the bottom side of the shelf brackets.**

7 **Tighten the eight #12 wood screws into the plywood backboard. Make sure that the shelf brackets and chassis are fastened securely in position. See Figure 28.**

Figure 28
Chassis installed on a wall in a horizontal position

8 **If you want to install a Chassis Expander on a wall in a horizontal position, repeat the above steps for the Chassis Expander.** Refer to the equipment layout plan for the measurements and where to position the Chassis Expander.

End of Procedure

Installing the chassis on a table

Items required

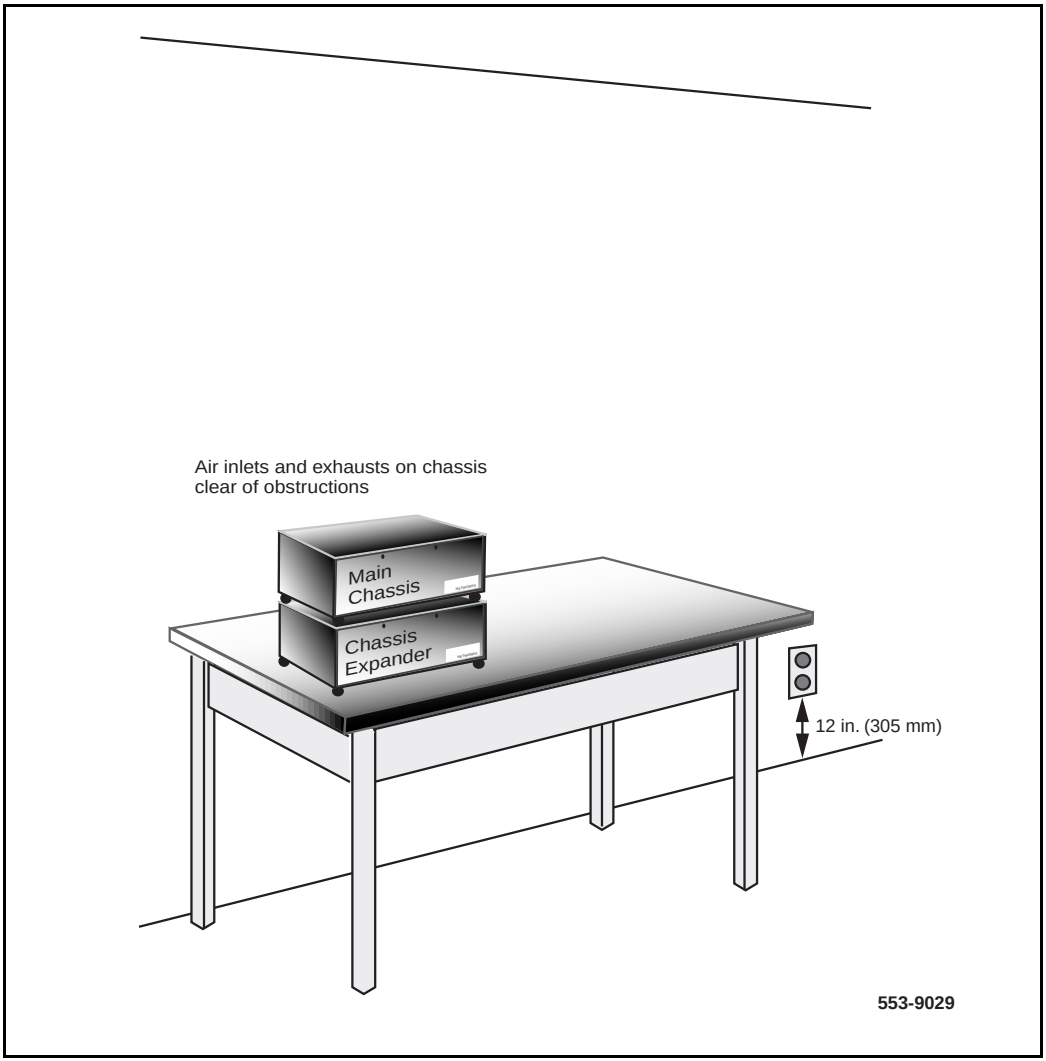
To install the chassis on a table, you require the following items:

- equipment layout plan
- four rubber feet
- four #8-32 machine screws

The NTTK10 kit contains all of the above items, with the exception of the equipment layout plan.

Refer to Figure 29 for guidelines on how to position system components.

Figure 29
Typical layout for installing the chassis on a table



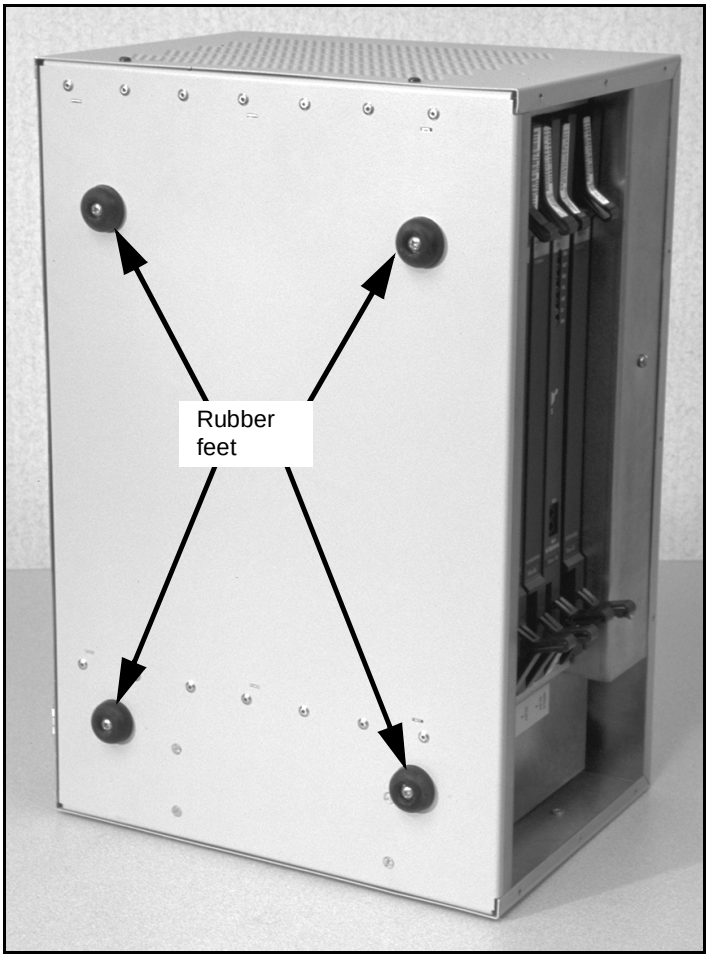
Note: Leave wall space for the cross-connect terminal.

Procedure 4
Installing the Option 11C Mini chassis on a table

1 **Place the chassis upside down on a horizontal work surface.**

2 **Fasten the four rubber feet securely to the bottom of the chassis using the machine screws. See Figure 30.**

Figure 30
Chassis with rubber feet installed



3 Place the chassis right side up on the rubber feet.

4 Position the chassis so that the air inlets and exhausts are free from any obstructions. Also, you must have access to the front of the chassis.

> **CAUTION**
> Do not place the chassis on the floor. The inlets may take in dust that can cause harm to the system.

5 If you want to add a Chassis Expander, follow the above steps to place the rubber feet on the Chassis Expander.

Note: You can place the Main Chassis directly on top of the Chassis Expander. Refer to the equipment layout plan.

End of Procedure

Installing the chassis in a 19 inch rack/cabinet

Items required

To install the chassis in a 19 inch rack/cabinet, you require the following items:

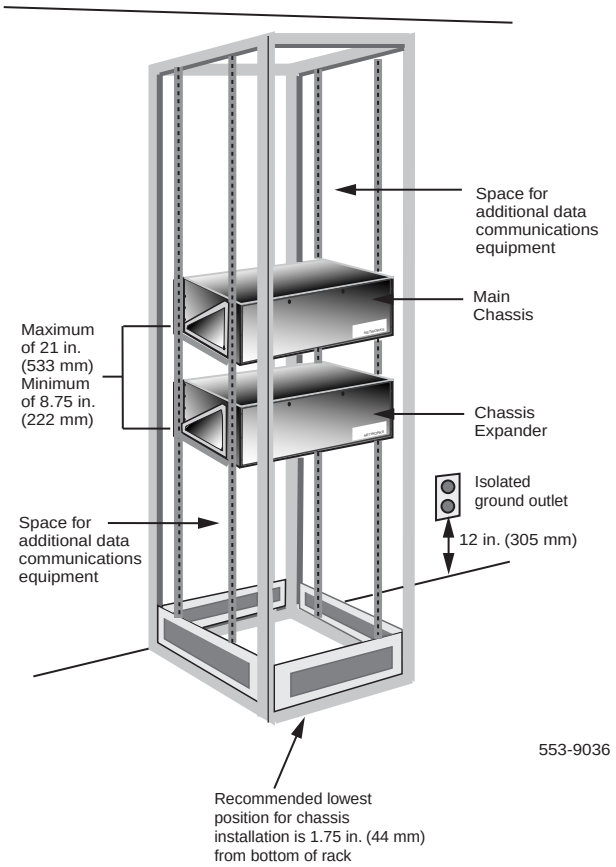
- equipment layout plan
- one left chassis guide bracket
- one right chassis guide bracket
- one left ear bracket
- one right ear bracket
- eight #12-24 self-tapping screws
- four #8-32 machine screws

The NTTK09 contains all of the above items, with the exception of the equipment layout plan.

Note: The Option 11C Mini system does not include the 19 inch rack/cabinet.

Refer to Figure 31 on page 108 for guidelines on how to position system components.

Figure 31
Typical layout for installing the chassis in a rack/cabinet



Note 1: Leave wall space for the cross-connect terminal.

Note 2: The rack/cabinet does not have to be right against the wall. You can position the rack/cabinet so that you have access to both the front and back.

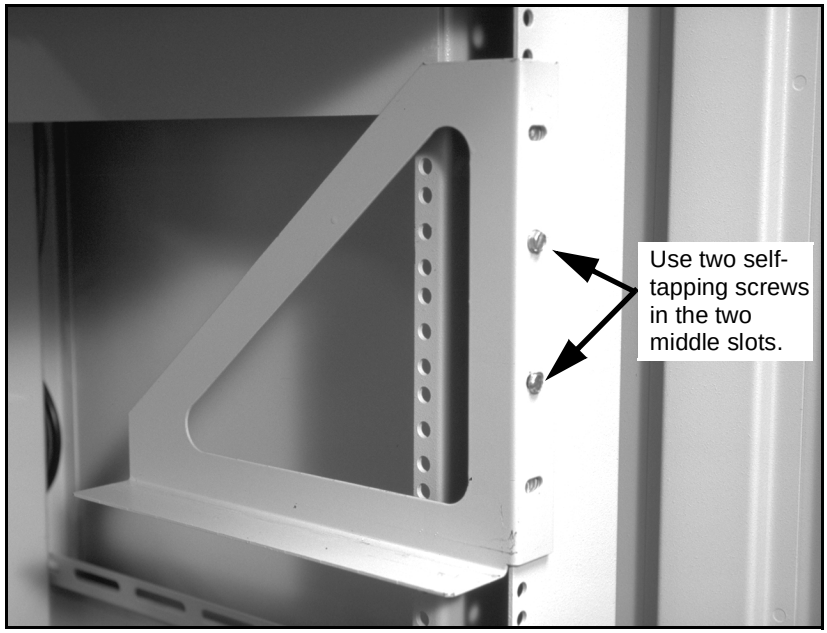
Procedure 5
Installing the Option 11C Mini chassis in a 19 inch rack/cabinet

1 **Fasten the left chassis guide bracket to the left rack/cabinet support.** Insert two #12-24 self-tapping screws into the two middle slots in the chassis guide bracket and into the respective holes in the left rack/cabinet support. Fasten the screws.

Note: The rack/cabinet brackets help guide the chassis into place, and allow one person to install the chassis in the rack/cabinet.

2 **Fasten the right chassis guide bracket to the right rack/cabinet support.** Insert two #12-24 self-tapping screws into the two middle slots in the bracket and into the respective holes in the right rack/cabinet support. Fasten the screws. See Figure 32.

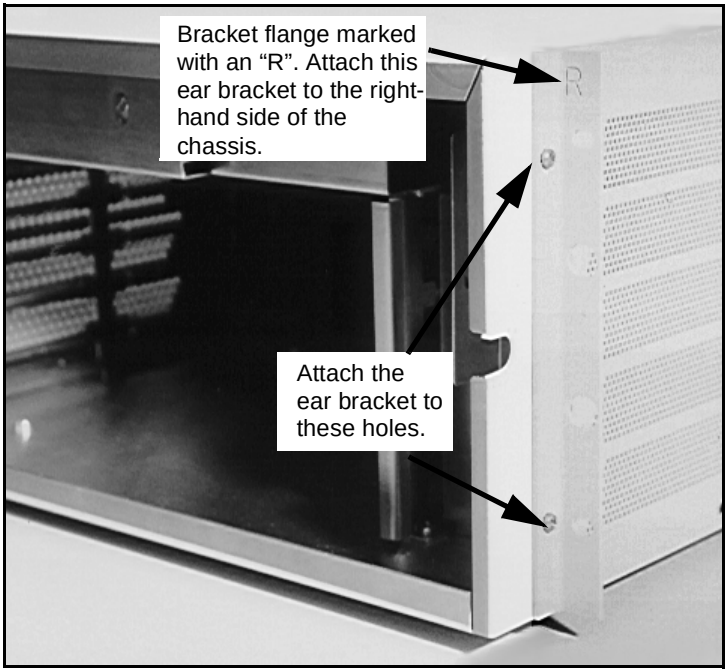
Figure 32
Chassis guide bracket installed in a rack



3 Attach the left ear bracket (marked with an “L”) to the holes on the left side of the chassis (near the front). Use two #8-32 machine screws. Position the ear bracket so that the four holes on the bracket flange are nearer to the back of the chassis. To determine the front of the bracket, locate the “L”. This “L” must be at the top of the bracket and must face to the front of the chassis.

4 Attach the right ear bracket (marked with an “R”) to the holes on the right side of the chassis using two #8-32 machine screws. Position the ear bracket so that the four holes on the bracket flange are nearer to the back of the chassis. To determine the front of the bracket, locate the “R”. This “R” must be at the top of the bracket and must face to the front of the chassis.See Figure 33.

Figure 33
Right ear bracket installed on the chassis



5 **Place the chassis on the chassis guide brackets.**
Carefully slide the chassis into the rack/cabinet until the ear brackets come to rest against the rack/cabinet support.

6 **Use the four remaining #12-24 self-tapping screws to fasten the chassis to the rack/cabinet supports (two screws on each side).** Make sure that the back of the chassis is on the chassis guide brackets. See Figure 34

Figure 34
Chassis installed in a rack/cabinet

7 **If you want to add a Chassis Expander, follow the above steps.** You only need to leave a small space between the Main Chassis and the Chassis Expander. The air circulates from the side of the chassis. To install the Chassis Expander, start in the next 5u pattern of mounting holes. This results in the Chassis Expander being approximately 1/4 inch from the first chassis.

Note: In the 5u pattern, a “u” is equal to 1.75 in. and includes three holes spaced at 5/8 in. + 5/8 in. + 1/2 in.

Note: In addition to more Option 11C Mini chassis, you can install other Data Communications Equipment in a rack/cabinet with the Option 11C Mini. Refer to “Grounding multiple pieces of equipment in a rack/cabinet” on page 122 for grounding instructions for multiple pieces of equipment in a rack/cabinet.

——————————— ***End of Procedure*** ———————————

Chapter 10 — Connecting the Chassis Expander to the Main Chassis

This chapter describes how to add a Chassis Expander to your Option 11C Mini system. Use the same methods described in "Chapter 9 — Installing the chassis" on page 93 to install the Chassis Expander. Refer to "Chapter 4 — Creating an equipment layout plan and a card slot assignment plan" on page 51 for measurements and distances between the Main Chassis and the Chassis Expander.

The Chassis Expander connects to the Main Chassis by two copper cables: one provides DS-30X connectivity and the other provides CE-MUX connectivity to slot 10 only.

Procedure 6
Adding a Chassis Expander

1 **Install the Chassis Expander following the procedures in "Chapter 9 — Installing the chassis" on page 93.**

2 **On the back of the Main Chassis and the Chassis Expander, loosen the velcro straps on the CE-MUX and DS-30X connectors.**

3 **Connect one of the NTDK95 cables from the CE-MUX connector on the back of the Main Chassis to the CE-MUX connector on the back of the Chassis Expander.**

4 **Tighten the velcro straps.**

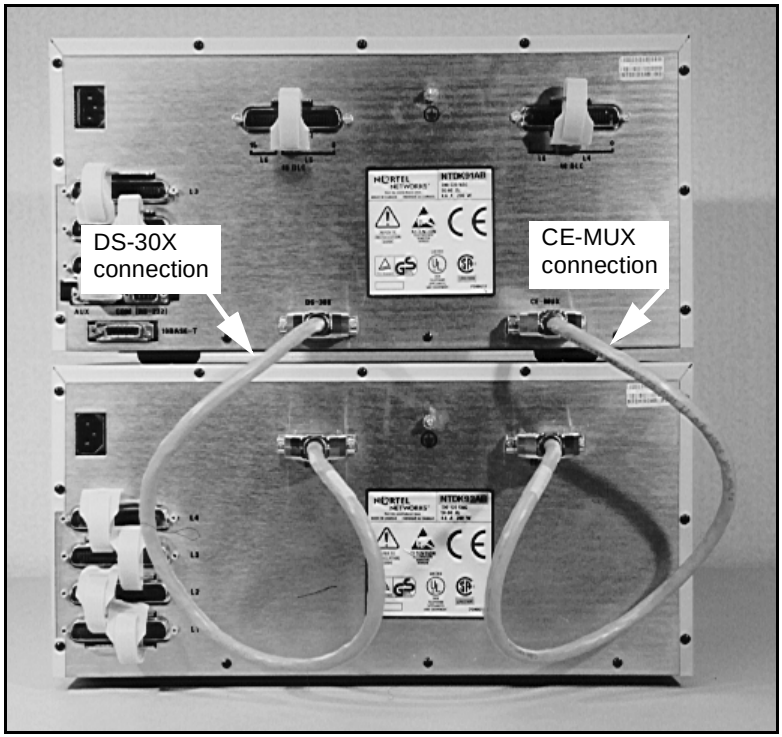
5 **Connect the other NTDK95 cable from the DS-30X connector on the back of the Main Chassis to the DS-30X connector on the back of the Chassis Expander.**

6 Tighten the velcro straps.

Note: The expansion cable kit (NTDK89) contains two NTDK95 cables.

Figure 35 shows the Main Chassis and Chassis Expander connected with the two NTDK95 cables.

Figure 35
The Main and Expander chassis connected with the two NTDK95 CE-MUX/DS-30X bus cables



7 Install the system ground as described in "Chapter 11 – Installing the system ground" on page 117.

8 Add circuit cards as described in "Chapter 12 — Installing the circuit cards" on page 125.

9 **Follow the procedures for starting the Option 11C Mini in "Chapter 16 — Starting the Option 11C Mini and installing software" on page 269**.

End of Procedure

Chapter 11 – Installing the system ground

This chapter describes how to ground the Option 11C Mini chassis.

This chapter contains the following procedures:

- Procedure 7 “Grounding the Option 11C Mini chassis” on page 119
- Procedure 8 “UK grounding procedure for the Option 11C Mini chassis” on page 122
- “Grounding multiple pieces of equipment in a rack/cabinet” on page 122 contains grounding instructions for multiple pieces of equipment in a rack/cabinet.

Refer to the “Grounding requirements” on page 29 for additional information.

WARNING

Correct grounding is very important. Failure to complete the grounding procedures may result in a system that is unsafe for the personnel using the equipment. If your system is not grounded correctly, it may not be protected from lighting or power surges, and it may be subject to service interruptions.

You must use insulated ground wire for system grounding.

Chassis powered by the same service panel

For each system chassis in collocated multi-chassis configurations, connect a #6 AWG (#40 Metric Wire Gauge) ground wire from the chassis to an NTBK80 grounding block. The grounding block is in turn connected to a ground source (the ground bus in the AC service panel). See Table 17 for region-specific grounding requirements.

Chassis powered by different service panels

For each system chassis in collocated multi-chassis configurations, connect a #6 AWG (#40 Metric Wire Gauge) ground wire from the chassis to an NTBK80 grounding block. If any chassis cannot be powered from the same service panel, ground it separately from the other chassis back to the service panel that supplies it. See Table 17 for region-specific grounding requirements.

Table 17
Region-specific grounding wire requirements

Region	Grounding wire requirements
Germany	#8 AWG (10 mm^2) green/yellow wire
Other regions in Europe	not smaller than #6 AWG (16 mm^2) at any point
UK	two green/yellow wires no thinner than two 10 mm^2

Grounding instructions for chassis

Procedure 7 describes how to ground the Option 11C Mini chassis. Repeat the steps for each chassis installed in the system.

Procedure 7
Grounding the Option 11C Mini chassis

1 Make sure that you disconnect the AC power cord from the power outlet.

Note: For rack/cabinet configurations, equipment must be powered from the same service panel.

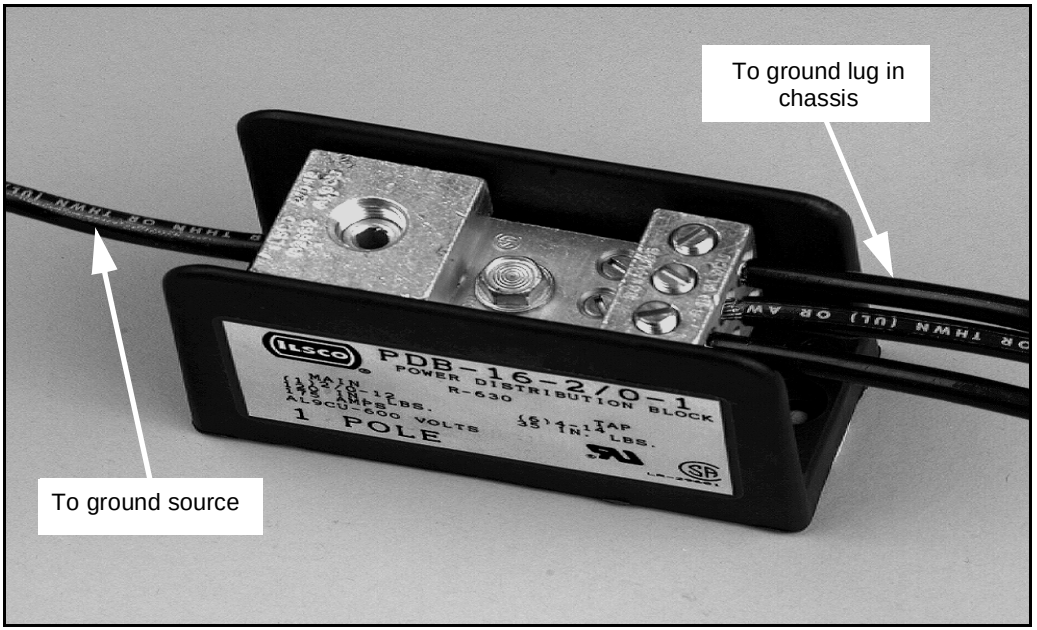
WARNING

Never connect power to a chassis that is not grounded correctly.

2 Install an NTBK80 grounding block near the chassis if a grounding block has not already been installed. See Figure 36.

Note: The grounding block is used as a bridging point for ground wires from up to six nearby Option 11C Mini chassis. If you have additional chassis, you require additional grounding blocks.

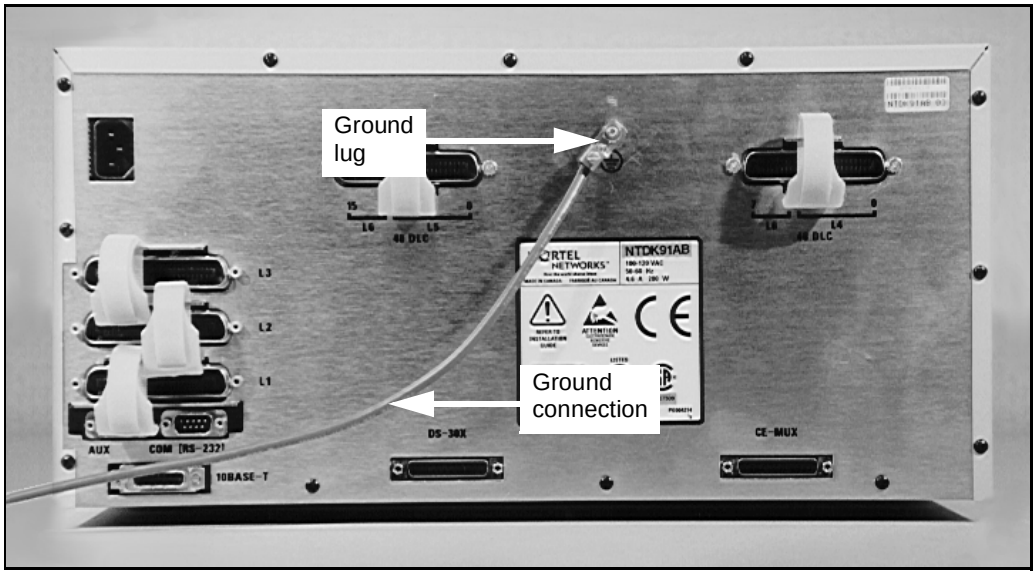
Figure 36
NTBK80 ground block



3 **Install a #6 AWG (#40 Metric Wire Gauge) ground wire from the ground lug in each chassis to the NTBK80 grounding block. The grounding block is in turn connected with #6 AWG wire to the ground bus in the AC power service panel. See Table 17 on page 118 for region-specific grounding requirements.**

Connect the ground wire to the ground lug located at the back of the chassis next to the cable connectors. See Figure 37 on page 121.

Figure 37
Ground lug on the back of the system chassis



Connect the ground wire to the grounding block. See Figure 36 on page 120.

Place a DO NOT DISCONNECT tag on the ground wire.

4 Connect the grounding block to an appropriate ground source (the ground bus in the AC power service panel).

WARNING

A qualified technician or electrician must make the connection in the AC power service panel.

5 **Place a DO NOT DISCONNECT tag on the ground wire at the service panel.**

6 **Test the ground.**

End of Procedure

Procedure 8
UK grounding procedure for the Option 11C Mini chassis

1 **Connect a protective and functional ground wire from the grounding strip on the Krone Test Jack Frame to the ground at the building entry point.**

Use a green/yellow wire no thinner than 10 mm^2.

2 **In each chassis, connect a ground wire from the ground lug in the chassis to the ground connection at the Test Jack Frame.** See Figure 37 on page 121.

Use a green/yellow wire no thinner than 10 mm^2. Place a DO NOT DISCONNECT tag on the grounding wire.

3 **Measure the resistance of the ground between the Krone Test Jack Frame and the Main Chassis frame ground.**

The resistance must not be more than $0.25^{3/4}$ at 30 amperes.

End of Procedure

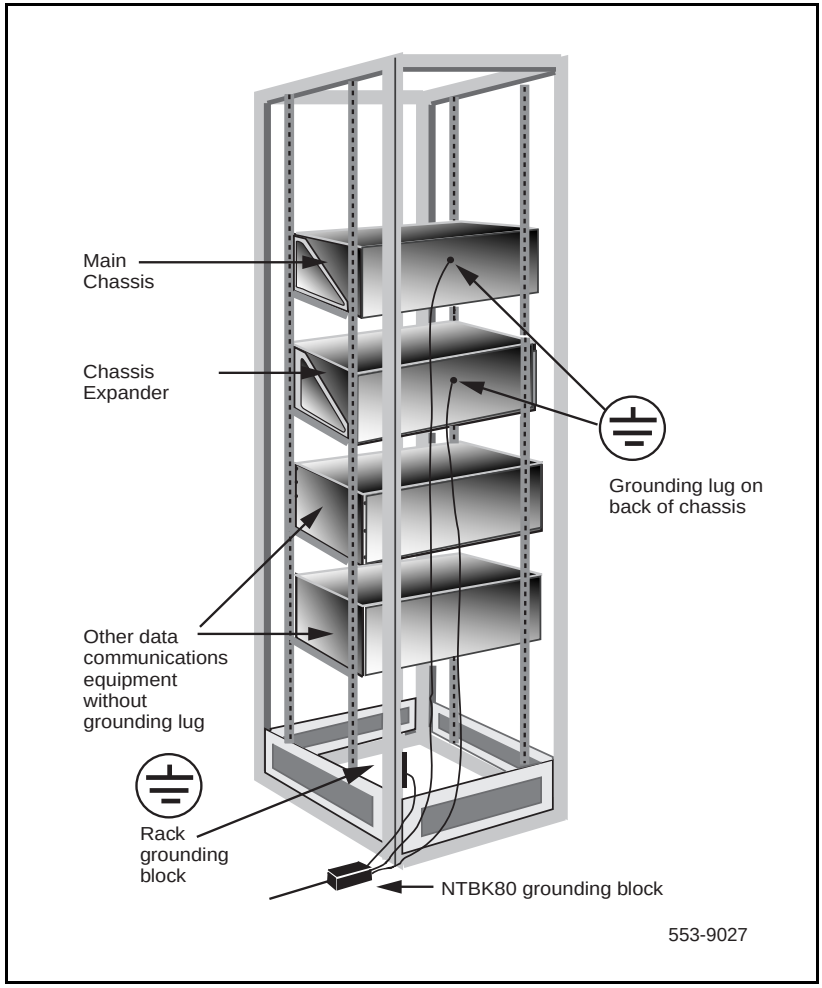
Grounding multiple pieces of equipment in a rack/cabinet

For multiple pieces of equipment installed in a rack/cabinet, make a separate ground connection from each piece of equipment to the NTBK80 grounding block. See Figure 38.

If a piece of Data Communications Equipment installed in a rack/cabinet does not have a ground lug, ground the rack to the NTBK80 grounding block. See Figure 38.

When you ground the rack to the grounding block, the equipment is grounded using the Single Point Grounding method, as shown in Figure 5 on page 34.

Figure 38
Grounding multiple pieces of equipment in a rack



Chapter 12 — Installing the circuit cards

This chapter describes how and where to install circuit cards used in the Option 11C Mini system. This chapter is divided into the following main sections:

- "Circuit cards required for the Option 11C Mini" on page 129. This section describes the installation of the NTDK97 MSC card and the NTDK16 48-port Digital Line Card. These cards are required for the Option 11C Mini system.
- "Optional circuit cards" on page 134. This section describes the circuit cards that are optional to the Option 11C Mini system.
- "Circuit cards used in Europe" on page 147. This section describes optional circuit cards that are supported in Europe.

Refer to "Card slot assignments" on page 59 for additional information on where to place circuit cards.

Refer to the *Intelligent Peripheral Equipment Circuit Card Supplements for* full descriptions of country-specific IPE cards and their installation procedures.

CAUTION

Always handle circuit cards with caution to avoid damage caused by static electricity. Always store circuit cards that are not in use in an antistatic bag or the original packaging

Wear an antistatic wrist strap, such as the one shown in Figure 39, when handling circuit cards. Static electricity can damage circuit card components.

Figure 39
Antistatic wrist strap

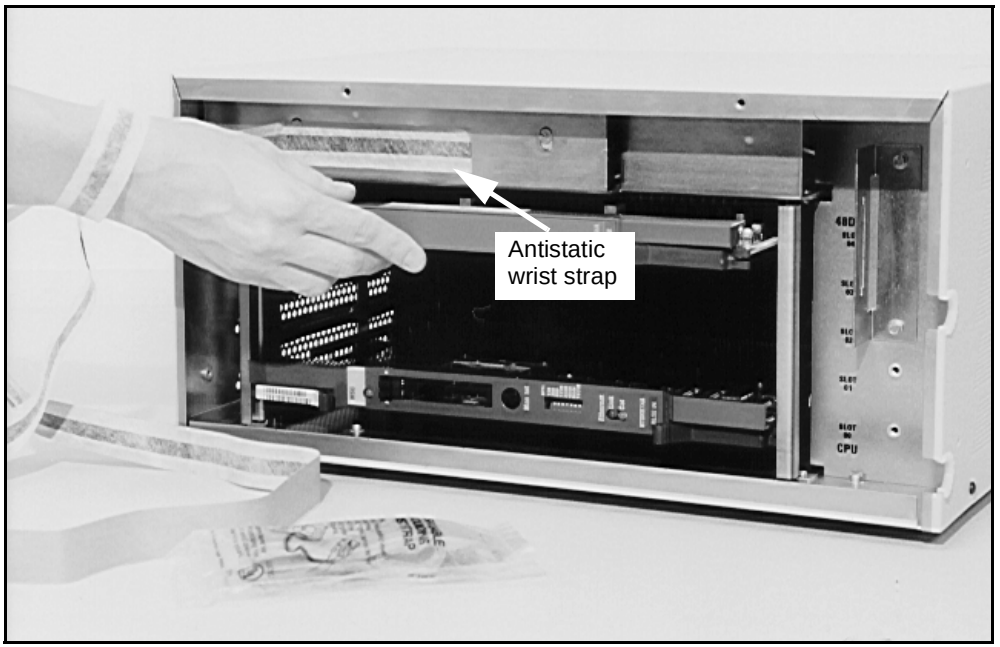
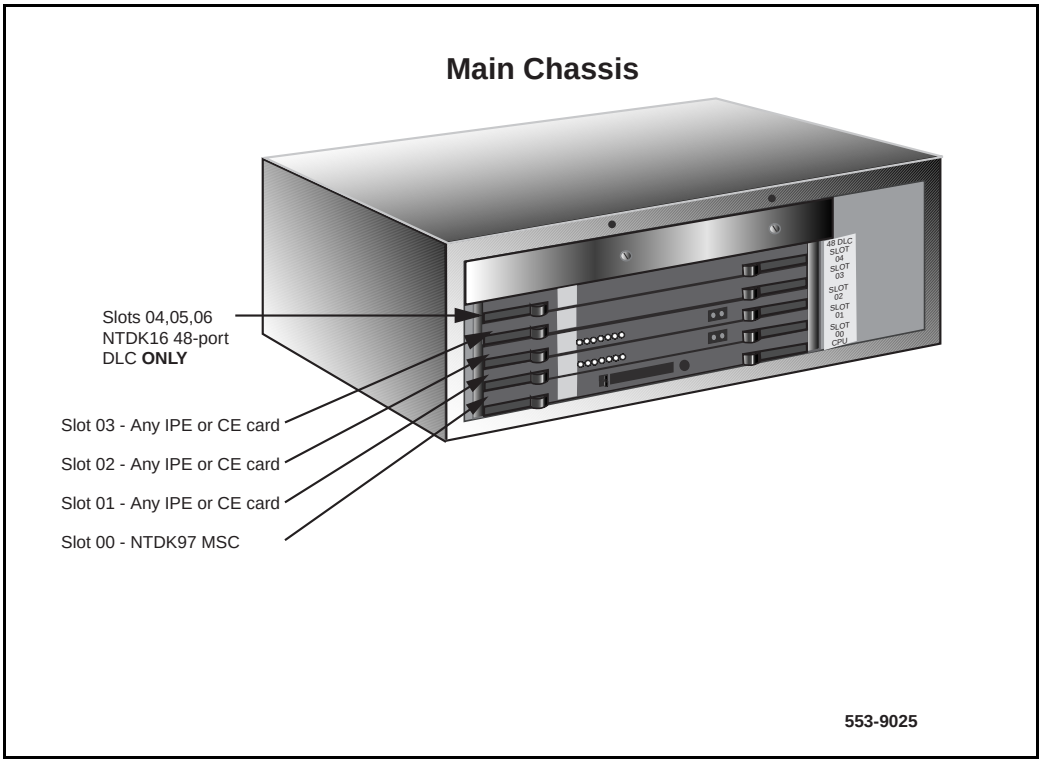


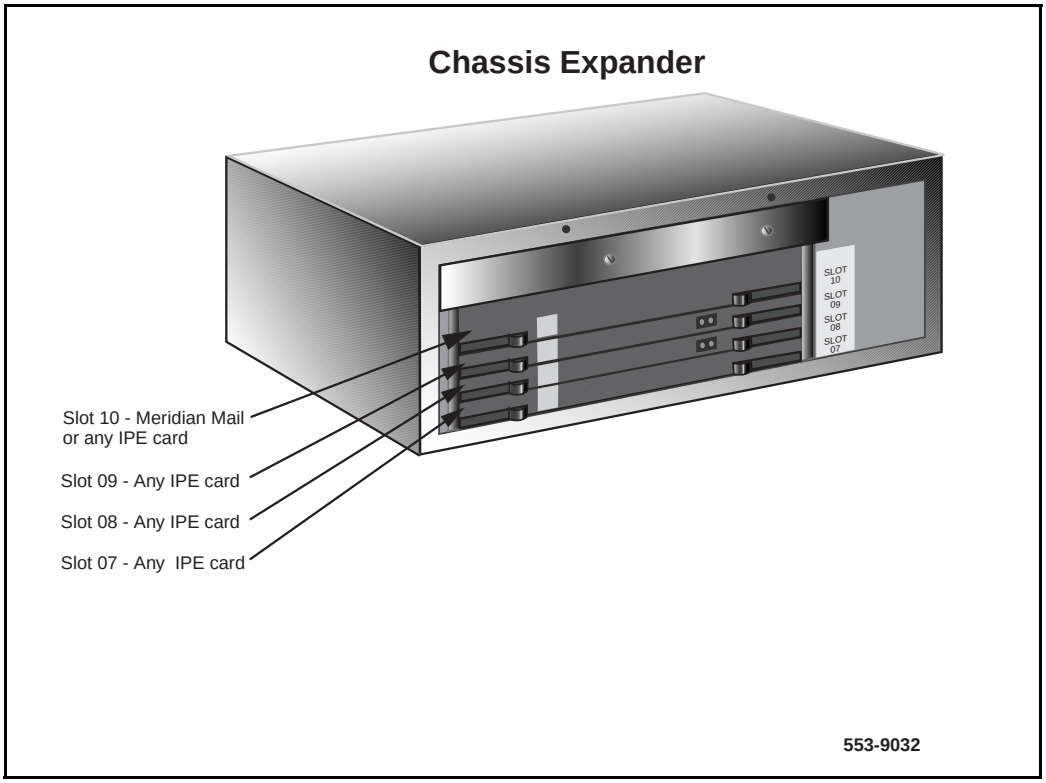
Figure 40 on page 127 and Figure 41 on page 128 show the circuit card assignments for the Main Chassis and Chassis Expander. Follow these diagrams to make sure that you have all circuit cards inserted in the correct slots.

Figure 40
Circuit card assignments in the Main Chassis



Note: See Table 10 on page 60 for the cards that you can insert in the Main Chassis. Slot 4 accepts the NTDK16 48-port DLC card only.

Figure 41
Circuit card assignments in the Chassis Expander



Note 1: See Table 10 on page 60 for the cards that you can insert in the Chassis Expander.

Note 2: To configure Meridian Mail Enhanced Card Option, you must place the Meridian Mail card in slot 10 of the Chassis Expander. The size of Slot 10 is double that of the other slots in the chassis. Slot 10 supports Meridian Mail and other application cards that require a double slot.

Circuit cards required for the Option 11C Mini

If a circuit card has a symbol of a switch on its faceplate, it is equipped with option switches, strapping plugs, or both. Make sure that the circuit cards with option switches or strapping plugs are set correctly. Some circuit cards can have daughterboards and other add-on devices installed on them.

The Option 11C Mini system supports the circuit cards described in this section. You can find a complete list of circuit cards requiring settings in the *Circuit Card Installation and Testing* (*553-3001-211)* document.

NTDK97 Mini System Controller (MSC) card

The NTDK97 MSC card is based on the Option 11C NTDK20 Small System Controller (SSC) card. Memory is integrated on the CPU. The MSC card does not require a separate daughterboard. The MSC card runs X11 global software and supports all of the NTDK20 SSC functionality with the following differences:

- Reduced conference capability: The MSC card provides 16 channels of conferencing with a maximum of six participants per conference call on conference loop 29. The conference capability allows for up to five simultaneous three-party conferences and up to two simultaneous six-party conferences. Conference loop 30 is disabled.
- Supports 10 logical slot addresses
- Faceplate: This card does not support fiber-optic daughterboards. The LEDs at the bottom of the faceplate show the Ethernet port link status and collision status.
- Supports one NTDK92 Chassis Expander

You must install the MSC card in Slot 00 of the Main Chassis.

Security Device

The MSC card is equipped with a socket designed to hold the Security Device. The Security Device is shipped with each new Option 11C Mini system. When the MSC card is shipped, the Security Device is normally not attached to the socket on the MSC card. You must attach the Security Device to the MSC card during initial installation.

PCMCIA interface

The NTDK97 MSC card has a 2-slot PCMCIA interface socket located on its faceplate. You can insert a Software Delivery card into the socket. Use the Software Delivery card for software upgrades on an existing Option 11C Mini system. You can also use the PCMCIA socket for creating an external backup copy of the customer database.

SDI ports

The NTDK97 MSC card contains three SDI ports used to connect on-site terminals or remote terminals through a modem. See Table 18 for the default settings on the ports.

Table 18
SDI port default settings

TTY Port	Baud rate	Data bits	Stop bits	Parity
0	Set by a DIP switch	8	1	None
1	1200 (See Note below)	8	1	None
2	1200 (See Note below)	8	1	None
Note: The baud rate shown for ports 1 and 2 is the default rate. You can configure ports 1 and 2 in software to a maximum baud rate of 19200 bps.				

Ethernet interface

The NTDK97 MSC card has a 10 Mbit ethernet port. The 15-pin connector, located on the back of the Main Chassis, provides external connection to the ethernet port. This connector is for a standard 15-pin AUI interface for a MAU.

Digitone Receiver, tone generation, tone detection functions

The NTDK97 MSC card provides the following Digitone and other tone functions related to tone:

- 30 channels of Tone and Digit Switch (TDS) and a combination of eight Digitone Receivers (DTR) or Dial Tone Detectors (XTD)
- Tone service ports, which can be configured as either four units of MFC/MFE/MFK5/MFK6/MFR or eight DTR/XTD units

If you require additional tone receiver and transmission resources over and above those provided on the MSC card, install an NTAK03 TDS/DTR card.

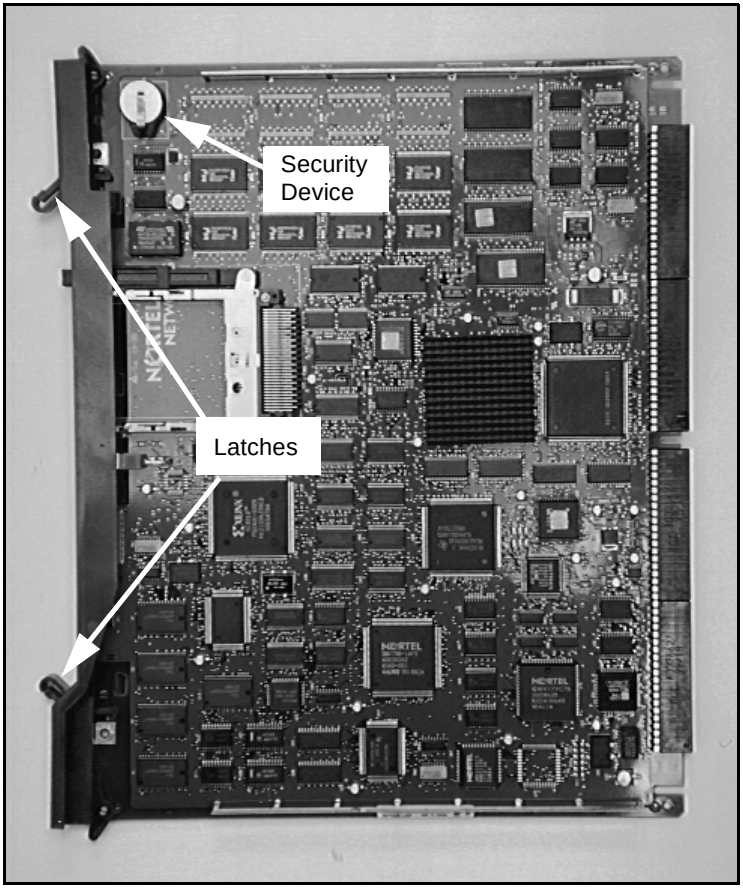
Procedure 9
NTDK97 MSC installation

1 **Put on an antistatic wrist strap.**

2 **Install the Security Device on the MSC card.**
Insert the Security Device in the socket on the component side of the MSC card. See Figure 42.

CAUTION
The NTDK97 MSC card has components on both sides of the circuit card. Be careful not to damage any of the components when you handle the card.

Figure 42
MSC card with the security device installed



3 **Insert the NTDK97 MSC card in the CPU slot (slot 0) of the Main Chassis**.

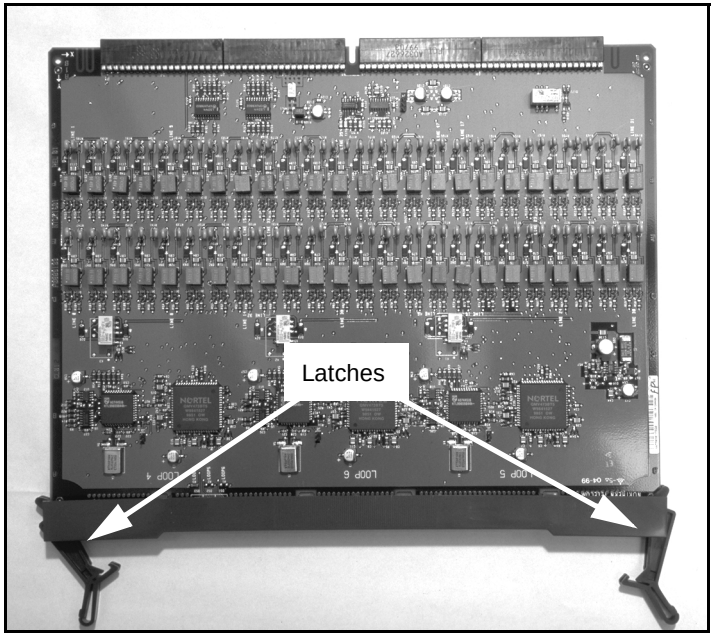
4 **Lock the latches on the card.**

End of Procedure

NTDK16 48-port Digital Line Card

The NTDK16 48-port Digital Line Card provides an interface to a maximum of 48 digital integrated voice and data sets. The NTDK16 Digital Line Card is functionally equivalent to three NT8D02 Digital Line Cards. See Figure 43.

Figure 43
48-port Digital Line Card



You must place the NTDK16 card in slot 04 of the Main Chassis.

CAUTION
Only install the NTDK16 48-port Digital Line Card in Slot 04 of the Main Chassis. If you install another card in Slot 04, system damage may result.

The 48-port Digital Line Card supports analog lines and trunks in the Option 11C Mini system, for the following reasons:

- provides +8V power to the analog lines
- provides ring synchronization (zero current crossing) signal
- provides control circuitry for the Power Failure Transfer Unit (PFTU)

Procedure 10
NTDK16 48-port Digital Line Card installation

1 Insert the NTDK16 card in Slot 4 of the Main Chassis.

2 Lock the latches on the card.

Note 1: When the time comes to program this card in software, configure it as cards 4, 5, and 6 separately.

Note 2: One LED indicates the status of Card 4.

End of Procedure

Optional circuit cards

Digital Trunk cards

The Option 11C Mini supports the following digital trunk cards:

- NTAK09 1.5 Mbit DTI/PRI
- NTAK10 2.0 Mbit DTI
- NTAK79 2.0 Mbit PRI
- NTBK22 MISP
- NTBK50 2.0 Mbit PRI

- NTRB21 1.5 Mbit DTI/PRI
- NT6D70 SILC (when used as a clock controller)

Note: The digital trunk cards can be installed only in slots 1-3 of the Main Chassis.

If you want to install digital trunk cards, refer to the following documents for information:

- *1.5 Mbit DTI/PRI Guide (553-3011-310)*
- *2.0 Mbit DTI/PRI Guide (553-3011-315)*
- *ISDN BRI Administration and Maintenance Guide* (553-3011-311)

NT8D14 Universal Trunk card

The NT8D14 Universal Trunk card provides eight analog trunks which can function in the modes shown in Table 19.

You can install this line card in slots 1 through 3 in the Main Chassis or slots 7 through 10 in the Chassis Expander.

Procedure 11
Universal Trunk card installation

1 Set the jumpers for the NT8D14 Universal Trunk circuit card according to Table 19.

Table 19
NT8D14 Universal trunk — modes and option settings

Modes	Location	Jumper strap
Central (CO)	J1, J2	OFF
2-way TIE trunk (loop Dial Repeat)	J1, J2	OFF
2-way TIE trunk (Outgoing Incoming Dial)	J1, J2	OFF
Recorded Announcement (RAN)	J1, J2	OFF
Paging trunk	J1, J2	OFF
Japan CO/DID operation	J1, J2	OFF
DID operation Loop length>2000 ¾	J1, J2	ON
DID operation Loop length <2000¾	J1, J2	OFF
Note: OFF indicates no strap present. J1 and J2 locations apply to all eight trunks.		

2 Insert the card in its assigned slot.

——————————— *End of Procedure* ———————————

NT8D15 E&M Trunk card

The E&M trunk card provides four trunks which can function as 2W E&M, 4W E&M, and Paging.

You can install this card in slots 1 through 3 in the Main Chassis, or in slots 7 through 10 in the Chassis Expander.

Procedure 12
E&M Trunk card installation

1 Set the switches for the NT8D15 E&M trunk circuit card according to Table 20.

Table 20
NT8D15 E&M Trunk card option settings

Mode of operation	J2	J9
4W — Type 1	ON	connect pins 2 - 3
4W — Type 2	ON	connect pins 2 - 3
2W — Type 1	ON	connect pins 2 - 3
Paging trunk	ON	connect pins 2 - 3

2 Insert the card in its assigned slot.

———————— ***End of Procedure*** ————————

NT8D02 Digital Line Card

The NTDK16 48-port Digital Line Card is functionally equivalent to three NT8DO2 Digial Line Cards. However, the Option 11C Mini system also supports the NT8D02 Digital Line Card.

You can install this circuit card in slots 1 to 3 of the Main Chassis or slots 7 to 10 of the Chassis Expander.

Procedure 13
NT8D02 circuit card installation

1 Insert the circuit card in slots 1 to 3 of the Main Chassis or in slots 7 to 10 of the Chassis Expander.

———————— ***End of Procedure*** ————————

NTAK02 SDI/DCH card

The NTDK97 MSC card includes the functionality of the NTAK02 card. However, if you require additional resources, you can use the NTAK02 card with the NTDK97 card. Before inserting the NTAK02 SDI/DCH card into its slot, you must set the switches and attach the jumper plugs.

Note: Install this circuit card in the Main Chassis only.

The NTAK02 SDI/DCH switches allow you to configure the four SDI ports as a combination of the following:

- SDI
- ESDI
- DCH/DPNSS

The NTAK02 SDI/DCH card uses jumper plugs to configure the RS232/RS422 interfaces as one of the following:

- DTE
- DCE

Procedure 14
NTAK02 circuit card installation

1 Set the switches and jumper plugs for the NTAK02 SDI/DCH card according to Tables 21 to 23.

Table 21
Switch settings (Ports 0 and 1)

Port 0	Port 1	SW 1-1	SW 1-2
SDI	DCH	OFF	OFF
SDI	DPNSS	OFF	ON
—	ESDI	ON	ON

Table 22
Switch settings (Ports 2 and 3)

Port 2	Port 3	SW 1-3	SW 1-4
SDI	DCH	OFF	OFF
SDI	DPNSS	OFF	ON
—	ESDI	ON	ON

Table 23
Jumper settings

Port	Jumper location	Strap for DTE	Strap for DCE	Jumper location	RS422	RS232
Port 0	J10	C - B	B - A			
Port 1	J7 J6	C - B C - B	B - A B - A	J9 J8	C - B C - B	B - A B - A
Port 2	J5	C - B	B - A			
Port 3	J4 J3	C - B C - B	B - A B - A	J2 J1	C - B C - B	B - A B - A

2 Insert the card in its assigned slot.

You can install the NTAK02 SDI/DCH card in slots 1 to 3 of the Main Chassis.

3 Connect an NTAK19FB four port cable (or an NE-A25-B cable) from the corresponding connector at the back of the chassis. If you use an NE-A25-B cable, terminate this cable at the cross-connect terminal. Because the NTAK19FB cable is equipped with connectors, it does not require termination at the cross-connect terminal.

NTAK03 TDS/DTR card

The NTDK97 MSC card provides the NTAK03 TDS/DTR card functionality. However, the TDS/DTR card can exist with the MSC card if you want to access additional TDS/DTR units. You must program these functions in the software overlays.

Note: At times the system does not operate correctly if you install an NTAK03 circuit card in a slot connected to telephones. Refer to "Chapter 13 — Installing and connecting the cross-connect terminal" on page 229 to connect an NTAK03 circuit card to the cross-connect terminal.

Procedure 15
NTAK03 card installation

1 **Insert the card in its assigned slot.**

You can insert the NTAK03 TDS/DTR card into card slots 1 to 3 of the Main Chassis.

2 **Connect an NTAK19EC cable (or an NE-A25-B cable) from the corresponding connector at the back of the chassis. If you are using an NE-A25-B cable, terminate this cable at the cross-connect terminal. Because the NTAK19EC cable is equipped with connectors, it does have to be terminated at the cross-connect terminal.**

———————— ***End of Procedure*** ————————

NTAG26 XMFR card

The NTDK97 MSC card provides the functionality of the Extended Multi-frequency Receiver (XMFR) card. However, this card can exist with the MSC card if you want to access additional XMFR capability.

The XMFR card receives MF digit information. Connections are made between a PBX and a CO. The Option 11C Mini supports features, such as Automatic Number Identification (ANI), Meridian 911 (M911), and Feature Group D (FGD), through the IPE MF Receiver.

Procedure 16
XMFR card installation

1 Insert the NTAG26 card in its assigned slot.

You can install the NTAG26 card in slots 1 through 3 of the Main Chassis or slots 7 through 10 of the Chassis Expander.

Note: After the card is enabled, the LED flashes three times to indicate it is conducting a self-test. If the LED remains lit, the self-test has failed.

End of Procedure

NT5K21 XMFC card

The NTDK97 MSC card provides the functionality of the Extended Multi-frequency Compelled Sender/Receiver (XMFC) card. However, this card can still be used if you wish to access additional XMFC capability.

The XMFC card provides four channels of R2 Standard signaling capability.

Procedure 17
XMFC card installation

1 Insert the NT5K21 card in its assigned slot.

You can install this card in slots 1 through 3 in the Main Chassis or slots 7 through 10 in the Chassis Expander.

Note: After the card is enabled, the LED flashes three times to indicate it is conducting a self-test. If the LED remains lit, the self-test has failed.

——————————— ***End of Procedure*** ———————————

NT1R20 Off-Premise Station (OPS) analog line card

The OPS analog line card provides eight OPS lines. You can install this card in slots 1 through 3 in the Main Chassis or slots 7 through 10 in the Chassis Expander.

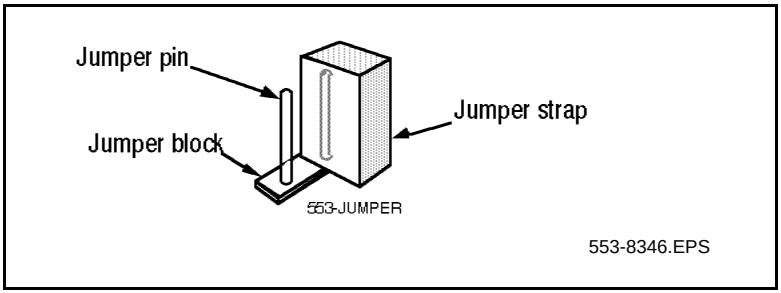
Procedure 18
OPS analog line card installation

1 Set the jumpers on the NT1R20 OPS card.

Each line interface unit on the card has two jumper blocks that are used to select the proper loop current, depending on loop length. See Table 24 on page 144 and Figure 45 on page 145.

For units connected to loops of 460 to 2300 ¾, both jumper blocks for that unit must have jumper straps installed. For loops that are 460 ¾ or less, jumper straps are not installed.

Figure 44
Set the jumpers



2 Insert the OPS card in its assigned slot.

3 Cross connect off-premise telephones as described in "Connecting off-premise telephones" on page 294.

Refer to Figure 46 on page 146 for cross connection information for the OPS card.

End of Procedure

Table 24 provides OPS analog line card configuration information.

Table 24
OPS analog line card configuration

Application	On-premise station (ONS)			Off-premise station (OPS)			
Class of service (Note 1)	ONS			OPS			
Loop resistance	0 - 460 ohms			0 - 2300 ohms			
Jumper strap setting (See Note 6)	Both JX. 0 and JX.1 off			Both JX. 0 and JX. 1 off		Both JX. 0 and JX. 1 on	
Loop loss dB (See Note 3)	0-1.5	>1.5-2.5	2.5-3.0	0-1.5	1.5-2.5	2.5-3.0	4.5-15
TIMP (See Notes 1, 4)	600¾	600¾	600¾	600¾	600¾	600¾	600¾
BIMP (See Notes 1, 4)	600¾	3COM1	3COM2	600¾	3COM1	3COM2	3COM2
Gain treatment (See Note 5)	No						Yes

Note 1: Configured in the Single line Telephone Administration program (LD 10).
Note 2: The maximum signaling range supported by the OPS analog line card is 2300 ohms.
Note 3: Loss of untreated (no gain devices) metallic line facility. Upper loss limits correspond to loop resistance ranges for 26 AWG wire.
Note 4: Default software impedance settings are:

	ONS CLS	OPS CLS
TIMP:	600 ohms	600 ohms
BIMP:	600 ohms	3COM2

Note 5: Gain treatment, such as a voice frequency repeater (VFR), is required to limit the actual OPS loop loss to 4.5 dB, maximum. VFR treatment of metallic loops having untreated loss greater than 15dB (equivalent to a maximum signaling range of 2300 ohms on 26 AWG wire) is not recommended.
Note 6: Jumper strap settings JX> 0 and JX. 1 apply to all eight units; “X” indicates the unit number, 0-7. “OFF” indicates that a jumper strap is not installed across both pins on a jumper block. Store straps that are not in use on the OPS analog line card by installing them on a single jumper pin as shown in Figure 45.

Figure 45
OPS analog line card: jumper block locations

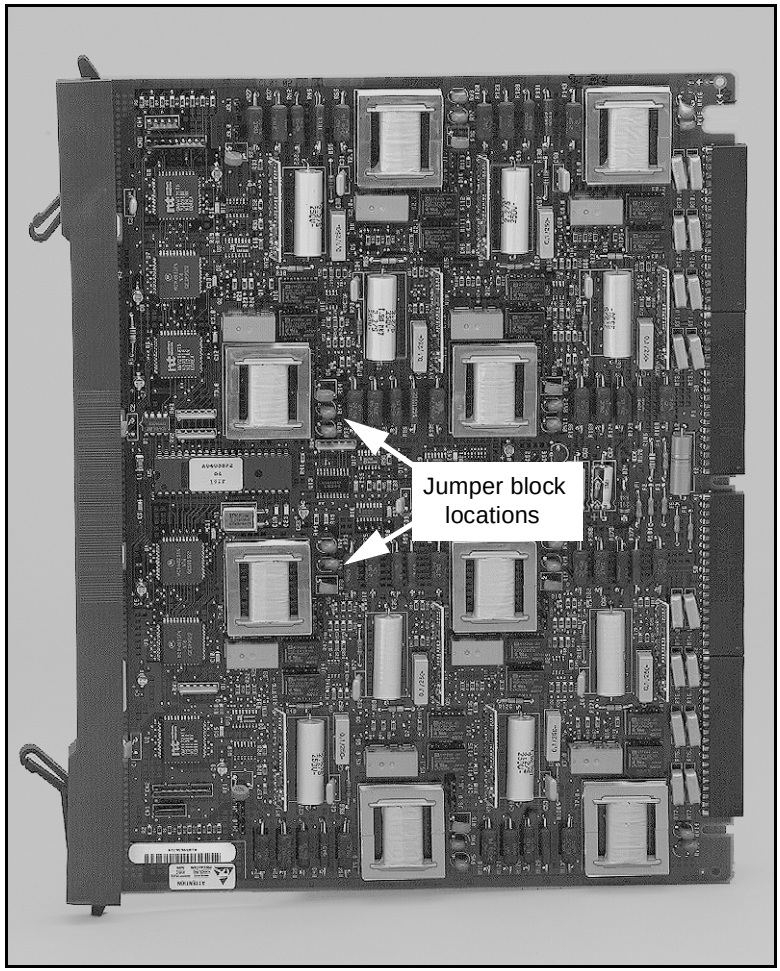
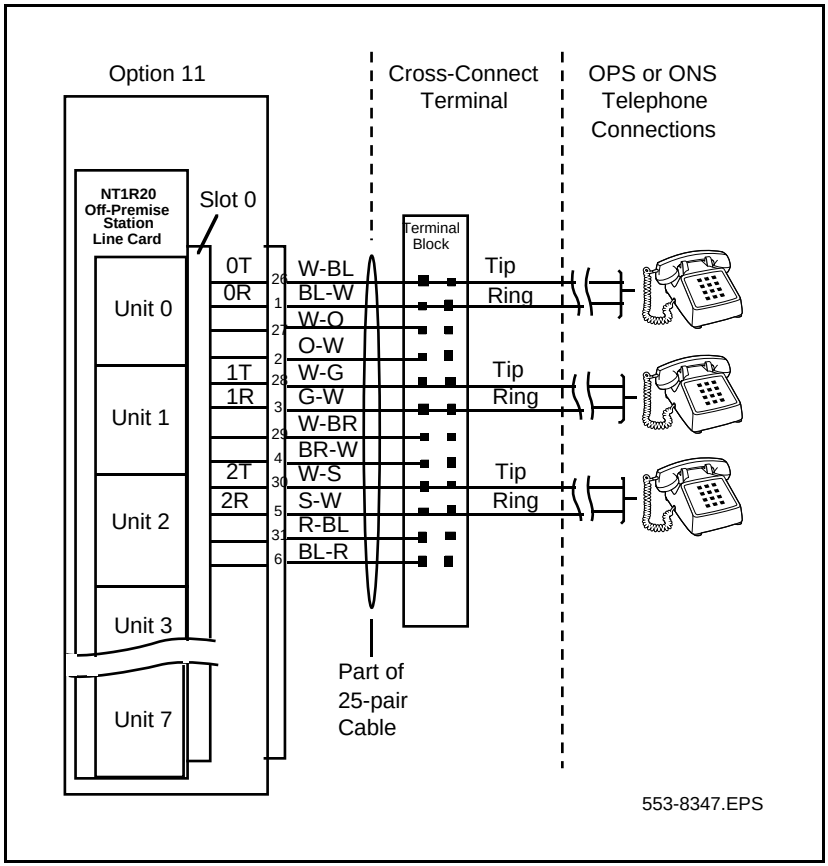


Figure 46
OPS analog line card cross connections



Circuit cards used in Europe

The information listed below provides a short description of circuit cards used in Europe.

> ***Note:*** For cross-connect tables for the following cards, refer to "Chapter 18 — Connecting the trunks" on page 313. C1 and C2 symbols used in this chapter represent Columns 1 and 2 in the cross-connect tables.

- **E&M TIE trunk cards:** TIE trunk cards provide the interface between the Option 11C Mini system and up to four analog trunks. You can install the cards in slots 1 to 3 in the Main Chassis, or in any slot in the Chassis Expander.
- **Central office (CO) trunk cards:** CO trunk cards provide the interface between the Option 11C Mini system and up to eight analog trunks. You can install the cards in slots 1 to 3 in the Main Chassis, or in any slot in the Chassis Expander.
- **Direct inward Dial (DID) trunk cards:** DID trunk cards provide the interface between the Option 11C Mini system and up to eight analog DID trunks. You can install the cards in slots 1 to 3 in the Main Chassis, or in any slot in the Chassis Expander.
- **Flexible analog line cards, with or without message waiting:** Flexible Analog line cards provide the interface between the Option 11C Mini system and up to 16 analog telephone lines. You can install the cards in slots 1 to 3 in the Main Chassis, or in any slot in the Chassis Expander.
- **Tone detector cards:** The Tone detector circuit card provides tone detection for either Dual Tone Multifrequency (DTMF) or Dial Tone (DT) detection. You can install this card in slots 1 to 3 in the Main Chassis. However, this card is normally installed in slot 9 of the Chassis Expander.

NT5K50AA E&M TIE trunk card

This trunk card provides four trunks which can function as the following:

- 4-wire E&M BPO (Type V)
- 4-wire E&M (Type II)
- Recorded Announcement (RAN)
- Paging (PAG)
- Music (MUS)

Switch settings

There are four switch settings on the E&M TIE trunk card, one for each trunk unit. The switches are used to select Type V E&M signaling. Select Type II E&M in software.

Procedure 19
NT5K50AA E&M TIE trunk installation

1 **Set the switch settings on the card, as shown in Table 25 on page 149.**

2 **Insert the card into the selected card slot and lock it in position.**

3 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to the tables in "Chapter 18 — Connecting the trunks" on page 313).**

4 **Configure the card in software (LD 16 and 14).**

Note: For Type V signaling to work, set the TYP prompt in LD 14 to TY1 or to BPO, if available.

End of Procedure

Table 25
E&M Trunk card switch settings

Signaling	Switch Setting (J1.x)	
	Pins 1-2	Pins 2-3
4-wire Type II 4-wire Type I 2-wire Type I CEPT L1 AC15 RAN MUS PAG	Closed	Open
4-wire Type V (BPO) 2-wire Type V (BPO)	Open	Closed

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	TIE, RAN, PAG	Define the trunk type as TIE, Recorded announcement or Paging
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XX	XX=Trunk route access code

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K50AA E&M trunk card. In the Overlay tables, default values are in parenthesis.

LD 14 Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	TIE, RAN, PAG	Trunk type TIE, (Recorded announcement), (Voice paging)
TN	CC UU	Terminal number of the unit: Card, Unit
XTRK (see note)	XFEM	Type is IPE XFEM
SIGL	EM4, EAM,	4 wire E&M, 2-wire E&M,
EMTY	TY1, (TY2)	Type 1signaling, (Type 2) Also use TY1 for Type V or BPO
STRI	IMM, WNK, DDL	Incoming start Immediate, Wink, Delayed dial
STRO	IMM, WNK, DDL	Outgoing start immediate, Wink, Delayed Dial
SUPN	YES, (NO)	Answer and disconnect supervision
CLS	DTN, (DIP)	Digitone, (Dialpulse)

Note: These prompts are required only for the first unit defined on each NT5K50AA card.

Self-test

When the NT5K50AA card is installed and power is applied to it, a self-test is performed on the card. The red LED on the NT5K50AA faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K72AA E&M TIE trunk card

This trunk card provides four trunks which can function as 4-Wire E&M (Type 1 and 2), RAN, PAG, and MUS.

Switch settings

There are four switch settings on the E&M TIE trunk card, one for each trunk unit.

Procedure 20
NT5K72AA E&M TIE trunk installation

1 **Set the switch settings on the card, as shown in Table 25 on page 149.**

2 **Insert the card into the selected card slot and lock it in position.**

3 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to the Tables in "Chapter 18 — Connecting the trunks" on page 313).**

4 **Configure the card in software (LD 16 and 14).**

———————— *End of Procedure* ————————

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-127	Enter route number
TKTP	TIE, (RAN), (PAG), (MUS)	Trunk type is TIE, (Recorded Announcement), (Paging), or (Music)
RTYP		RAN Type
REP	1-15	Number of repetitions (RAN)
POST	DIS, ATT	After maximum repetitions (RAN): Disconnect (DIS), or Route to Attendant (ATT)
STRT	IMM, DDL	Connect call to recording immediately (IMM), or at start of recording (DDL)
ACOD	XXXXXXX	Trunk route access code
ICOG	ICT, OGT, IAO	Incoming trunk (ICT), Outgoing trunk (OGT, or both (IAO)
NEDC	ETH, (ORG)	Near end disconnect control from either side, or (originating) end
FEDC	ETH, (ORG)	Far end disconnect control from either end, or (originating) end

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K72AA E&M trunk.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	TIE, (RAN), (PAG), (MUS)	Trunk type is TIE, (Recorded Announcement), (Paging), or (Music)
TN	CC UU	Terminal number of the unit in Option 11 format Card, Unit
XTRK (see note)	XFEM	Type is IPE E&M
EMTY	TY1, (TY2)	Type 1 signaling, (Type 2)
TIMP	1200	Terminating impedance 1200 Ohms (RAN)
SIGL	EM4	4 wire E&M speech
STRI	IMM, (WNK), (DDL)	Incoming start Immediate, (Wink), (Delayed dial)
STRO	IMM, (WNK), (DDL)	Outgoing start Immediate, (Wink), (Delayed dial)
SUPN	YES, (NO)	Answer and disconnect supervision enabled, (disabled)
CLS	(NTC), (VNL)	PABX-PABX, International Leased Line
	DTN, (DIP)	Digitone, (digipulse) signaling
CFLP	XX	Music Conference Loop

Note: These prompts are only required for the first unit defined on each NT5K72AA card.

Self-test

When the NT5K72AA card is installed and power is applied to it, a self-test is performed on the card. The red LED on the card's faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K83AB E&M TIE trunk card

This trunk card provides four trunks which can function as 4-Wire E&M (Type I and II), RAN, PAG, and MUS.

Switch settings

There are four switch settings on the E&M TIE trunk card, one for each trunk unit.

Procedure 21
NT5K83AB E&M TIE trunk installation

1 **Set the switch settings on the card, as shown in Table 25 on page 149.**

2 **Insert the card into the selected card slot and lock it in position.**

3 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to the Tables in "Chapter 18 — Connecting the trunks" on page 313).**

4 **Configure the card in software (LDs 16 and 14).**

End of Procedure

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	TIE, (RAN), (PAG)	Define the trunk type as TIE, (Recorded announcement) or (Paging)
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XX	XX=Trunk route access code

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K83AB card. In the Overlay tables, default values are in parenthesis.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	TIE, (RAN), (PAG)	Trunk type TIE, (Recorded announcement), (Voice paging)
TN	CC UU	Terminal number of the unit in Option 11 format: CC=card number UU=unit number
XTRK (see note)	XFEM	Type is IPE XFEM
SIGL	EM4	4 wire E&M speech
EMTY	TY1, (TY2)	Type 1 signaling, (Type 2)
STRI	IMM, (WNK), (DDL)	Incoming start Immediate, (Wink), (Delayed dial)
STRO	IMM, (WNK), (DDL)	Outgoing start immediate, (Wink), (Delayed Dial)
SUPN	YES, (NO)	Answer and disconnect supervision
CLS	TRC, (NTC)	Attenuation pads in, (out)

Note: These prompts are required only for the first unit defined on each NT5K83AB card.

Self-test

When the NT5K83AB E&M TIE trunk card is installed and power is applied to it, a self-test is performed on the card. The red LED on the card's faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K83BA / NT5K83BB E&M TIE trunk card

These cards provide four trunks which can function as 4-wire E&M (Type II and V), RAN, PAG, and MUS.

Switch settings

There are four switch settings on the E&M TIE trunk card, one for each trunk unit.

Procedure 22
NT5K83BA / NT5K83BB E&M TIE trunk card installation

1. **Set the switch settings on the card, as shown in Table 25 on page 149.**
2. **Insert the card into the selected card slot and lock it in position.**
3. **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to the Tables in "Chapter 18 — Connecting the trunks" on page 313).**
4. **Configure the card in software (LDs 16 and 14).**

———————— ***End of Procedure*** ————————

Self-test

When the NT5K83BA or the NT5K83BB card is installed and power is applied to it, a self-test is performed on the card. The red LED on the card's faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K83CB E&M TIE trunk card

This card provides four trunks which can function as 4-wire E&M (Type I and II), RAN, PAG, and MUS.

Switch settings

There are four switch settings on the E&M TIE trunk card, one for each trunk unit.

Procedure 23
NT5K83CB E&M TIE trunk card installation

1 **Set the switch settings on the card, as shown in Table 25 on page 149.**

2 **Insert the card into the selected card slot and lock it in position.**

3 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to the Tables in "Chapter 18 — Connecting the trunks" on page 313).**

4 **Configure the card in software (LDs 16 and 14).**

———————— ***End of Procedure*** ————————

Self-test

When the NT5K83CB card is installed and power is applied to it, a self-test is performed on the card. The red LED on the card's faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K83DB E&M TIE trunk card

The NT5K83DB card provides four trunks which can function as the following:

- 4-wire E&M (Type I and II)
- 4-wire E&M BPO (Type V)
- 2-wire E&M (Type I)
- 2-wire E&M BPO (Type V)
- CEPT L1
- RAN
- PAG
- MUS

Switch settings

There are four switch settings on the NT5K83DB circuit card, one for each trunk unit. The switches are used to select Type V E&M signaling. Select Type I and Type II E&M in software (Refer to LDs 16 and 14).

Procedure 24
NT5K83DB E&M TIE trunk card installation

1 **Set the switch settings on the card, as shown in Table 25 on page 149.**

2 **Insert the card into the selected card slot and lock it in position.**

3 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to the Tables in "Chapter 18 — Connecting the trunks" on page 313).**

4 **Configure the card in software (LDs 16 and 14).**

———————— ***End of Procedure*** ————————

Note: In order for Type V signaling to work, you must set the TYP prompt to TY1 in LD 14.

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	TIE, RAN, PAG	Define the trunk type as TIE, Recorded announcement or Paging
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XX	XX=Trunk route access code

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K83DB card. In the Overlay tables, default values are in parenthesis.

LD 14 - Trunk Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	TIE, RAN, PAG	Trunk type TIE, (Recorded announcement), (Voice paging)
TN	CC UU	Terminal number of the unit: Card, Unit
XTRK (see note)	XFEM	Type is IPE XFEM
SIGL	EM4, EAM, WR4	4 wire E&M, 2-wire E&M, CEPT L1 signaling
EMTY	TY1, (TY2)	Type 1 signaling, (Type 2)
STRI	IMM, WNK, DDL, SACK, PTSD	Incoming start Immediate, Wink, Delayed dial, Seize Ack, Proceed to send
STRO	IMM, WNK, DDL, SACK, PTSD	Outgoing start immediate, Wink, Delayed Dial, Seize ACK, Proceed to Send

LD 14 - Trunk Data Block

SUPN	YES, (NO)	Answer and disconnect supervision
CLS	DTN, (DIP)	Digitone, (Digipulse)

Note: These prompts are required only for the first unit defined on each NT5K83DB card.

Self-test

When the NT5K83DB card is installed and power is applied to it, a self-test is performed on the card. The red LED on the card's faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K83FA E&M TIE trunk card

This card provides four trunks which can function as the following:

- 2-wire E&M BPO (Type V)
- 4-wire E&M (Type II)
- RAN
- MUS
- PAG

Switch settings

There are four switch settings on the NT5K83FA circuit card, one for each trunk unit. The switches are used to select Type V E&M signaling. Select Type II E&M in software.

Procedure 25
NT5K83FA E&M TIE trunk card installation

1 Set the card's switch settings as shown in Table 25.

2 Insert the card into the selected card slot and lock it in position.

3 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to the Tables in **"Chapter 18 — Connecting the trunks" on page 313**).

4 Configure the card in software (LDs 16 and 14).

End of Procedure

Note: For Type V signaling to work, set the TYP prompt to TY1 or to BPO, if available, in LD 14.

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	TIE, RAN, PAG	Define trunk type as TIE, Recorded announcement or Paging
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XX	XX=Trunk route access code

Use Overlay 14 to configure each of the trunk units on the NT5K83FA card. In the Overlay tables, the default values are in parenthesis.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	TIE, RAN, PAG	Trunk type TIE, (Recorded announcement), (Voice paging)
TN	CC UU	Terminal number of the unit: Card, Unit
XTRK (see note)	XFEM	Type is IPE XFEM
SIGL	EM4, EAM, WR4	4 wire E&M, 2-wire E&M, CEPT L1 AC15 signaling
EMTY	TY1, (TY2)	Type 1 signaling, (Type 2)
STRI	IMM, WNK, DDL	Incoming start Immediate, Wink, Delayed dial
STRO	IMM, WNK, DDL	Outgoing start immediate, Wink, Delayed Dial

LD 14 - Route Data Block

SUPN	YES, (NO)	Answer and disconnect supervision
CLS	DTN, (DIP)	Digitone, (Dialpulse)

Self-test

When the NT5K83FA card is installed and power is applied to it, a self-test is performed on the card. The red LED on the card's faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K83GA E&M TIE trunk card

The NT5K83GA card provides four trunks which can function as the following:

- 4-wire E&M (Type I and II)
- 4-wire BPO (Type 5)
- RAN
- PAG
- MUS

Switch settings

There are four switch settings on the E&M TIE trunk card, one for each trunk unit.

Procedure 26
NT5K83GA E&M TIE trunk card installation

1 **Set the switch settings on the card, as shown in Table 25 on page 149.**

2 **Insert the card into the selected card slot and lock it in position.**

3 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to the Tables in "Chapter 18 — Connecting the trunks" on page 313).**

4 **Configure the card in software (LDs 16 and 14).**

——————————— ***End of Procedure*** ———————————

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	TIE, (RAN), (PAG)	Define the trunk type as TIE, (Recorded announcement) or (Paging)
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XX	XX=Trunk route access code

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K83GA card.

LD 14 - Trunk Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	TIE, (RAN), (PAG)	Trunk type TIE, (Recorded announcement), (Voice paging)
TN	CC UU	Terminal number of the unit in Option 11 format: CC=card number UU=unit number
XTRK see note 1	XFEM	Type is IPE XFEM
SIGL	EM4	4 wire E&M speech
EMTY	(TY1), (TY2), BPO	Signaling, (Type 1), (Type 2), Type 5
STRI	IMM, (WNK), (DDL) (RT)	Incoming start Immediate, (Wink), (Delayed dial)
STRO see note 2	IMM, (WNK), (DDL) (RT)	Outgoing start immediate, (Wink), (Delayed Dial) (RONTRON)
SUPN	YES, (NO)	Answer and disconnect supervision
CLS	TRC, (NTC)	Attenuation pads in, (out)

Note 1: These prompts are required only for the first unit defined on each NT5K83GA card.

Note 2: RONTRON signaling is only available in Release 20 and later software.

Self-test

When the NT5K83GA card is installed and power is applied to it, a self-test is performed on the card. The red LED on the card's faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K83HA E&M TIE trunk card

This card provides four trunks which can function as the following:

- 4-wire (Type I and II)
- 2-wire (Type II)
- 4-wire BPO (Type V)
- 2-wire BPO (Type V)
- AC15
- RAN
- PAG
- MUS

Switch settings

Four switch settings, one per unit, are used to select Type 5 E&M signaling. Configure Type 1 and 2 in software.

Procedure 27
NT5K83HA E&M TIE trunk card installation

1 Set the switch settings on the card, as shown in Table 25.

2 Insert the card into the selected card slot and lock it in position.

3 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to the Tables in "Chapter 18 — Connecting the trunks" on page 313).

4 Configure the card in software (LDs 16 and 14).

End of Procedure

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	TIE, RAN, PAG	Define the trunk type as TIE, Recorded announcement or Paging
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XX	XX=Trunk route access code

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K83HA E&M trunk card. In the Overlay tables, default values are in parenthesis.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	TIE, RAN, PAG	Trunk type TIE, (Recorded announcement), (Voice paging)
TN	CC UU	Terminal number of the unit: Card, Unit
XTRK (see note)	XFEM	Type is IPE XFEM
SIGL	EM4, EAM, WR4	4 wire E&M, 2-wire E&M, CEPT L1 AC15 signaling
EMTY	TY1, (TY2)	Type 1 signaling, (Type 2)

LD 14 - Route Data Block

STRI	IMM, WNK, DDL	Incoming start Immediate, Wink, Delayed dial
STRO	IMM, WNK, DDL	Outgoing start immediate, Wink, Delayed Dial
SUPN	YES, (NO)	Answer and disconnect supervision
CLS	DTN, (DIP)	Digitone, (Dialpulse)

Note: This prompt is required only for the first unit defined on each NT5K83HA card.

Self-test

When the NT5K83HA card is installed and power is applied to it, a self-test is performed on the card. The red LED on the card's faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K02DA Flexible analog line card

Switch settings

There are no option switches on the NT5K02DA card. Configure all settings in software.

Procedure 28
NT5K02DA Flexible analog line card installation

1 **Insert the card in its allocated card slot.**

2 **Connect the line card units to the cross-connect terminal and telephone by tip and ring leads.**

3 **Configure the telephone lines in software (LD 10).**

———————— ***End of Procedure*** ————————

Self-test

The faceplate of the NT5K96DA is equipped with a red LED. The LED lights when all of the assigned units on the circuit card are disabled.

NT5K02SA / NT5K96SA Flexible analog line card

The NT5K02SA and NT5K96SA circuit cards are exactly the same except for the message waiting feature: the NT5K02 card has a flashing low voltage message waiting signal, while the NT5K96 card does not.

Procedure 29
NT5K02SA / NT5K96SA Flexible analog line card installation

1 Insert the card in its allocated card slot.

2 Connect the line card units to the cross-connect terminal and telephone by tip and ring leads.

3 Configure the telephone lines in software (LD 10).

———————— ***End of Procedure*** ————————

Flash time configuration

Configure flash times in Overlay 97. You can configure the flash timers with one of two sets of values, as shown in the table below.

Note: All prompts default except for those shown in the table.

LD 97 - Flash Timer Configuration

Prompt	Response	Comments
REQ	CHG	
TYPE	SYSP	
INTN	YES	System is A-law
FLSH	45 140	For sets with a flashhook button
	45 1050	For sets without a flashhook button
		Note: This is a system wide parameter, and cannot be changed for individual sets.

Self-test

The faceplates of the NT5K02SA and the NT5K96SA cards have a red LED. The LED lights when all of the assigned units on the circuit card are disabled.

NT5K96HA Flexible analog line card

Switch settings

There are no option switches on this card. Configure all settings in software.

Procedure 30
NT5K96HA Flexible analog line card installation

1 Insert the card in its allocated card slot.

2 Connect the line card units to the cross-connect terminal and telephone by tip and ring leads.

3 Configure the telephone lines in software (LD 10).

———————— ***End of Procedure*** ————————

Self-test

The faceplate of the NT5K96HA has a red LED. The red LED lights when all of the assigned units on the circuit card are disabled.

NT5K96KA/NT5K02KA Flexible analog line card

The NT5K02KA line card is available with message waiting, while the NT5K96KA line card is equipped without message waiting.

Switch settings

There are no option switches on this card. Configure all settings in software.

Procedure 31
NT5K96KA / NT5K02KA Flexible analog line card installation

1 **Insert the card in its allocated card slot.**

2 **Connect the line card units to the cross-connect terminal and telephone by tip and ring leads.**

3 **Configure the telephone lines in software (LD 10).**

———————————— ***End of Procedure*** ————————————

Self-test

The faceplate of the NT5K96KA has a red LED. The LED lights when all of the assigned units on the circuit card are disabled.

NT5K96JB/NT5K02JB Flexible analog line card

The NT5K02JB line card is equipped with message waiting, while the NT5K96JB is offered without message waiting.

Switch settings

There are no option switches on this card. Configure all settings in software.

Procedure 32
NT5K96JB / NT5K02JB Flexible analog line card installation

1 **Insert the card in its allocated card slot.**

2 **Connect the line card units to the cross-connect terminal and telephone by tip and ring leads.**

3 **Configure the telephone lines in software (LD 10).**

———————— ***End of Procedure*** ————————

Self-test

The faceplates of the NT5K96JB and NT5K02JB cards have a red LED. The LED lights when all of the assigned units on the circuit card are disabled.

NT5K96MB/NT5K02MB Flexible analog line card

The NT5K02MB line card is available with message waiting, while the NT5K96MB line card is equipped without message waiting.

Switch settings

There are no option switches on this card. Configure all settings in software.

Procedure 33
NT5K96MB / NT5K02MB Flexible analog line card installation

1 **Insert the card in its allocated card slot.**

2 **Connect the line card units to the cross-connect terminal and telephone by tip and ring leads.**

3 **Configure the telephone lines in software (LD 10).**

———————————— ***End of Procedure*** ————————————

Self-test

The faceplates of the NT5K96MB and NT5K02MB cards have a red LED. The LED lights when all of the assigned units on the circuit card are disabled.

NT5K96NB/NT5K02NB Flexible analog line card

The NT5K02NB line card is available with message waiting, while the NT5K96NB line card is equipped without message waiting.

Switch settings

There are no option switches on this card. Configure all settings in software.

Procedure 34
NT5K96NB / NT5K02NB Flexible analog line card installation

1 **Insert the card in its allocated card slot.**

2 **Connect the line card units to the cross-connect terminal and telephone by tip and ring leads.**

3 **Configure the telephone lines in software (LD 10).**

———————— ***End of Procedure*** ————————

Self-test

The faceplates of the NT5K96NB and NT5K02NB cards have a red LED. The LED lights when all of the assigned units on the circuit card are disabled.

NT5K96TA/NT5K02TA Flexible analog line card

The NT5K02TA line card is available with message waiting, while the NT5K96TA line card is equipped without message waiting.

Switch settings

There are no option switches on this card. Configure all settings in software.

Procedure 35
NT5K96TA / NT5K02TA Flexible analog line card installation

1 Insert the NT5K96TA or NT5K02TA card in its allocated card slot.

2 Connect the line card units to the cross-connect terminal and telephone by tip and ring leads.

3 Configure the telephone lines in software (LD 10).

———————— ***End of Procedure*** ————————

Self-test

The faceplate of the NT5K96TA / NT5K02TA has a red LED. The LED lights when all of the assigned units on the circuit card are disabled.

NT5K60AA/NT5K61AA Central Office trunk card

The NT5K60AA and NT5K61AA CO trunk cards provide connectivity between the Option 11C Mini and three-wire analog trunks used in the Commonwealth of Independent States (CIS). The following three types of analog trunks can be used with these cards:

- analog incoming local three-wire
- analog incoming toll three-wire
- analog outgoing three-wire

Note: The NT5K60AA CO trunk card is used for incoming local and toll calls. The NT5K61AA card is used for outgoing local and toll calls.

Switch settings

The NT5K60AA and NT5K 61AB cards do not have any option switches. Configure all settings in software.

Procedure 36
Installation of the NT5K60AA/NT5K61AA Central Office trunk card

1 Insert the card into the selected card slot and lock it in position.

2 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to Table "Chapter 18 — Connecting the trunks" on page 313).

3 Configure the card in software (LDs 14, 16, 17, 18).

———————— ***End of Procedure*** ————————

Self-test

When the CO trunk card is installed and power is applied to it, a self-test is performed on the card. The red LED on the faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit.

LD 17 – Configure the system data.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
...		
PARM	YES	Change system parameters.
PCML	A	System Pulse Code Modulation companding law. A-law is to be used in the CIS market.
...		
DTRB	70	Dual-tone Multifrequency burst and inter-digit pause for the Tone and Digit Switch. Pulse/Pause Ratio 70/70. For outgoing E3W cards, the preferable digitone burst time is 70 ms.

LD 16 - Common overlay information that applies to all CIS trunks.

Note: When you finish entering data for DTRK, continue with ICOG information for each trunk type in Overlay 16.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RDB	Route Data Block.
...		
TKTP	DID	Direct Inward Dialing trunk data block.
...		
DTRK	NO	This is not a digital trunk route.
...		

LD 16 - Configure an incoming X3W DID route.

Prompt	Response	Description
ICOG	ICT	Incoming trunk.
...		
CNTL	YES	Change control or timers.
- TIMR	ICF 0	Incoming flash timer should be set to 0. Validation is performed by 3WT firmware.
- TIMR	EOD 13952	End of dial timer, default value in milliseconds.
- TIMR	DSI 11904	Disconnect supervision timer in milliseconds.
- TIMR	DDL 0	Delay Dial Timer not needed.
- TIMR	DTI 128	Incoming guard timer, in milliseconds.
...		
NEDC	ORG	Near End Disconnect Control. Originating end control.
FEDC	ORG	Far End Disconnect Control. Originating end control.
CDPC	(NO)	Meridian 1 is not the controlling party on incoming calls.
...		
OPR	(NO)	This is not an outpulsing route.
PRDL	YES	Partial dial timing is equipped using EOD.
EOS	BSY	Busy signal is sent on time-out.
DNSZ	(0)-7	Number of digits expected on DID routes. 0, the default, indicates no fixed value. Define this value according to the numbering plan.
...		
BTT	30	Busy Tone Time. Length of Busy/overflow to be returned on DID routes in seconds.
...		

Prompt	Response	Description
CAC	0-(3)-9	Route ANI category.
ANDN	0-9999999	Route ANI DN.
RDNL	0-(4)-7	Route DN Length for ANI. This is printed for DPNSS1, MCDN, and QSIG routes only.

LD 16 - Configure an outgoing X3W DID route and define the toll digit using the TDG prompt.

Prompt	Response	Description
ICOG	OGT	Outgoing trunk.
...		
CNTL	YES	Change control or timers.
- TIMR	ATO 7936	ANI Timeout timer, in milliseconds.
- TIMR	OGF 0	Outgoing flash timer should be set to 0 in milliseconds. Validation will be done by 3WT firmware.
- TIMR	EOD 13952	End of dial timer, default value.
- TIMR	DSI 11904	Disconnect supervision timer.
- TIMR	DDL 0	Delay Dial Timer not needed.
- TIMR	GTO 2944	Outgoing guard timer.
...		
NEDC	ETH	Near End Disconnect Control Either end control.
FEDC	ETH	Far End Disconnect Control Either end control.
...		
NATL	NO	North American Toll scheme.
TDG	8	Toll Digits. List of digits after trunk access code which indicate toll calls.

Prompt	Response	Description
...		
OPR	(NO)	This is not an outpulsing route.
...		
ACKW	(NO)	Seizure acknowledge signal is not expected.
...		
LEC	0-9999999	Local Exchange Code. You must enter a value.
ADDG	0-(8)-9	Additional digit.
CAC	0-(3)-9	Route ANI category.
ANDN	0-9999999	Route ANI DN.
RDNL	0-(4)-7	Route DN Length for ANI. This is printed for DPNSS1, MCDN, and QSIG routes only.

LD 16 - Configure an outgoing X3W DID route and define the toll access code using the SSL prompt.

Prompt	Response	Description
ICOG	OGT	Outgoing trunk.
...		
CNTL	YES	Change control or timers.
NEDC	ETH	Near End Disconnect Control Either end control.
FEDC	ETH	Far End Disconnect Control Either end control.
...		
SSL	1	Special Service List number.
...		
LEC	0-9999999	Local Exchange Code.
ADDG	0-(8)-9	Additional digit.
CAC	0-(3)-9	Route ANI category.
ANDN	0-9999999	Route ANI DN.
RDNL	0-(4)-7	Route DN Length for ANI. This is printed for DPNSS1, MCDN, and QSIG routes only.

LD 16 - Configure an incoming E3W DID route.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	RDB	Route Data Block.
...		
TKTP	DID	Direct Inward Dialing trunk data block.
...		
DTRK	NO	This is not a digital trunk route.
...		
ICOG	ICT	Incoming trunk.
...		
CNTL	YES	Change control or timers.
- TIMR	ICF 0	Set the incoming flash timer to 0. Validation has already been done by 3WT firmware.
- TIMR	OGF 0	Outgoing flash timer should be set to 0. Validation has already been done by 3WT firmware.
- TIMR	EOD 13952	End of dial timer, default value.
- TIMR	DSI 11904	Disconnect supervision timer.
- TIMR	DDL 0	Delay Dial Timer not needed.
...		
NEDC	ORG	Near End Disconnect Control Originating end control.
FEDC	ORG	Far End Disconnect Control Originating end control.
CDPC	(NO)	Meridian 1 is not the controlling party on incoming calls.
...		
OPR	(NO)	This is not an outpulsing route.

Prompt	Response	Description
PRDL	YES	Partial dial timing is equipped using EOD.
EOS	BSY	End of selection and busy signals enabled.
DNSZ	(0)-7	Number of digits expected on DID routes. 0, the default, indicates no fixed value. Define this value according to the numbering plan.
...		
BTT	30	Length of busy/overflow tone to be returned on DID routes in seconds.
...		
CAC	0-(3)-9	Route ANI category.
ANDN	0-9999999	Route ANI DN.
RDNL	0-(4)-7	Route DN Length for ANI. This is printed for DPNSS1, MCDN, and QSIG routes only.

LD 16 - Configure an outgoing E3W COT route.

Prompt	Response	Description
ICOG	OGT	Outgoing trunk.
...		
CNTL	YES	Change control or timers.
- TIMR	ICF 0	Set the incoming flash timer to 0 in milliseconds. Validation will be done by 3WT firmware.
- TIMR	OGF 0	Set the outgoing flash timer to 0 in milliseconds. Validation will be done by 3WT firmware.
- TIMR	EOD 13952	End of dial timer, default value.
- TIMR	DSI 11904	Disconnect supervision timer.
- TIMR	DDL 0	Delay Dial Timer not needed.
- TIMR	GTO 2944	Outgoing guard timer.
...		
NEDC	ETH	Near End Disconnect Control Either end control.
FEDC	ETH	Far End Disconnect Control Either end control.
CDPC	(NO)	Meridian 1 is not the controlling party on incoming calls.
...		
NATL	NO	North American Toll scheme.
...		
LEC	0-9999999	Local Exchange Code.
ADDG	0-(8)-9	Additional digit.
CAC	0-(3)-9	Route ANI category.
ANDN	0-9999999	Route ANI DN.
RDNL	0-(4)-7	Route DN Length for ANI.This is printed for DPNSS1, MCDN, and QSIG routes only.

LD 14 - Add or change trunk data for X3W incoming DID trunk.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	DID	Direct Inward Dialing trunk data block.
...		
XTRK	XDID	Extended Trunk Type. IPE DID trunk card.
...		
SIGL	CIS	Trunk Signaling. Three-wire CIS trunk signaling.
CIST	(NO),YES	Prompted only for incoming routes (i.e., ICOG = ICT). NO = Local trunk. YES = Toll trunk.
...		
STRI	IMM	Immediate incoming start arrangement.
...		
SUPN	YES	Answer and disconnect supervision required.
CLS	(DIP) (SHL), LOL (BARD), BARA	Dial pulse (for 3WT incoming and outgoing). Line length used for B34 Codec settings. Barring (denied) allowed.

LD 14 - Add or change trunk data for X3W outgoing DID trunk.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	DID	Direct Inward Dialing trunk data block.
...		
XTRK	XDID	IPE DID trunk card.
...		
SIGL	CIS	Three-wire CIS trunk signaling.
...		
STRO	IMM	Immediate outgoing start arrangement.
...		
SUPN	YES	Answer and disconnect supervision required.
CLS	(DIP) (SHL), LOL (BARA), BARD	Dial pulse (for 3WT incoming and outgoing). Line length used for B34 Codec settings. Barring (allowed) denied.

LD 14 - Add or change trunk data for E3W incoming three-wire trunk.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	DID	Direct Inward Dialing trunk data block.
...		
SIGL	EAM	Ear & Mouth.
CDEN	DD	Double density.
...		
STRI	IMM	Immediate incoming start arrangement.
...		
SUPN	YES	Answer and disconnect supervision required.
CLS	(DIP)	Dial pulse.

LD 14 - Add or change trunk data for E3W outgoing three-wire trunk.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	COT	Central Office Trunk data block.
...		
SIGL	LOP	Loop start.
CDEN	DD	Double density.
...		
SUPN	YES	Answer and disconnect supervision required.
- STYP	PSP	Polarity sensitive card.
...		
SEIZ	YES	Answer and disconnect supervision required.
CLS	DTN	Digitone.

LD 18 - Configure the Special Service List.

Prompt	Response	Description
REQ	NEW, CHG	Add, or change.
TYPE	SSL	Special Service List data block.
CUST	0-99	Customer number.
SSL	1-15	List number for Special Service List.
SSDG	xxxx	Special Service Digit or Digits (1 to 4 digits).
...		
- TOLL	YES	The SSDG entry is a toll number.
...		
SSDG	xxxx	Special Service Digit or Digits (1 to 4 digits).
...		
- SSUC	YES	The SSDG entry is a Special Service unanswered call.
SSDG	<CR>	

NT5K70AB/NT5K71AB Central Office trunk card

The NT5K71AB is the same as the NT5K70AB trunk card, but it connects up to four analog trunks instead of eight.

Switch settings

The NT5K70AB and NT5K71AB cards do not have any option switches. Configure all settings in software.

Procedure 37
Installation of the NT5K70AB/NT5K71AB Central Office trunk card

1. **Insert the card into the selected card slot and lock it in position.**
2. **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).**
3. **Configure the card in software (LDs 16 and 14).**

———————— *End of Procedure* ————————

Self-test

When the CO trunk card is installed and power is applied to it, a self-test is performed on the card. The red LED on the faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit.

NT5K82AA Central Office trunk card

Switch settings

The NT5K82AA trunk card does not have any option switches. Configure all settings in software.

Procedure 38
Installation of the NT5K82AA Central Office trunk card

1 Insert the card into the selected card slot and lock it in position.

2 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).

3 Configure the card in software (LDs 16 and 14).

———————— *End of Procedure* ————————

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	COT	Define trunk type as Central Office
ICOG	IAO	Incoming and Outgoing trunk
CNTL	YES	Change a trunk timer
TIMER	RGV 128 GTO 640	Set Ring Validation Timer to 128 ms Set Guard Timer Outgoing to 640 ms
CDR	YES	Call Detail Recording allowed
MR	(NO), PPM, XLD	PPM is off, buffered or unbuffered on this route

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K82AA Central Office trunk.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	COT	Central Office Trunk
TN	CC UU	Terminal number of the unit in Option 11 format: CC=card number UU=unit number
XTRK (see note)	XCOT	Type is IPE COT
CDEN	(8D)	Card density is 8D (default)
SIGL	LOP	Loop start signaling
PPID (see note)	04	Swiss PPM ID
BTID (see note)	04	Swiss Busy Tone ID
CLS	SHL, (LOL)	Attenuation Pads In, (Out)
	BTS, (XBTD)	Busy tone supervision enabled, (disabled)
	DTN, (DIP)	Digitone signaling, (digitpulse)
	BARA, (BARD)	Barring supervision enabled, (disabled)
	LBS, (XLBS)	Loop break supervision enabled, (disabled)

Note: These prompts are required only for the first unit defined on each NT5K82AA card.

Self-test

When the NT5K82AA trunk card is installed and power is applied to it, a self-test is performed on the card. The red LED on the faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit.

NT5K82HA Central Office trunk card

Switch settings

The NT5K82HA card does not have any option switches. Configure all settings in software.

Procedure 39
Installation of the NT5K82HA Central Office trunk card

1 Insert the card into the selected card slot and lock it in position.

2 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).

3 Configure the card in software (LDs 16 and 14).

Overlay 16 - Route Data Block—NT5K82HA

Prompt	Response	Comments
REQ	NEW	Define a new unit
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Define customer number
ROUT	0-127	Define route number
TKTP	COT	Define the trunk type as Central Office
ICOG	IAO	Incoming and Outgoing trunk
CNTR	YES	Change a trunk timer
TIMER	ICF 1920 OGF 512 EOD 4096 NRD 10112 ODT 4096 RGV640 GTO 1024 GTI 896	Set Incoming Flash Timer Set Outgoing Timer Set No Ringing Detector Set Ring Validation Timer Set Guard Timer Outgoing Set Guard Timer Incoming
CDR	YES	Call Detail Recording allowed
MR	PPM	Respond PPM for NT5K82HA
DTD	YES	Dial Tone Detection
XTDT	XX(see note)	Tone Detection Table Number
MDTD	05	Dial Tone Detection Delay
DTDF	00 00	Dial Detector Fail Threshold

Note: Reference Overlay 97 to set up the Dial Tone Detection.

```
TYPE   DTD
XTDT   xx
DFQ    03
MDL-   20
BRK    00
CAD    00
SSC    00
```

Note: Reference Overlay 97 to set up make/break ratio for outpulsing.

```
TYPE   SYSP
PPS10  67
```

Note: Reference Overlay 97 to set up DTMF dialing parameters.

```
TYPE   XCTP
DTMF   191
INTU   NO
```

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K82HA Central Office trunk card. In the Overlay tables, default values are in parenthesis.

Overlay 14 - Trunk Data Block—NT5K82HA

Prompt	Response	Comments
REQ	NEW	Define a new unit
TYPE	COT	Central Office Trunk
TN	CC UU	Terminal number of the unit in Option 11 format: Card number, Unit number
XTRK†	XCOT	Type is IPE COT Only required for the first unit to be defined for that pack.
CDEN	(8D)	Card Density is 8D (default)
SIGL	LOP	Loop Start Signaling
SEIZ	YES	Enable Autoguard Supervision
PPID	6	PPM ID
BTID	<cr>	Busy Tone ID not supported
CLS	XBTS DTN, (DIP)	Busy Tone Supervision Disabled, Busy Tone Detection not supported Digitone (Digitpulse) Signaling

Self-test

When the NT5K82HA is installed and power is applied to it, a self-test is performed on it. The red LED on the faceplate flashes three times, then remains continuously lit until the cards are enabled in software. If the self-test fails, the LED remains lit.

NT5K90AB / NT5K90BB Central Office trunk card

The NT5K90AB trunk card is equipped with PPM, while the NT5K90BB operates without.

Switch settings

The NT5K90AB and NT5K90BB cards do not have any option switches. Configure all settings in software.

Procedure 40
Installation of the NT5K90AB / NT5K90BB Central Office trunk card

1 **Insert the card into the selected card slot and lock it in position.**

2 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).**

3 **Configure the card in software (LDs 16 and 14).**

———————— ***End of Procedure*** ————————

Self-test

When the card is installed and the power is applied to it, a self-test is performed on the card. The red LED on both the NT5K90AB and the NT5K90BB faceplates flash three times. The LED then remains lit until the card is enabled in software. If the self-test fails, the LED remains lit after the card is enabled.

NT5K99AA / NT5K99BA Central Office trunk card

The NT5K99AA and NT5K99AB cards are exactly the same except for the periodic pulse metering feature provided by the NT599AA card. This card supports internal 12 kHz PPM.

Switch settings

The NT5K99AA and NT5K99BA cards do not have any option switches. Configure all settings in software.

Procedure 41
Installation of the NT5K99AA /NT5K99BA Central Office trunk card

1 Insert the card into the selected card slot and lock it in position.

2 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).

3 Configure the card in software (LDs 16 and 14).

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-127	Enter route number
TKTP	COT	Define the trunk type as Central Office
ICOG	IAO	Incoming and Outgoing trunk
CNTL	YES	Change a trunk timer

LD 16 - Route Data Block

TIMER	ICF 128 OGF 896 EOD 3072 DSI 4992 NRD 4992 ODT 896 RGV 768 GTO 4096 GTI 896	Incoming Flash Timer = 128 ms Outgoing Flash Timer = 896 ms End of Dial Timer (Digipulse) = 3072 ms Disconnect Supervision Timer = 4992 ms No Ringing Detector Change Timer = 4992 ms End of Dial Timer (Digitone) = 896 ms Ring Validation Timer = 768 ms Guard Timer Outgoing = 4096 ms Guard Timer Incoming = 896 ms
CDR	YES	Call Detail Recording allowed

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-127	Enter route number
TKTP	COT	Define trunk type as Central Office
ICOG	IAO	Incoming and Outgoing trunk
CNTL	YES	Change a trunk timer
TIMER	ICF 128 OGF 896 EOD 3072 DSI 4992 NRD 4992 ODT 896 RGV 768 GTO 4096 GTI 896	Incoming Flash Timer = 128 ms Outgoing Flash Timer = 896 ms End of Dial Timer (Digipulse) = 3072 ms Disconnect Supervision Timer = 4992 ms No Ringing Detector Change Timer = 4992 ms End of Dial Timer (Digitone) = 896 ms Ring Validation Timer = 768 ms Guard Timer Outgoing = 4096 ms Guard Timer Incoming = 896 ms
CDR	YES	Call Detail Recording allowed

End of Procedure

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-127	Enter route number
TKTP	COT	Define trunk type as Central Office
ICOG	IAO	Incoming and Outgoing trunk
CNTL	YES	Change a trunk timer
TIMER	ICF 128 OGF 896 EOD 3072 DSI 4992 NRD 4992 ODT 896 RGV 768 GTO 4096 GTI 896	Incoming Flash Timer = 128 ms Outgoing Flash Timer = 896 ms End of Dial Timer (Digipulse) = 3072 ms Disconnect Supervision Timer = 4992 ms No Ringing Detector Change Timer = 4992 ms End of Dial Timer (Digitone) = 896 ms Ring Validation Timer = 768 ms Guard Timer Outgoing = 4096 ms Guard Timer Incoming = 896 ms
CDR	YES	Call Detail Recording allowed

Note: Reference Overlay 97 to set up DTMF dialing parameters.

REQ CHG
TYPE XCTP
DTMF 89

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K99AA and NT5K99BA Central Office trunk cards.

Note: Press Carriage Return, <CR>, to accept the default for all prompts, except for those shown in the following Overlay table. In the Overlay tables, default values are in parenthesis.

LD 14 - Trunk Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	COT	Central Office Trunk
TN	CC UU	Terminal number of the unit in Option 11 format: Card number, Unit number
XTRK (see note)	XCOT	Type is IPE COT
CDEN	(8D)	Card density is 8D (default)
SIGL	LOP	Loop Start signaling
PPID (see note)	04 or <cr>	PPM ID is 04 for Spain; skip if PPM is not to be configured
CLS	SHL, (LOL) DTN, (DIP) BAT, (XBAT)	Attenuation Pads In, (Out) Digitone signaling, (Digipulse) Battery supervision enabled, (disabled)

Note: This prompt is required only for the first unit defined on each NT5K99AA or NT5K99BA card.

Self-test

When the NT5K99AA and NT5K99BA trunk cards are installed and power is applied to them, a self-test is performed on each card. The red LED on the faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit.

NTAG03AA Central Office trunk card

Switch settings

The NTAG03AA card does not have any option switches. Configure all setting in software.

Procedure 42
Installation of the NTAG03AA Central Office trunk card

1 Insert the card into the selected card slot and lock it in position.

2 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).**

3 **Configure the card in software (LDs 16 and 14).**

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	COT	Define the trunk type as central office
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XXXXXXX	Trunk route access code
CNTL	YES	Change a trunk timer
TIMER	RGV 256	Ring Validation Timer = 256 ms
DTD	YES	Dial tone detector performed on this route
2DT	YES	
SCDT	NO	Secondary dial tone is not used in Holland
XTDT	(0)-7	Extended tone detector table number programmed in Overlay 97 (Enter 0 if the table has not already been programmed in LD 97)
NEDC	ETH	Near end disconnect control from either end
FEDC	ETH	Far end disconnect control from either end

LD 16 - Route Data Block

MR	PPM	Buffered PPM signals counted on this route

End of Procedure

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	COT	Define trunk type as central office
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XXXXXXX	Trunk route access code
CNTL	YES	Change a trunk timer
TIMER	RGV 256	Ring Validation Timer = 256 ms
DTD	YES	Dial tone detector performed on this route
2DT	YES	
SCDT	NO	Secondary dial tone is not used in Holland
XTDT	(0)-7	Extended tone detector table number programmed in Overlay 97 (Enter 0 if the table has not already been programmed in LD 97)
NEDC	ETH	Near end disconnect control from either end
FEDC	ETH	Far end disconnect control from either end
MR	PPM	Buffered PPM signals counted on this route

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NTAG03AA central office trunk.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	COT	Central Office Trunk
TN	CC UU	Terminal number of the unit: Card, Unit
CDEN	(8D)	Card density is 8D (default)
XTRK (see note)	XCOT	Type is IPE COT
SIGL	LOP	Loop Start signaling
PPID	07	PPM country Identification
BTID	07	Busy Tone country identification
CLS	DTN, (DIP) BTS	Digitone signaling, (Digipulse) Battery supervision enabled, (disabled)

Note: These prompts are required only for the first unit defined on each NTAG03AA card.

Self-test

When the card is installed, the red Light Emitting Diode (LED) on the faceplate flashes as the self-test runs. If the self-test completes successfully, the card is automatically enabled (if the card has been configured in software). The LED goes out. If the self-test fails, the LED remains lit. The LED also remains lit if one or more units on the card become disabled while the card is operating.

NTAG04AA Central Office/Direct Inward Dial trunk card

Switch settings

The NTAG04AA card does not have any option switches. Configure all settings in software.

Procedure 43
Installation of the NTAG04AA Central Office/Direct Inward Dial trunk card

1 Insert the card into the selected card slot and lock it in position.

2 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).

3 Configure the card in software (LDs 16 and 14).

———————— *End of Procedure* ————————

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	COT	Define the trunk type as central office
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XXXXXXX	Trunk route access code
CNTL	YES	Change a trunk timer
TIMER	DSI 2048 GTI 512 GTO 512 RGV 256	Disconnect Supervision Timer = 2048 ms Incoming Guard Timer = 512 ms Outgoing Guard Timer = 512 ms Ring Validation Timer = 256 ms
DTD	YES	Dial tone detector performed on this route
2DT	YES	
SCDT	NO	Secondary dial tone is not used in Holland

LD 16 - Route Data Block

Prompt	Response	Comments
XTDT	(0)-7	Extended tone detector table number programmed in Overlay 97 (Enter 0 if the table has not already been programmed in LD 97))
NEDC	ETH	Near end disconnect control from either end
FEDC	ETH	Far end disconnect control from either end
MR	PPM	Buffered PPM signals counted on this route
DTD	YES	Dial tone detector performed on this route
2DT	YES	
SCDT	NO	Secondary dial tone is not used in Holland
XTDT	(0)-7	Extended tone detector table number programmed in Overlay 97 (Enter 0 if the table has not already been programmed in LD 97))
NEDC	ETH	Near end disconnect control from either end
FEDC	ETH	Far end disconnect control from either end
MR	PPM	Buffered PPM signals counted on this route

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NTAG04AA CO/DID trunk card.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	COT	Central Office Trunk
TN	CC UU	Terminal number of the unit: Card, Unit
CDEN	(8D)	Card density is 8D (default)
XTRK (see note)	XCOT	Type is IPE COT
SIGL	ALS	ALS signaling
PPID	07	PPM country Identification
CLS	DTN, (DIP)	Digitone signaling, (Digipulse)

Note: These prompts are required only for the first unit defined on each NTAG04AA card.

Direct Inward Dial trunk configuration

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	DID	Define trunk type as Direct Inward Dial
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XXXXXXX	Trunk route access code
CNTL	YES	Change a trunk timer
TIMER	DSI 2048 GTI 512 GTO 512 RGV 256	Disconnect Supervision Timer = 2048 ms Incoming Guard Timer = 512 ms Outgoing Guard Timer = 512 ms Ring Validation Timer = 256 ms
DTD	YES	Dial tone detector performed on this route
2DT	YES	
SCDT	NO	Secondary dial tone is not used in Holland
XTDT	(0)-7	Extended tone detector table number programmed in Overlay 97 (Enter 0 if the table has not already been programmed in LD 97))
NEDC	ETH	Near end disconnect control from either end
FEDC	ETH	Far end disconnect control from either end
MR	PPM	Buffered PPM signals counted on this route
PRDL	YES	Partial timing equipped using EOD
EOS	YES	End of Selection signal enabled
ACKW	YES	Seizure acknowledgment signal is expected after seizure of a DID/DOD trunk

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NTAG04AA CO/DID card.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	COT	Central Office Trunk
TN	CC UU	Terminal number of the unit: Card, Unit
CDEN	(8D)	Card density is 8D (default)
XTRK (see note)	XCOT	Type is IPE COT
SIGL	EAM	E&M signaling
STRI	IMM	Incoming start immediate
STRO	IMM	Outgoing start immediate
SUPN	YES	Answer and disconnect supervision
PPID	07	PPM country Identification
CLS	DTN, (DIP) BARD	Digitone signaling, (Digipulse) Barring denied
DTCR	YES, (NO)	Digit collection ready. Set to YES only if class of service (CLS) is digitone (DTN).

Note: This prompt is required only for the first unit defined on each NTAG04AA card.

Self-test

When the card is installed, the red Light Emitting Diode (LED) on the faceplate flashes as the self-test runs. If the self-test completes successfully, the card is automatically enabled (if the card has been configured in software) and the LED goes out. If the self-test fails, the LED remains lit. The LED also remains lit if one or more units on the card become disabled while the card is operating.

NTCK18AA Central Office trunk card

Switch settings

The NTCK18AA card does not have any option switches. Configure all settings in software.

Procedure 44
Installation of the NTCK18AA Central Office trunk card

1 Insert the card into the selected card slot and lock it in position.

2 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).

3 Configure the card in software (LDs 16 and 14).

———————— *End of Procedure* ————————

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	COT	Define trunk type as Central Office
ICOG	IAO	Incoming and Outgoing trunk
CNTL	YES	Change a trunk timer
TIMER see note	RGV 128 GTO 1920	Set Ring Validation Timer to 128 ms Set Guard Timer Outgoing to 1920ms
CDR	YES	Call Detail Recording allowed
MR	(NO), PPM, XLD	PPM is off, buffered or unbuffered on this route

Note: Only set GTO to 1920 if PPM is configured. There is a 1.7 second delay in disconnection of PPM detector at the end of call.

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NTCK18AA central office trunk.

LD 14 - Trunk Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	COT	Central Office Trunk
TN	CC UU	Terminal number of the unit in Option 11 format: CC=card number UU=unit number
XTRK see note 1	XCOT	Type is IPE COT
CDEN	(8D)	Card density is 8D (default)
SIGL	LOP	Loop start signaling
PPID see note 1	04	Italian PPM ID
BTID see note 1 & 2	12 13	Italian Busy Tone ID
BIMP	(600), 3COM	Balance impedance selection
SEIZ	YES, (NO)	Automatic guard detection for outgoing trunk
CLS	SHL, (LOL)	Attenuation Pads In, (Out)
	BTS, (XBTD)	Busy tone supervision enabled, (disabled)
	DTN, (DIP)	Digitone signaling, (digipulse)

Note 1: These prompts are required only for the first unit defined on each NTCK18AA card.

Note 2: BTID = 12, corresponds to busy tone cadence of 200 ms on / 200 ms off.
BTID = 13 corresponds to busy tone cadence of 500ms on / 500ms off.

Self-test

When the NTCK18AA trunk card is installed and power is applied to it, a self-test is performed on the card. The red LED on the faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit.

NTCK93AB/NTCK93BB Central Office trunk card

The NT5K93AB trunk card provides PPM pulses, while the NT5K93BB card does not.

Switch settings

The NT5K93AB and NT5K93BB cards do not have any option switches. Configure all settings in software.

Procedure 45
Installation of the NTCK93AB / NTCK93BB Central Office trunk card

1 **Insert the card into the selected card slot and lock it in position.**

2 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).**

3 **Configure the card in software (LDs 16 and 14).**

———————— ***End of Procedure*** ————————

Self-test

When the card is installed and power is applied to it, a self-test is performed on the card. The red LED on the faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit.

NTCK24AA Central Office trunk card

Switch settings

The NTCK24AA card does not have any option switches. Configure all settings in software.

Procedure 46
Installation of the NTCK24AA Central Office trunk card

1 Insert the card into the selected card slot and lock it in position.

2 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).

3 Configure the card in software (LDs 16 and 14).

———————— *End of Procedure* ————————

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	COT	Define the trunk type as Central Office
ICOG	IAO	Incoming and Outgoing trunk
ACOD	XXXXXXX	Trunk route access code
CNTL	YES	Change a trunk timer
TIMER	RGV 384	Ring Validation Timer = 384 ms
DTD	YES(NO)	Dial tone detector performed / not performed on this route If Yes, answer the following 2DT and XTDT prompts.
2DT	YES	
XTDT	(0)-7	Extended tone detector table number programmed in Overlay 97 (Enter 0 if the table has not already been programmed in LD 97)

LD 16 - Route Data Block

Prompt	Response	Comments
NEDC	ETH	Near end disconnect control from either end
FEDC	ETH	Far end disconnect control from either end
CDR	YES, (NO)	CDR trunk route. If Yes, answer OAL and MR prompts.
OAL	YES, (NO)	CDR on outgoing calls
MR	PPM	Buffered PPM signals counted on this route

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NTCK24AA Central Office trunk.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	COT	Central Office Trunk
TN	CC UU	Terminal number of the unit: CC=card number UU=unit number
CDEN	(8D)	Card density is 8D (default)
XTRK (see note)	XCOT	Type is IPE COT
SIGL	LOP	Loop Start signaling
PPID	07	PPM country Identification
BTID	07	Busy Tone country identification
CLS	DTN, (DIP)	Digitone signaling, (Digipulse)

Note: These prompts are required only for the first unit defined on each NTCK24AA card.

Self-test

When the card is installed, the red Light Emitting Diode (LED) on the faceplate flashes as the self-test runs. If the self-test completes successfully, the card is automatically enabled (if the card has been configured in software). The LED goes out. If the self-test fails, the LED remains lit.

NT5K36AB Direct Inward Dial/Direct Outward Dial trunk card

Switch settings

The NT5K36AB card does not have any option switches. Configure all settings in software.

Procedure 47
NT5K36AB Direct Inward Dial / Outward Dial trunk card installation

1 **Insert the card into the selected card slot and lock it in position.**

2 **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).**

3 **Configure the card in software (LDs 16 and 14).**

———————— ***End of Procedure*** ————————

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-127	Enter route number
TKTP	DID	Trunk type is Direct Inward Dial
ICOG	IAO, ICT	Incoming and Outgoing or Incoming only trunk
ACOD	XX	XX=trunk route access code
CNTL	YES	Change controls or timers
TIMR	EOD 10112	Set End of Dial timer to 10112 ms
	ICF 0	Set Incoming Flash timer to 0 ms
	OGF	Set Outgoing Flash timer to 0 ms
	GTI 128	Set Guard Timer Incoming to 128
	GTO 2048	Set Guard Timer Outgoing to 2048
	DSI 360000	Set Disconnect Timer to 360000 ms (6 minutes)
NEDC	ETH	Near end disconnect control from either end
FEDC	ETH	Far end disconnect control from either end
PRDL	BSY	Return Busy Tone on partial dial time-out
EOS	BSY	Send End of Selection (number received) signal and Busy signal if required
ACKW	YES	Seize acknowledge required
BTT	100	Busy tone timer 100 seconds

Trunk Data Block

Use Overlay 14 to configure each of the four trunk units on the NT5K36AB DID/DOD trunk card. In the Overlay tables, default values are in parenthesis.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	DID	Direct Inward Dial
TN	CC UU	Terminal number of the unit in Option 11 format Card, Unit
XTRK (see note)	XDID	Type is IPE DID
SIGL	EAM	EAM type signaling
STRI	IMM	Incoming start is immediate dial
STRO	IMM	Outgoing start is immediate dial
SUPN	NO	Answer and disconnect supervision required
CLS	SHL, (LOL)	Attenuation pads in, (out)

Note: These prompts are required only for the first unit defined on each NT5K36AB card.

Self-test

When the card is installed, the red Light Emitting Diode (LED) on the faceplate flashes as the self-test runs. If the self-test completes successfully, the card is automatically enabled (if the card has been configured in software). The LED goes out. If the self-test fails, the LED remains lit.

NT5K84AA Direct Inward Dial trunk card

Switch settings

The NT5K84AA card does not have any option switches. Configure all settings in software.

Procedure 48
Installation of the NT5K84AA Direct Inward Dial trunk card

1. **Insert the card into the selected card slot and lock it in position.**
2. **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).**
3. **Configure the card in software (LDs 16 and 14).**

———————— *End of Procedure* ————————

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	DID	Trunk type is Direct Inward Dial
ICOG	ICT	Incoming only trunk
ACOD	XX	XX=trunk route access code
MFC	YES, (NO)	Multi-frequency compelled signaling enabled, (disabled)
CNTL	YES	Change controls or timers
TIMR	EOD 19968 ICF 0 GTI 128	Set End of Dial timer to 19968 ms Set Incoming Flash timer to 0 ms Set Guard Timer Incoming to 128
NEDC	ETH	Near end disconnect control from either end
FEDC	ETH	Far end disconnect control from either end
PRDL	BSY	Return Busy Tone on partial dial time-out
EOS	YES	Send End of Selection (number received) signal

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K84AA DID trunk card.

LD 14 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	DID	Direct Inward Dial
TN	LL SS CC UU	Terminal Number of the unit: Loop, Shelf, Card, Unit
XTRK (see note)	XDID	Type is IPE DID
SIGL	EAM	E&M signaling
SUPN	YES	Answer and disconnect supervision required
CLS	SHL, (LOL)	Attenuation pads in, (out)

Note: This prompt is required only for the first unit defined on each NT5K84AA card.

Self-test

When the card is installed, the red Light Emitting Diode (LED) on the faceplate flashes as the self-test runs. If the self-test completes successfully, the card is automatically enabled (if the card has been configured in software). The LED goes out. If the self-test fails, the LED remains lit.

NTCK22AA Direct Inward Dial / TIE trunk card

Switch settings

The NTCK22AA card does not have any option switches. Configure all settings in software.

Procedure 49
NTCK22AA Direct Inward Dial / TIE trunk card installation

1. **Insert the card into the selected card slot and lock it in position.**
2. **Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).**
3. **Configure the card in software (LDs 16 and 14).**

———————— *End of Procedure* ————————

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	DID	Trunk type is Direct Inward Dial
ICOG	ICT	Incoming only trunk
ACOD	XX	XX=trunk route access code
CNTL	YES	Change controls or timers
TIMR	ICF 0	Set Incoming Flash timer to 0 ms
PRDI see note	YES, (NO)	Partial dial time-out required, (Disabled)
EOS	YES	Send End of Selection (number received) signal

Note: If a partial dial time out is not required, press Carriage Return at this prompt, <CR>, to accept the default.

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NTCK22AA card.

The Overlay table below shows the DID trunk data block layout.

LD 14 - Trunk Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	DID	Direct Inward Dial
TN	CC UU	Terminal Number of the unit: Card, Unit
XTRK (see note)	XDID	Type is IPE DID
SIGL	EAM	E&M signaling
BIMP	600/3COM	Terminal Balance Selection
STRI	IMM	Immediate
STRO	IMM	
SUPN	YES	Answer and disconnect supervision required
CLS	SHL, (LOL) DTN, (DIP)	Attenuation pads in, (out) Digitone dialing, (Digipulse)

Note: These prompts are required only for the first unit defined on each NTCK22AA card.

The Overlay table below shows the layout for the TIE route data block.

LD 16 - Route Data Block

Prompt	Response	Comments
REQ	NEW	Add.
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Enter customer number
ROUT	0-511	Enter route number
TKTP	TIF	Trunk type is LDR
ICOG	IAO	TIE trunk
ACOD	XX	XX=trunk route access code
CNTL	YES	Change controls or timers
TIMR	EOD 7000	Set End of Dial timer to 6912 ms

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NTCK22AA trunk card.

LD 14 - Trunk Data Block

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	TIE	TIE Trunk
TN	CU	Terminal Number of the unit: Card, Unit
XTRK (see note)	XDID	Type is IPE DID
SIGL	LDR	Loop dial repeat signaling
LDOP	LOOP/(BOP	LOOP/Battery dialing
BIMP	600/(3COM)	Terminal Balance impedance
STRI	IMM	Immediate start
STRO	IMM	
SUPN	YES	Answer supervision equipped

LD 14 - Trunk Data Block

CLS	NIC TRC DIP, (DTN)	LDR Type B Trunk LDR Type C Trunk Digipulse/Digitone dialing

Note: These prompts are required only for the first unit defined on each NTCK22AA card.

Self-test

When the card is installed, the red Light Emitting Diode (LED) on the faceplate flashes as the self-test runs. If the self-test completes successfully, the card is automatically enabled (if the card has been configured in software). The LED goes out. If the self-test fails, the LED remains lit.

NT5K84HA Direct Inward Dial trunk card

Switch settings

The NT5K84HA card does not have any option switches. Configure all settings in software.

Procedure 50
Installation of the NT5K84HA Direct Inward Dial trunk card

1 Insert the card into the selected card slot and lock it in position.

2 Connect the trunk units to the cross-connect terminal by tip and ring leads (Refer to "Chapter 18 — Connecting the trunks" on page 313).

3 Configure the card in software (LDs 16, 14, 94 and 56; in that order).

LD 16 - Route Data Block—NT5K84HA

Prompt	Response	Comments
REQ	NEW	Define a new unit
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Define customer number
ROUT	0-127	Define route number
TKTP	DID	Define trunk type as DID
ICOG	ICT	Incoming only trunk
MFC	R2MF	Multifrequency compelled signaling

LD 16 - Route Data Block—NT5K84HA

MFCI	XX	MFC Incoming table number
CNTR	YES	Change a trunk timer
TIMER	ICF 0 GTI 128 MFC 64896 DSI 59904	Set Incoming Flash Timer to 0 Set Guard Timer Incoming to 128 ms
NEDC	ETH	Near End Disconnect Control
FEDC	ETH	Far End Disconnect Control
CDR	NO	Call Detail Recording

LD 16 - Route Data Block—NT5K84HA

Prompt	Response	Comments
REQ	NEW	Define a new unit
TYPE	RDB	Define a new Route Data Block
CUST	0-99	Define customer number
ROUT	0-127	Define route number
TKTP	DID	Define trunk type as DID
ICOG	ICT	Incoming only trunk
MFC	R2MF	Multifrequency compelled signaling
MFCI	XX	MFC Incoming table number
CNTR	YES	Change a trunk timer
TIMER	ICF 0 GTI 128 MFC 64896 DSI 59904	Set Incoming Flash Timer to 0 Set Guard Timer Incoming to 128 ms
NEDC	ETH	Near End Disconnect Control
FEDC	ETH	Far End Disconnect Control
CDR	NO	Call Detail Recording

Note: Reference Overlay 94 to configure MFC receiver level.

TYPE SYSP
MFRL 0

Trunk Data Block

Use Overlay 14 to configure each of the trunk units on the NT5K84HA card.

LD 14 - Trunk Data Block—NT5K84HA

Prompt	Response	Comments
REQ	NEW	Define a new trunk unit
TYPE	DID	Type is Direct Inward Dial
TN	CC UU	Terminal number of the unit: Card, Unit
XTRK	XDID	Type is IPE DID
SIGL	EAM	Loop Dial Repeating signaling
STRI	IMM	Incoming start is immediate dial
CLS	DTN, (DIP), MFC	Digitone (Digipulse) Signaling
MFL	0	Multifrequency digit level
MFPD	NO	Multifrequency PAD

Use Overlay 94 to configure MFC table.

LD 94 - Multifrequency Signaling—NT5K84HA

Prompt	Response	Comments
TYPE	R2MF	R2 MFC data block
ICOG	ICT	Incoming table
EECD	1	End-to-end signaling code
SMFC	NO	Send MFC
SCNT	NO	Switch CNI on Next
LVNO	1	Level number
RECV	Digits 1 - 9, 0	Receive signal number
XMIT	NEXT 1 TERM 6 COMP 6	Transmit signal mnemonic and number

Use Overlay 56 to configure tones.

LD 56 - Flexible Tones and Cadences—NT5K84HA

Prompt	Response	Comments
TYPE	FTC	Flexible Tones and Cadences data block
DIAL	XTON 208 XCAD 000	Dial Tone
SPCL	XTON 208 XCAD 000	Special Dial Tone
BUSY	XTON 208 XCAD 005	Busy Tone
RGBK	XTON 208 XCAD xxx See note 1 below	Ringback Tone
OVFL	XTON 208 XCAD 017	Overflow Tone
INTU	XTON 111 XCAD yyy CDNC 000 See note 2 below	Intrusion Tone

Note 1: For the RGBK prompt response for XCAD, enter the following responses in LD 56

TYPE FCAD
WCAD xxx
CDNC 205 614 000 000
END REPT
CYCS 1
WTON NO

Note 2: For the INTU prompt response for XCAD, enter the following responses in LD 56

WCAD yyy
CDNC 20 300 000 000
END REPT
CYCS 1
WTON NO

Self-test

When the card is installed, the red Light Emitting Diode (LED) on the faceplate flashes as the self-test runs. If the self-test completes successfully, the card is automatically enabled (if the card has been configured in software). The LED goes out. If the self-test fails, the LED remains lit. The LED also remains lit if one or more units on the card become disabled while the card is operating.

NT5K48AA/BA/DA Tone Detector card

Switch settings

The NT5K48 card does not have any option switches. Configure all settings in software.

Procedure 51
Installation of the NT5K48AA/BA/DA Tone Detector card

1 Insert the card into the selected card slot and lock it in position.

2 Configure the country-specific tones in software (LD 97).

End of Procedure

Typical country-specific tone settings

Figure 47
CIS/Denmark

Characteristic	Mnemonic in Overlay 97	Setting
Frequency Band	DFQ	1
Minimum Detect Level	MDL	-34 dBm0
Minimum Validation Time	MVT	1500 mS
Break Tolerance	BRK	000 mS
Cadence Type	CAD	00
Second Stage Configuration	SSC	See Note
Minimum Acceptance Level	MINL	-45 dBm

Figure 48
Italy

Characteristic	Mnemonic in Overlay 97	Setting
Frequency Band	DFQ	4
Minimum Detect Level	MDL	-28 dBm
Minimum Validation Time	MVT	600 ms
Break Tolerance	BRK	000 ms
Cadence Type	CAD	00
Minimum Acceptance Level	MINL	-30 dBm

Figure 49
Norway

Tone Characteristic	Mnemonic in Overlay 97	Setting
Frequency Band	DFQ	1
Minimum Detect Level see note 2	MDL	-32 dBm0
Minimum Validation Time	MVT	1400 mS
Break Tolerance	BRK	000 mS
Cadence Type	CAD	00
Second Stage Configuration	SSC	See Note
Maximum reject level		-40 dBm
Minimum Acceptance Level	MINL	-30 dBm

Note: Second Stage Configuration allows the definition of second stage dial tone. Second stage dial tone detection is not normally required in CIS, Denmark, Italy or Norway.

Self-test

When the NT5K48 trunk card is installed and power is applied to it, a self-test is performed on the card. The red LED on the faceplate flashes three times, then remains continuously lit until the card is enabled in software. If the self-test fails, the LED remains lit.

Chapter 13 — Installing and connecting the cross-connect terminal

This chapter describes how to install and connect an Option 11C Mini system using one of the following cross-connect terminals:

- BIX cross-connect terminal
- Reichle Masari cross-connect terminal (Germany)
- Krone Test Jack Frame (UK)

Note: The use of the BIX system is not mandatory; however, the BIX system is the recommended option.

You can find information about the BIX cross-connect system in the following documents:

- *BIX In-Building Cross-Connect System Material Description (631-4511-100)*
- *BIX In-Building Cross-Connect System Material Installation and Servicing (631-4511-200)*

For information about 1.5 Mbit and 2.0 Mbit DTI/PRI-related wiring and cables, refer to the following documents:

- *Option 11C 1.5Mbit DTI/PRI Administration and Maintenance Guide (553-3011-310)*
- *Option 11C 2.0Mbit DTI/PRI Administration and Maintenance Guide (553-3011-315).*

This chapter contains the following procedures:

Terminal block requirements

The cross-connect terminal requires enough connecting blocks to terminate the following wires:

- for the NTAK09 circuit card, use the NTBK04 cable
- for the NTAK10, NTAK79, and NTBK50 circuit cards, use the NTBK05 cable
- up to five 25-pair cables from each chassis.
  - — Each slot that is equipped with a trunk or line circuit card requires a cable.
    - – Connectors L1 through L6 on the back of the Main Chassis correspond to card numbers 1 through 6 in the Main Chassis.
    - – Connectors L1 through L4 on the back of the Chassis Expander correspond to card numbers 7 through 10 in the Chassis Expander.
    - – Allow for additional cables at the cross-connect terminal if any of the slots in the chassis are initially left empty.
  - — If the NTAK19EC 2-port SDI cable or the NTAK19FB 4-port SDI cable are not used with the NTAK03 or NTAK02 cards, then you require a 25-pair cable for each of these cards.
- four conductors for the AUX cable from the Main Chassis

- one 25-pair cable from each QUA6 PFTU
- wiring from telephones and trunks

WARNING

Always use caution when installing or modifying telephone lines. Do not install telephone wiring during a lightning storm. Never touch uninsulated telephone wiring, unless the line is disconnected at the network interface.

Installing the BIX cross-connect terminal

Procedure 52 describes how to install the BIX cross-connect terminal.

Procedure 52
Installing the BIX cross-connect terminal

1 Refer to the equipment layout plan to determine where to place the cross-connect terminal.

2 Layout the terminal blocks as shown in Figure 50 on page 232.

For information about the BIX system, refer to *BIX Installation and Servicing (631-4511-200)*.

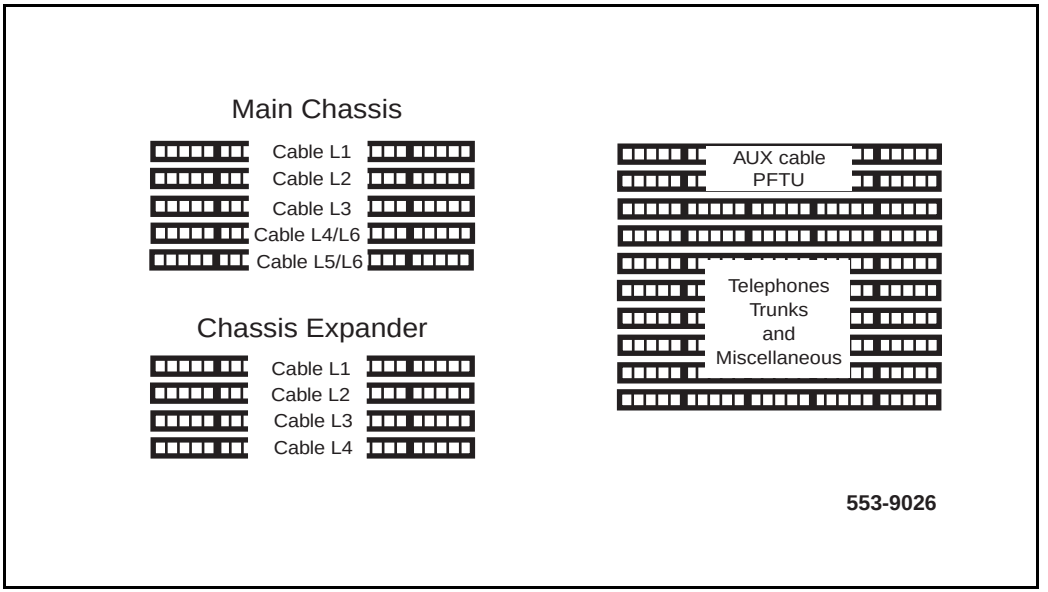
3 Attach labels on the cross-connect terminal to indicate the terminal blocks assigned to the following:

- 25-pair cables from the chassis
- AUX wiring
- Power Failure Transfer Units (PFTUs)
- telephones and consoles
- trunks
- miscellaneous equipment

Note: If you are installing the BIX cross-connect system, refer to *BIX Installation and Servicing (631-4511-200). This document* provides information about labels used with the BIX terminal blocks.

End of Procedure

Figure 50
Typical BIX cross-connect terminal layout



Note: One 25-pair cable contains L4 and L6 (units 0-7). Another 25-pair cable contains L5 and L6 (units 8-15).

Installing the Reichle Masari cross-connect terminal (Germany)

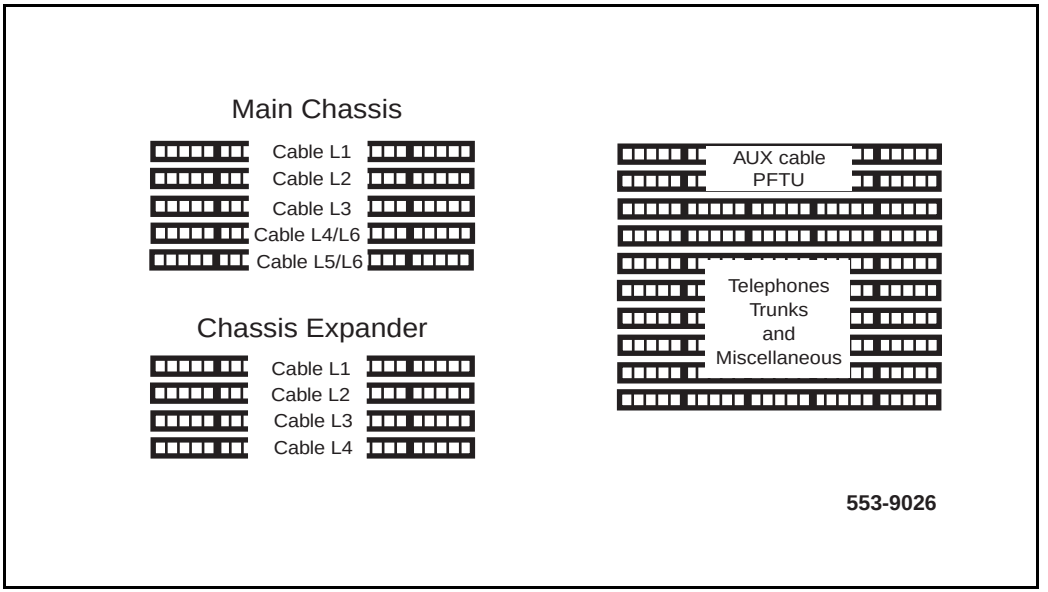
Procedure 53 describes how to install the Reichle Masari cross-connect terminal for Germany.

Procedure 53
Installing the Reichle Masari cross-connect terminal (Germany)

1 **Refer to the equipment layout plan to determine where to place the cross-connect terminal.**

2 Layout the terminal blocks as shown in Figure 51.

Figure 50
Typical BIX cross-connect terminal layout



Note: One 25-pair cable contains L4 and L6 (units 0-7). Another 25-pair cable contains L5 and L6 (units 8-15).

Installing the Reichle Masari cross-connect terminal (Germany)

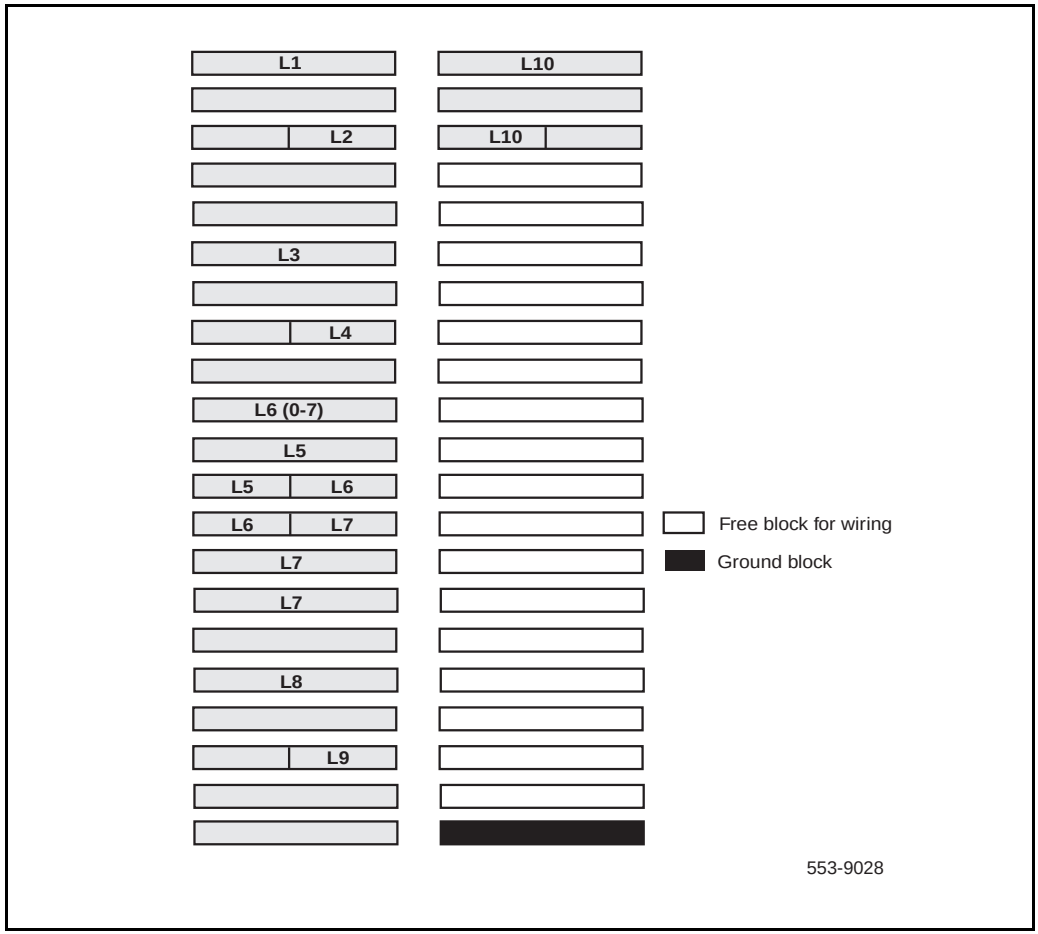
Procedure 53 describes how to install the Reichle Masari cross-connect terminal for Germany.

Procedure 53
Installing the Reichle Masari cross-connect terminal (Germany)

1 **Refer to the equipment layout plan to determine where to place the cross-connect terminal.**

2 Layout the terminal blocks as shown in Figure 51.

Figure 51
Typical Reichle Masari cross-connect terminal layout (Germany)



Note: One 25-pair cable contains L4 and L6 (units 0-7). Another 25-pair cable contains L5 and L6 (units 8-15).

3 Attach labels on the cross-connect terminal to indicate the terminal blocks assigned to the following:

- 25-pair cables from the chassis
- AUX wiring
- Telephones and Attendant Consoles
- Trunks
- Analog line cards
- DC5/AC15/RAN/PAG cards
- Data Access cards
- Power Failure Transfer Units
- Digital line cards
- Exchange line trunk cards
- Direct Dialing Inward trunk cards
- miscellaneous equipment

———————— ***End of Procedure*** ————————

Installing the Krone Test Jack Frame for the UK

The Krone Test Jack Frame provides terminating strips that hold 10 pairs of cable. Generally, only 8 of the 10 pairs are used. As a result, one 25-pair cable requires three terminating strips:

8 pairs/strip x 3 strips = 24 pairs

Figure 52 shows how one 25-pair cable is divided among three terminating strips on the Krone Test Jack Frame.

Figure 52
25-pair cable on three Krone strips

Pair	Pin number	Wire Colour	Krone strip
1T	26	W-BL	
1R	1	BL-W	
2T	27	W-O	
2R	2	O-W	
3T	28	W-G	
3R	3	G-W	
4T	29	W-BR	1
4R	4	BR-W	
5T	30	W-S	
5R	5	S-W	
6T	31	R-BL	
6R	6	BL-R	
7T	32	R-O	
7R	7	O-R	
8T	33	R-G	
8R	8	G-R	
9T	34	R-BR	
9R	9	BR-R	
10T	35	R-S	
10R	10	S-R	
11T	36	BK-BL	
11R	11	BL-BK	
12T	37	BK-O	2
12R	12	O-BK	
13T	38	BK-G	
13R	13	G-BK	
14T	39	BK-BR	
14R	14	BR-BK	
15T	40	BK-S	
15R	15	S-BK	
16T	41	Y-BL	
16R	16	BL-Y	
17T	42	Y-O	
17R	17	O-Y	
18T	43	Y-G	
18R	18	G-Y	
19T	44	Y-BR	
19R	19	BR-Y	
20T	45	Y-S	
20R	20	S-Y	
21T	46	V-BL	3
21R	21	BL-V	
22T	47	V-O	
22R	22	O-V	
23T	48	V-G	
23R	23	G-V	
24T	49	V-BR	
24R	24	BR-V	
25T	50	V-S	
25R	25	S-V	

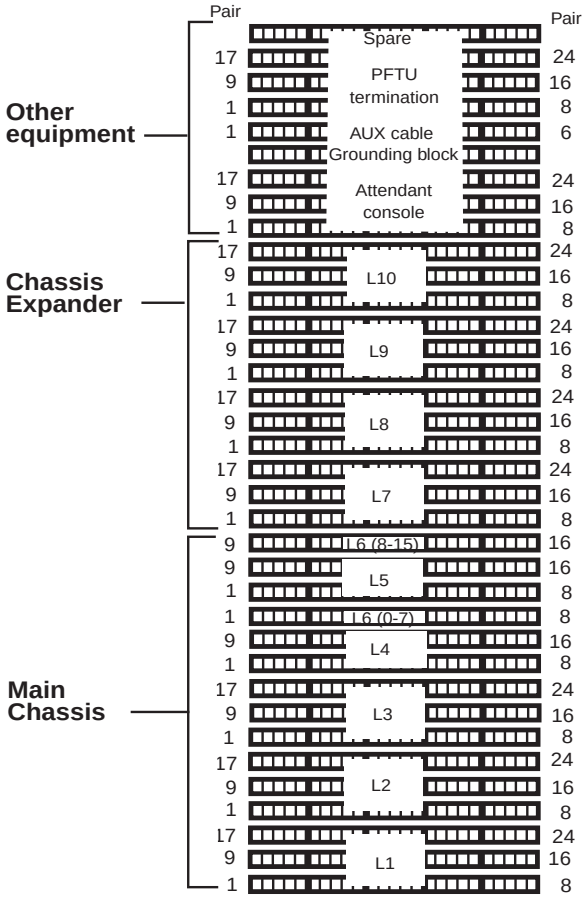
Procedure 54 describes how to install the Krone Test Jack Frame for the UK.

Procedure 54
Installing the Krone Test Jack Frame (UK)

1 **Refer to the equipment layout plan to determine where to place the cross-connect terminal.**

2 **Layout the terminal blocks as shown in Figure 53.**

Figure 53
Typical Krone cross-connect terminal layout (UK)



Note: One 25-pair cable contains L4 and L6 (units 0-7). Another 25-pair cable contains L5 and L6 (units 8-15).

3 Attach labels on the cross-connect terminal to indicate the terminal blocks assigned to the following:

- Analog line cards
- DC15/AC15/RAN/PAG cards
- Data Access cards
- AUX wiring
- Power Failure Transfer Units
- Digital line cards
- Telephones and Attendant Consoles
- Exchange line trunk cards
- Direct Dialing Inward trunk cards
- miscellaneous equipment

——————————— ***End of Procedure*** ———————————

Connecting the cables

WARNING

Always use caution when installing or modifying telephone lines. Do not install telephone wiring during a lightning storm. Never touch uninsulated telephone wiring unless the line is disconnected at the network interface.

Each Option 11C Mini system chassis requires up to five 25-pair cables. The Main Chassis requires an additional terminal block at the cross-connect terminal for terminating the 9-pin conductor auxiliary cable.

Connect all cables at the back of the chassis.

Note: Use caution when using NE-A25B cables with the NTAK02, and NTAK03 cards. These cables are not wired out to station equipment or trunk circuits. Do not use the NE-A25B cable with the NTBK45, NTAK10, NTBK50, or NTAK79 circuit cards.

For 1.5 Mbit and 2.0 Mbit DTI/PRI-related wiring and cable information, refer to the following documents:

- *Option 11C 1.5Mbit DTI/PRI Administration and Maintenance Guide (553-3011-310)*
- *Option 11C 2.0 Mbit DTI/PRI Administration and Maintenance Guide (553-3011-315)* for

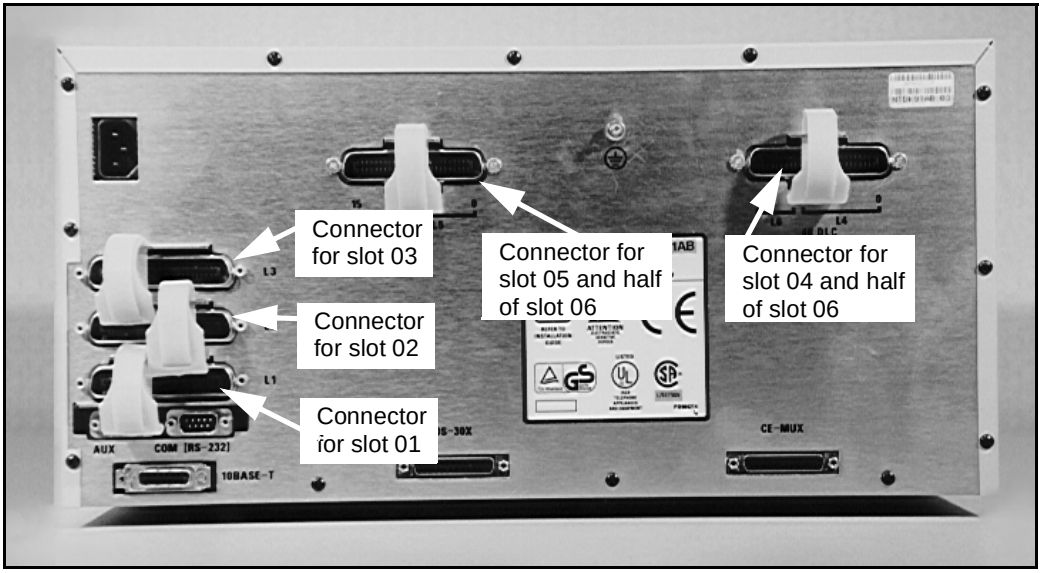
Procedure 55
Connecting the cables

1 Loosen the velcro straps at each connector you plan to use.

2 Connect a 25-pair cable to each of the connectors that will contain a line or trunk card. Refer to the card slot assignment plan.

Make sure you tag both ends of each cable with the chassis and connector numbers. See Figure 54.

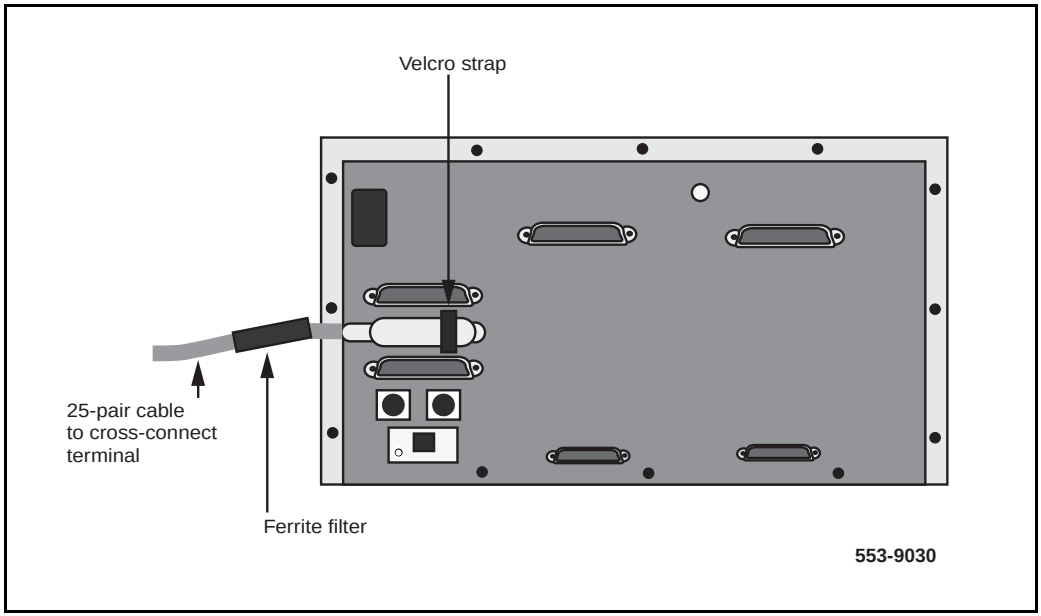
Figure 54
Cable connectors on the back of the Main Chassis



3 **Tighten the velcro straps when you have connected each cable to the chassis.**

4 For systems required to meet CISPR-B Electromagnetic Compatibility (EMC), perform the following step. On each installed 25-pair cable, attach the supplied ferrite filter to the cable. Attach the ferrite filter as near the connector as possible (see Figure 55). To attach the ferrite filter, press the cable firmly into the groove on one side of the open filter. Close the filter around the cable and press the filter together using the fastening clip snaps close.

Figure 55
A ferrite filter installed on a 25-pair cable (EMC system)

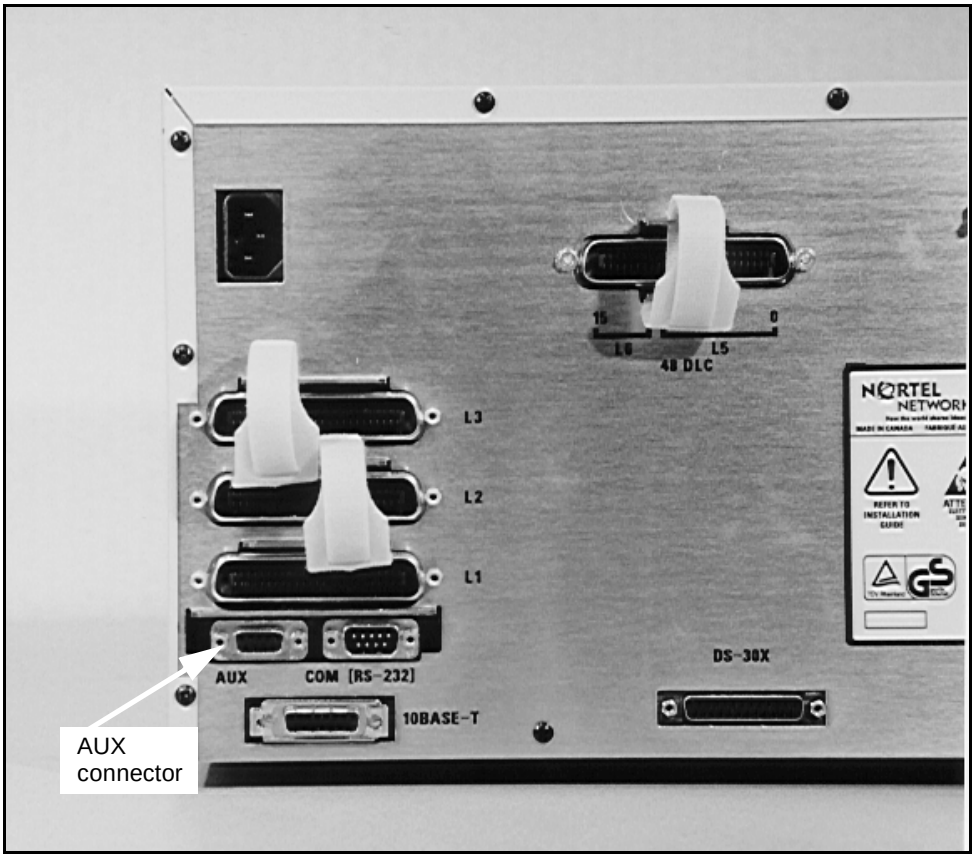


5 **Terminate all the 25-pair cables installed at the cross-connect terminal.**

Label all the cables at the cross-connect terminal blocks according to the card slot assignment plan.

6 **Install the AUX cable on the lower 9-pin connector located on the bottom left-hand side of the Main Chassis. See Figure 56.**

Figure 56
AUX cable connector



Terminate the AUX cable at the cross connector located on the left-hand side of the chassis according to Table 26.

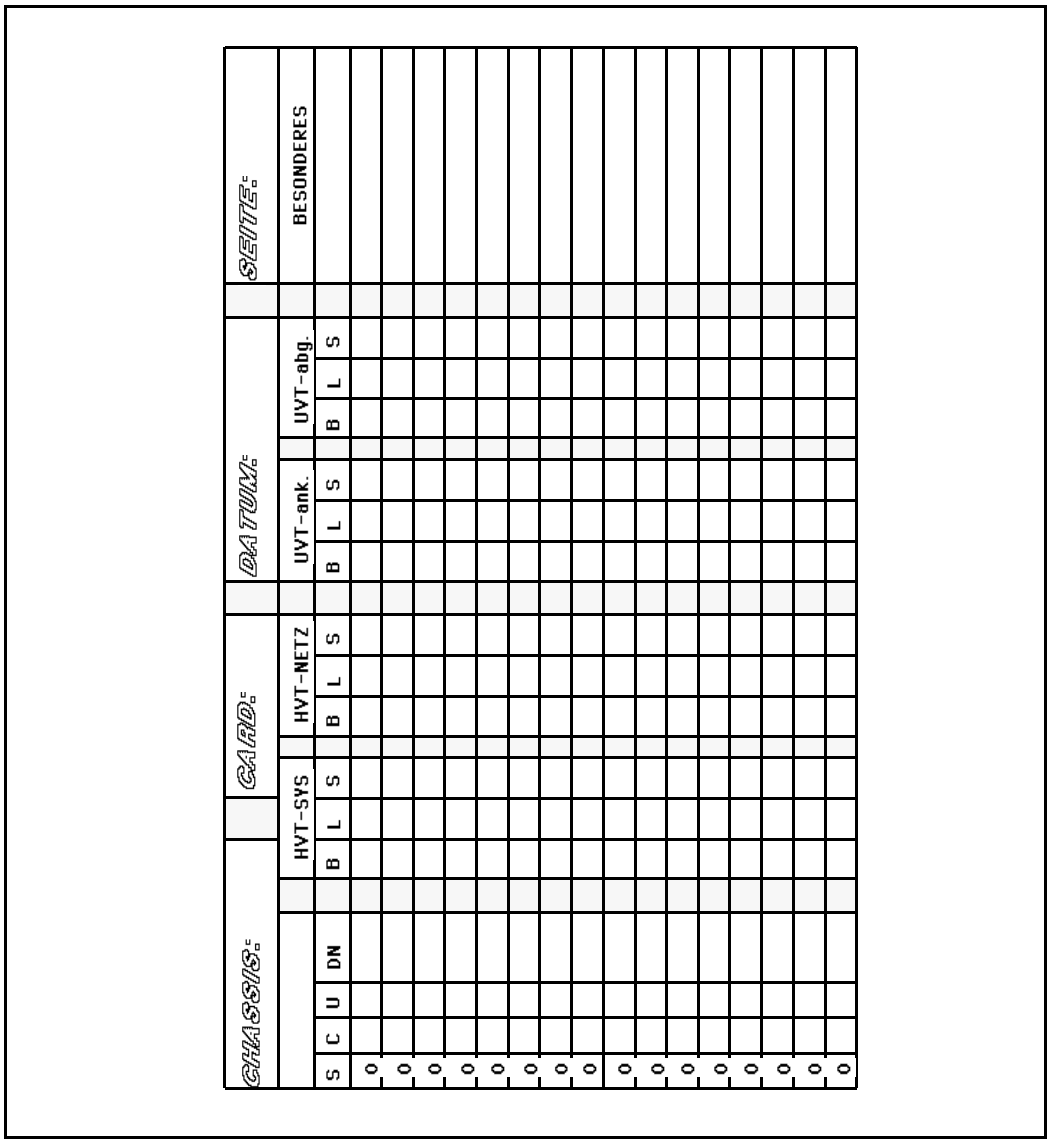
Table 26
AUX cable termination information

Color	Wire number	Designation	Connection
W-BL	1	BRTN	to QUA6-J1 1R
BL-W	2	BRTN	to QUA6-J1 2R
O-W	3	-48V AUX (250mA)	to QUA6-J1 25T, 25R
W-O	4	PFTS	to QUA6-J1 2T
G-W	5	Not used	Not used
W-G	6	Not used	Not used

7 For installations in Germany, complete the form shown in Figure 57 for each card slot.

This form provides a record of cross connections that you will perform after you start the system.

Figure 57
Cross connections record



End of Procedure

Chapter 14 — Installing Power Failure Transfer Units

This chapter describes how to install a QUA6 Power Failure Transfer Unit (PFTU).

You can connect PFTUs to the Main Chassis.

> ***Note:*** The QUA6 PFTU operates with loop-start and ground-start CO trunks. With ground-start trunks, the associated telephone set must be equipped with a ground-start button.

If you require power failure backup as a fail safe for this system, use analog trunks. A PFTU does not support digital trunks.

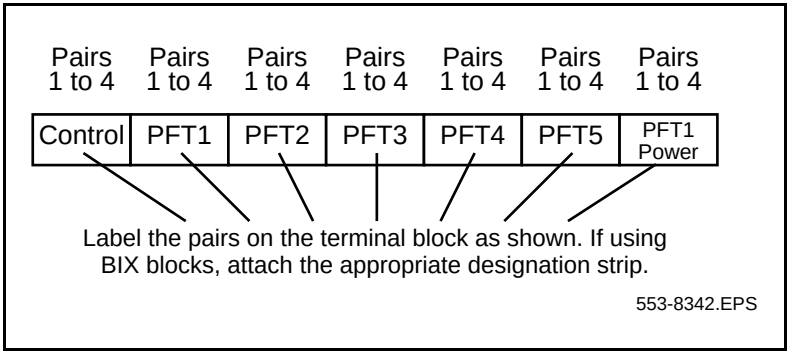
Installing the PFTU

Refer to the equipment layout plan to determine where to locate the PFTU. See "Chapter 4 — Creating an equipment layout plan and a card slot assignment plan" on page 51.

Procedure 56
Installing the PFTU

1. **Install the PFTU on the wall near the system cross-connect terminal. Fasten the PFTU in position with four screws.**
2. **Install an NE-A25B-type 25-pair cable from connector J1 on the faceplate of the PFTU to its assigned location at the cross-connect terminal.**
3. **Label the pairs of the J1 cable on the cross-connect terminal block as shown in Figure 58 on page 246.**

Figure 58
J1 cable labels



4 Connect the PFTU power and control connections from the chassis to the AUX cable. See Figure 59 on page 247 and Table 27 on page 248.

Figure 59
Auxiliary connector

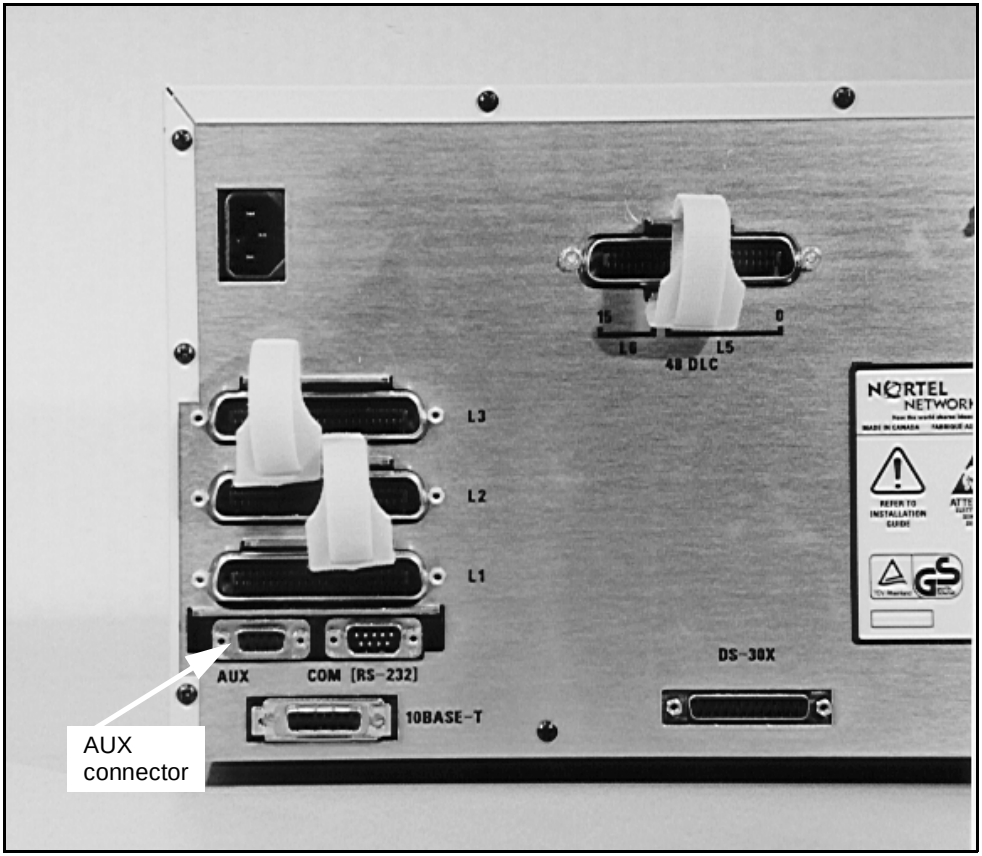


Table 27
Control and power connections on cable J1

J1 Cable from QUA6 (see Figure 60 on page 249)				
Function	**Pair Number**	**Pair Color**	**Connects to**	**Cross-connect to**
Control	1T	W-BL	(ALM)	Not used.
	1R	BL-W	BRTN	W-BL 1-dot connection on AUX cable from the chassis
	2T	W-O	PFTS	W-O 1-dot connection on AUX cable from the chassis. Transfer begins by applying ground to this lead.
	2R	O-W	BRTN	BL-W 1-dot connection on AUX cable from the chassis
	3T	W-G	(TC)	Console transfer switch. See console connections. Transfer begins by applying ground to this lead.
	3R	G-W		Not used.
	4T	W-BR		Not used.
	4R	BR-W		Not used.
PFTU power	25T 25R	S-V V-S	-48 V -48 V	O-W 1-dot connection on AUX cable. Maximum 250 mA draw on O-W lead.

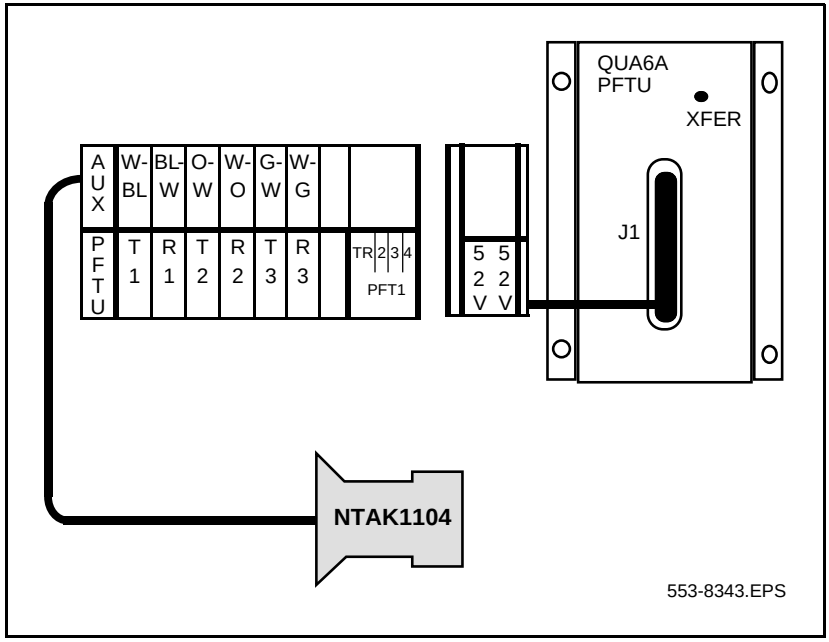
5 Connect the Attendant Console to the PFTU:

- Attendant Console 14 Tip (14T) to ground
- 3 Tip (3T) of PFTU to 11 Ring (11R) of Attendant Console (power fail transfer switch)
- Attendant Console 11 Tip (11T) to ground

Note: The AUX cable on the Option 11C Mini does not provide power to the M2250 Attendant Console. Two Digital Line Card TNs or an Attendant Console power supply provide power to the M2250 Attendant Console.

——————————— ***End of Procedure*** ———————————

Figure 60
Power fail transfer



PFTU control lead signals

To connect PFTUs from other manufacturers, use the information provided in Table 28.

Table 28
PFTU control lead signals

NTAK1104 AUX cable lead	Lead State when PFTU is in non-transferred state	Lead State when PFTU is in transferred state
BRTN	GROUND	GROUND
BRTN	GROUND	GROUND
-48V AUX	-48V DC (250 mA max.)	-48V DC (250 mA max.)
PFTS	OPEN	GROUND

Note 1: Refer to Figure 59 on page 247 to see where the Auxiliary cable connects to the Option 11C Mini system.

Note 2: If power is removed from the QUA6, a transfer of the PFTU can occur.

Chapter 15 — Installing and connecting SDI and ethernet ports

This chapter contains modem setup requirements and the following two procedures for connecting communication devices to the Option 11C Mini:

- Procedure 57 “Connecting SDI ports on the MSC card” on page 253 explains how to install and connect SDI ports to terminals and modems. This procedure provides instructions on how to access ports through the NTDK97, NTAK02, and NTAK03 cards.
- Procedure 58 “Setting up the terminal” on page 261 provides procedures for setting up the terminal.
- Procedure 59 “Connecting the Ethernet cable” on page 267 describes how to install and connect the Ethernet cable.

In an Option 11C Mini system, the following cards provide SDI ports:

- NTDK97 MSC card provides three SDI ports
- NTAK02 SDI/DCH card provides four ports of which up to two can be SDI ports
- NTAK03 TDS/DTR card provides two SDI ports

Note: The NTDK97 MSC card includes the functionality of the NTAK03 card. However, you can also configure the NTAK03 card, if required.

Modem setup requirements

Modems connected to the Option 11C Mini are set as follows:

- Carrier Detect (CD): Active if carrier detected on incoming call
- Clear to Send (CTS): Normal operation or forced active
- Hardware and software: Disabled flow control

The ports on the Option 11C Mini are disabled if devices connected to the ports generate additional "garbage" characters. For this reason, do not use modems in the following modes:

- Loopback
- Auto Echo
- Self Test

Note: The SDI ports are designed for use with "dumb" modems. "Intelligent" modems can be used. Make sure that the modems do not enter into modes of operation that send additional characters to the system.

Table 29 lists some of the problems that can be related to modems.

Table 29
Modem problems

Problem	Solution
CDR is not printing on an ESDI port configured as 8 bits, no parity, and 1 stop bit.	Change the modem set-up to 7 bits, no parity, 1 stop bit, or add MTC or SCH to the ESDI user prompt.
Modem is not communicating with the Option 11C Mini when the User is MTC, BUG, or CTY (The default setting of 8 bits, no parity, 1 stop bit is incompatible with the modem).	Change the modem set-up to 7 bits or the parity to EVEN/ODD.

Installing and connecting SDI ports

You can use a switch setting on the circuit card's faceplate to control the baud rate for port 0. Make sure the baud rate and device option settings are set correctly.

Note: When the time comes to configure ports 1 and 2, configure them in Overlay 17.

- Use Port 0 for software installation and upgrades. SDI port 0 is the only SDI port that you can use for software installation and upgrades.
- You can use all three ports on the MSC card to connect terminals or modems.
- Use an NTBK48 3-port SDI cable with the MSC card.

Note: The default baud rate of the MSC card is 1200 bps; the maximum data rate is 19,200 bps. When you change the DIP switch on the faceplate, make sure only one baud rate switch is set to ON. See Table 30.

Table 30
Default port configuration for the MSC card

Port	Use	Baud rate	Data bits	Stop bits	Parity
0	MTC/SCH/BUG	Set by a DIP switch	8	1	None
1	MTC/SCH/BUG	1200 (See Note 1)	8	1	None
2	MTC/SCHBUG	1200 (See Note 2)	8	1	None

Procedure 57 describes how to connect a terminal, modems, and other devices, such as CDR devices and additional TTYs, to the MSC card.

Procedure 57
Connecting SDI ports on the MSC card

1 The NTBK48 3-port SDI cable has one ferrite filter attached to it. Connect an additional ferrite filter as close as possible to the 9-pin connector on the NTBK48 3-port SDI cable.

Note: The additional ferrite filter is sent with the Option 11C Mini system.

2 Connect the NTBK48 3-port SDI cable to the 9-pin SDI connection (COM RS-232) at the back of the Main Chassis. See Figures 61 and 62.

Figure 61
SDI cable connection

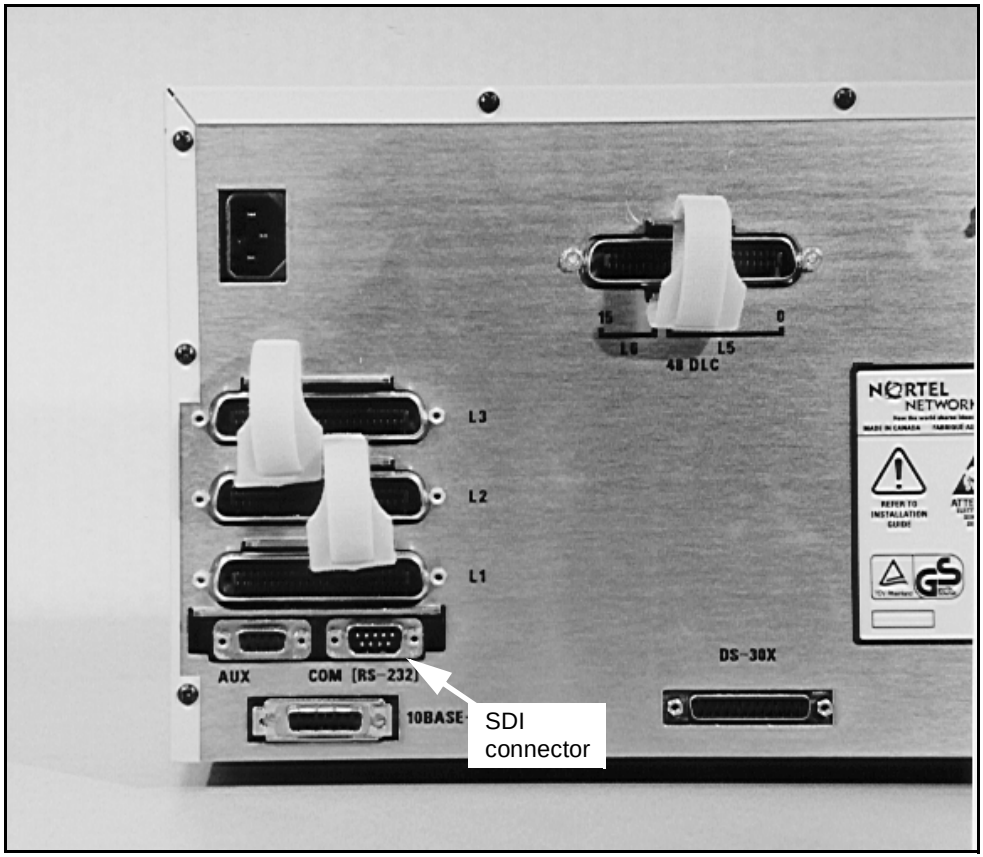
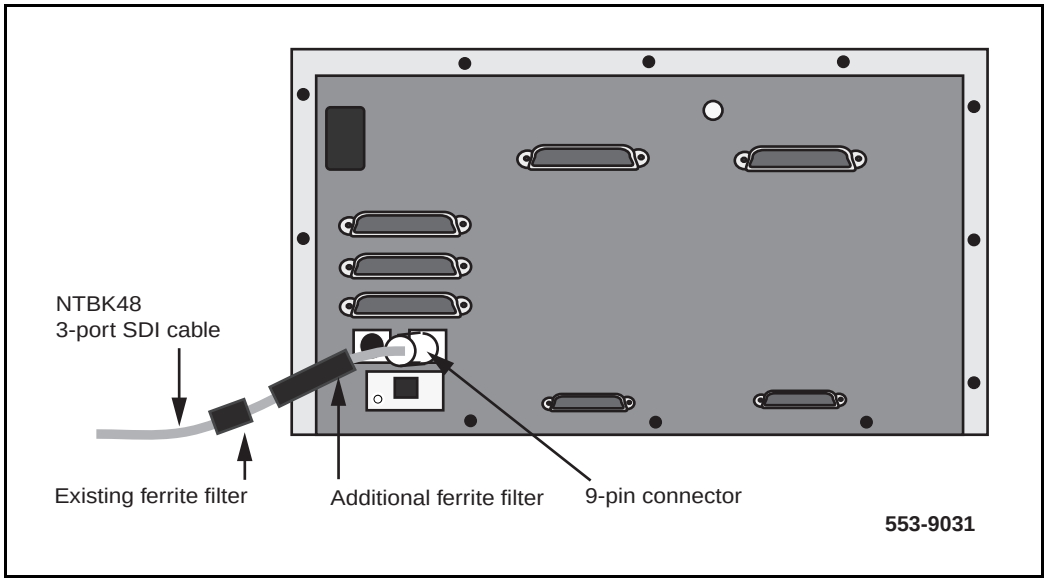


Figure 62
An additional ferrite filter attached to the SDI cable



3 **Connect the system terminal to the cable marked "port 0" on the NTBK48 3-port cable.**

You require a Modem Eliminator Adapter to connect the Option 11C Mini to a TTY terminal. This adapter is in included in the NTDK88 cable kit.

4 **If the system is to be accessed remotely, connect the system modem to the cable marked "port 1" on the NTBK48 cable.**

5 **Connect the modem to an outside line.**

6 **Test the modem for correct operation when the system is operating.**

Note: You can use the remaining ports for other equipment, such as CDR devices or TTYs.

End of Procedure

NTAK02 SDI/DCH card

Only the Main Chassis supports the NTAK02 SDI/DCH card. You can configure this card to support ports for the following:

- two SDI and two DCHI
- one SDI, one DCHI, and two ESDI
- four ESDI

You can use the NTAK02 ports to access overlay software. Define these ports in the configuration database as the SDI logical type.

An NTAK19FB 4-port SDI cable is designed for use with the NTAK02 circuit card. However, you can use an NE-A25B 25-pair cable to extend the connections to the cross-connect terminal. See Tables 31 through 34 for the connections for each port.

Table 31
NTAK02 pinouts — Port 0 at the cross-connect terminal

Cable		RS232			
		Signal		Designations (I=input/O=output)	
Pair	Color	DTE	DCE	DTE	DCE
1T 1R	W-BL BL-W	0 DTR	0 DCD	- O	- I
2T 2R	W-O O-W	DSR DCD	CH/CI DTR	I I	O O
3T 3R	W-G G-W	RTS CTS	CTS RTS	O I	I O
4T 4R	W-BR BR-W	RX TX	TX RX	I O	O I
5T 5R	W-S S-W	- SG	- SG	- -	- -

Table 32
NTAK02 connections at the cross-connect terminal — Port 1

Cable		RS422				RS232			
		Signal		Designations (I=input O=output)		Designations (I=input O=output)		Signal	
Pair	Color	DTE	DCE	DTE	DCE	DTE	DCE	DTE	DCE
5T 5R	W-S S-W	SCTEA -	SCTA -	O -	I -	O -	I -	SCT -	SCT -
6T 6R	R-BL BL-R	SCTEB DTR	SCTB DCD	O O	I I	- -	- -	CH/CI DTR	- DCD
7T 7R	R-O O-R	DSR DCD	CH/CI DTR	I I	O O	I I	O O	DSR DCD	CH/CI DTR
8T 8R	R-G G-R	RTS CTS	CTS RTS	O I	I O	O I	I O	RTS CTS	CTS RTS
9T 9R	R-BR BR-R	SCRA SCTA	SCTEA RXCA	I I	O O	I I	O O	SCR SCT	SCT -
10T 10R	R-S S-R	SCRB SCTB	SCTEB RXCB	I I	O O	- -	- -	- -	- -

Table 32
NTAK02 connections at the cross-connect terminal — Port 1 (Continued)

11T 11R	BK-BL BL-BK	RXDA TXDA	TXDA RXDA	I O	O I	I O	O I	RXD TXD	TXD RXD
12T 12R	BK-O O-BK	RXDB TXDB	TXDB RXDB	I O	O I	- -	- -	- -	- -
25T 25R	V-S S-V	SG -	SG -	- -	- -	- -	- -	SG -	SG -

Table 33
NTAK02 connections at the cross-connect terminal — Port 2

Cable		**RS422**				**RS232**			
		Signal		**Designations (I=input O=output)**		**Designations (I=input O=output)**		**Signal**	
Pair	Color	DTE	DCE	DTE	DCE	DTE	DCE	DTE	DCE
13T 13R	BK-G G-BK			- -	- -	- O	- I	- DTR	- DCD
14T 14R	BK-BR BR-BK			- -	- -	I I	O O	DSR DCD	CH/CI DTR
15T 15R	BK-S S-BK			- -	- -	O I	I O	RTS CTS	CTS RTS
16T 16R	Y-BL BL-Y			- -	- -	I O	O I	RX TX	TXD RXD
17T 17R	Y-O O-Y			O -	I -	O -	I -	- SG	- SG

Table 34
NTAK02 connections at the cross-connect terminal — Port 3

Cable		RS422				RS232			
		Signal		Designations (I=input O=output)		Designations (I=input O=output)		Signal	
Pair	Color	DTE	DCE	DTE	DCE	DTE	DCE	DTE	DCE
17T 17R	Y-O O-Y	SCTEA -	SCTA -	O -	I -	O -	I -	SCT -	SCT -
18T 18R	Y-G G-Y	SCTEB DTR	SCTB DCD	O O	I I	- -	- -	CH/CI DTR	- DCD
19T 19R	Y-BR BR-Y	DSR DCD	CH/CI DTR	I I	O O	I I	O O	DSR DCD	CH/CI DTR
20T 20R	Y-S S-Y	RTS CTS	CTS RTS	O I	I O	O I	I O	RTS CTS	CTS RTS
21T 21R	V-BL BL-V	SCRA SCTA	SCTEA RXCA	I I	O O	I I	O O	SCR SCT	SCT -
22T 22R	V-O O-V	SCRB SCTB	SCTEB RXCB	I I	O O	- -	- -	- -	- -
23T 23R	V-G G-V	RXDA TXDA	TXDA RXDA	I O	O I	I O	O I	RXD TXD	TXD RXD
24T 24R	V-BR BR-V	RXDB TXDB	TXDB RXDB	I O	O I	- -	- -	- -	- -
25T 25R	V-S S-V	- SG	- SG	- -	- -	- -	- -	SG -	SG -

NTAK03 TDS/DTR card

The NTDK97 MSC card includes the functionality of the NTAK03 TDS/DTR card. However, you can also configure the NTAK03 card, if required.

An NTAK19EC cable is designed for use with the NTAK03 circuit card. However, you can use an NE-A25B 25-pair cable to extend the connections to the cross-connect terminal. Table 35 on page 260 and Table 36 on page 261 show the connections for each port.

Use a modem eliminator to connect the RS232 converter cable and the NTAK19EC SDI cable to a terminal. The modem eliminator is not required when connecting to a modem.

Note: A modem eliminator is supplied with the system.

Table 35
NTAK03 connections at the cross-connect terminal — Port 0

Pair	Color	Signal	Designations (I=input, O=output)
1T 1R	W-BL BL-W	DSR DCD	I I
2T 2R	W-O O-W	- DTR	- O
3T 3R	W-G G-W	RTS CTS	O I
4T 4R	W-BR BR-W	RX TX	I O
5T 5R	W-S S-W	SG -	O -

Table 36
NTAK03 connections at the cross-connect terminal — Port 1

Pair	Color	Signal	Designations (I=input, O=output)
6T 6R	R-BL BL-R	DSR -	I -
7T 7R	R-O O-R	- DTR	- O
8T 8R	R-G G-R	RTS CTS	O I
11T 11R	BK-BL BL-BK	RX TX	I O
13T 13R	BK-G G-BK	- DCD	- I
22T 22R	V-O O-V	SG -	O -

Terminal setup

The terminal can be setup any time, except during data transmission. Do not set up the terminal during data transmission to avoid potential data loss.

Table 38 on page 263 and Table 40 on page 265 provide setup values. Use Procedure 58 to set up the terminal.

Procedure 58
Setting up the terminal

1 **Turn on the power for the terminal.**

2 **Enter setup mode by pressing the <SETUP> key located on the top row of the special function keys.**

The terminal screen displays the current setup values.

3 Change the value in each field on each setup screen as necessary.

Use the keys listed in Table 37 to view and change setup values.

Table 37
Setup (keys and functions)

Key	Function
Arrow key	Move from field to field
<Enter>	Scroll through possible values or cause requested action to occur (depends on type of field)
<Next Screen>	Move to next setup screen
<Prev Screen>	Move back to last screen

4 Save changes by returning to the *General setup* screen, moving the cursor to the Saved **field, and pressing *<Enter>*.**

End of Procedure

Table 38
HP700/32 setup values

Global set-up screen			
Host Port	1	Keyboard	U.S.
Background	Dark	Message Translations	English
Screen Saver	10 Min	Setup Translations	English
Refresh Rate	72 Hz	Clear Display	
Key Click	Yes	Clear Comm	
User Set-up Screen			
Smooth Scroll	Jump scroll	Display Width	80
Cursor Type	Blink Line	Display Width Allowed	80 or 132
Cursor	Off	Char Cell Height	16
2nd Message Line	On	Clr on Width Change	Yes
Message Line	On	Aux Mode	Off
Status Line	On	Aux to Host	Off
On Line	Yes	Print Terminator=FF	No
Local Echo	Off	Logical Page Size	24
Auto Wrap	Off	Number of Pages	1
Auto Linefeed	Off		
Display Ctrl Codes	Off		
Emulation Set-up			
Emulation	VT320	Cursor Keys	Normal
Terminal Id	VT220	Print Scroll Region	Off
Control Codes	7-bit	User Features Locked	No
Characters Mode	8-bit	User Keys Locked	No
Preferred Char Set	DEC Supplemental	Data Procession Keys	No
Key Pad Mode	Application		
Port 1 Set-up			
Communications	Full Duplex	Limited Transmit	Off
Data Length	8-bits	DSRI	No
Parity	None	CTS	Ignore
Stop Bits	1	CD	Ignore
Xmit Baud	2400	Break Disconnect	170ms
RecvBaud	=Xmit	Disconnect Delay	Never
Xmit pace	Xoff	Aux printer Type	National
Recv Pace	Xoff at 128		
Port 2 Set-up			
Communications	Full Duplex	Xmit pace	Xon/Xoff
Data Length	8-bits	Recv Pace	Xoff at 128
Parity	None	Limited Transmit	Off
Stop Bits	1	Break Duration	170ms
Xmit Baud	9600	Aux Printer Type	National
RecvBaud	=Xmit		
Keyboard Set-up			
Lock Key	Caps Lock	Warning Bell	Yes
Kbd Lock Enable	Yes	Auto Answerback	Yes
Save Tabs	Yes	Answerback =	
Auto Repeat	Yes	Conceal Answerback	No
Margin Bell	Yes	Do not set any tabs or programmed keys.	

Table 39
VT420 setup values

Global Set-Up	
On Line	**Comm1=RS232**
Sessions on Comm1	**70Hz**
CRT Saver	**Printer Shared**
Display Set-Up	
80 Columns	**No Status Display**
Interpret Controls	**Cursor Steady**
Auto Wrap	**3x24 pages**
Jump Scroll	**24 Lines/Screen**
Dark Screen	**Vertical Coupling**
Cursor	**Page Coupling**
Block Style Cursor	**Auto Resize Screen**
General Set-up	
VT400 Mode, 7-bit Controls	**Normal Cursor Keys**
User Defined Keys Unlocked	**No New Line**
User Features Unlocked	**UPSS DEC Supplemental**
8-bit Characters	**VT420 ID**
Application Keypad	**When Available Update**
Communications Set-Up	
Transmit=2400	**Disconnect, 2 s Delay**
Receive=Transmit	**Limited Transmit**
Xoff=64	**No Auto Answerback**
8bits, No Parity	**Answerback=**
1 Stop Bit	**Not Concealed**
No Local Echo	**Modem High Speed = ignore**
Data Leads Only	**Modem Low Speed = ignore**
Printer Set-Up	
Speed=2400	**8bits, No Parity, 1 Stop bit**
No printer to Host	**Print Full Page**
Normal Print Mode	**Print National Only**
XOFF	**No Terminator**
Keyboard Set-up	
Keyboard Set-up	**Local Compose**
Typewriter Keys	**Ignore Alt**
Caps Lock	**F1 = Hold**
Auto Repeat	**F2 = Print**
Keyclick High	**F3 = Set-Up**
Margin Bell	**F4 = Session**
Warning Bell High	**F5 = Break**
Character Mode	**,< and .> Keys**
<X] Delete	**<> Key**
	‘~Key
Tab Set-Up	
Leave this screen at the default values	

Table 40
VT220 setup values

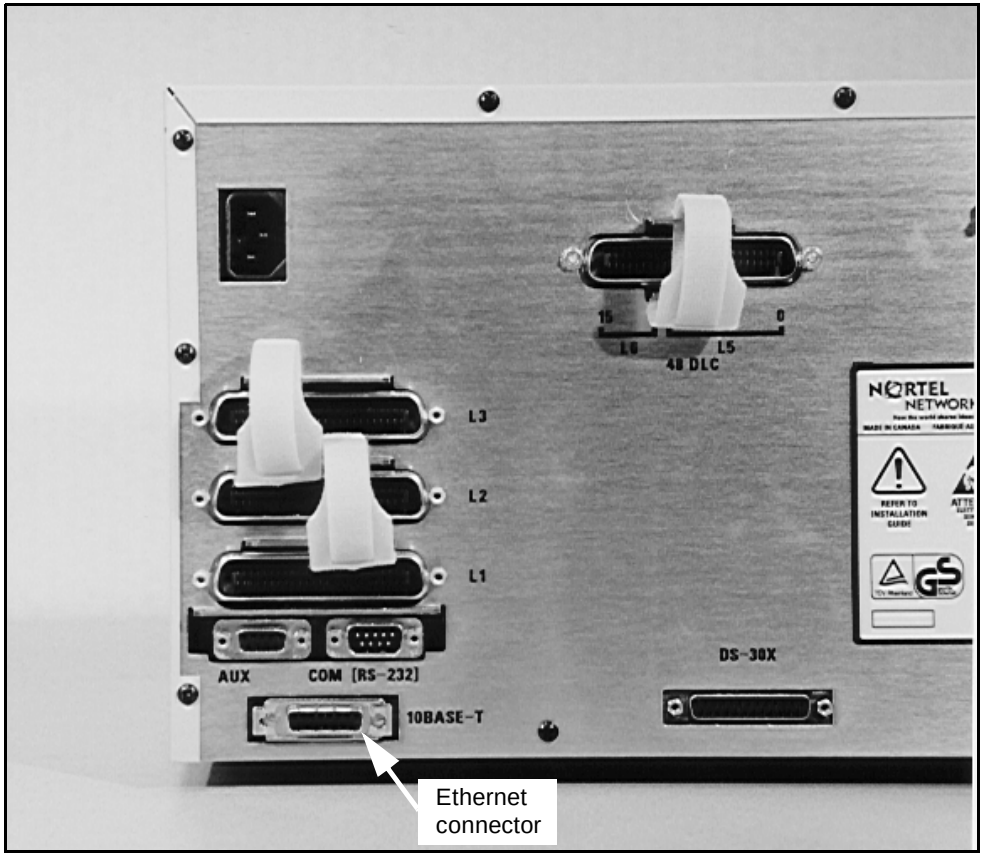
Global Set-Up		
On Line	**Comm1=RS232**	
Sessions on Comm1		**70Hz**
CRT Saver	**Printer Shared**	
Display Set-Up		
80 Columns	**Light Text, Dark Screen**	
Interpret Controls	**Cursor**	
Auto Wrap	**Block Style Cursor**	
Jump Scroll		
General Set-up		
VT200 Mode, 7-bit Controls	**Application Keypad**	
User Defined Keys Unlocked	**Normal Cursor Keys**	
User Features Unlocked	**No New Line**	
Multinational		
Communications Set-Up		
Transmit=2400	**No Local Echo**	
Receive=Transmit	**Data Leads Only**	
Xoff at 64	**Disconnect, 2 s Delay**	
8bits, No Parity	**Limited Transmit**	
1 Stop Bit		
Printer Set-Up		
Speed=9600		
Normal Print Mode	**Print Full Page**	
8bits, No Parity,	**Print National Only**	
1 Stop bit	**No Terminator**	
Keyboard Set-up		
Typewriter Keys	**Warning Bell**	
Caps Lock	**Break**	
Auto Repeat	**Answerback=**	
Keyclick High	**Not Concealed**	
Margin Bell		
Tab Set-Up Screen		
Leave this screen at the default values		

Installing and connecting an ethernet cable

Ethernet connection

The Option 11C Mini system provides a 10 Mbit Ethernet connection to a Local Area Network (LAN). The ethernet cable connector is at the back of the Main Chassis on the bottom left-hand side. See Figure 63.

Figure 63
Ethernet connection



Procedure 59
Connecting the Ethernet cable

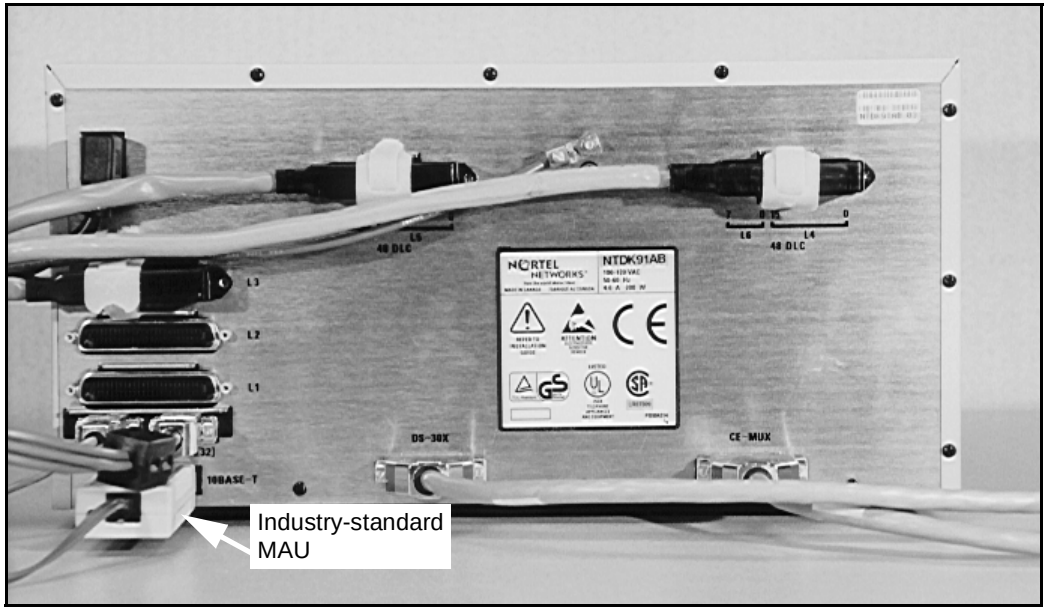
1 Insert an industry-standard Medium Access Unit (MAU) into the Ethernet connection at the bottom left-hand corner of the Main Chassis.

Note: The Option 11C Mini system does not include the MAU.

2 Insert the Ethernet cable into the MAU. See Figure 64.

Note: When the time comes to configure the Ethernet link, use Overlay 117.

Figure 64
Ethernet cable inserted into an industry-standard MAU



End of Procedure

Chapter 16 — Starting the Option 11C Mini and installing software

This chapter describes how to start the Option 11C Mini system and to make sure that the system is operating correctly. This chapter also describes the Software Installation Program and how to install software in the Option 11C Mini system. This chapter contains the following three main sections:

- "Starting the Option 11C Mini" on page 269 contains start-up procedures for the Option 11C Mini.
- "Software Installation Program" on page 271 describes the Software Installation Program.
- "Installing software in a new system" on page 275 provides procedures for installing software on the Option 11C Mini system.

Starting the Option 11C Mini

Before you continue with the procedures described in this section, make sure all necessary hardware is connected to, or installed in the system. Check all connections, and make sure that you have installed all of the circuit cards correctly.

Before you start the Option 11C Mini, complete Step 1 through Step 18 in "Chapter 6 — Getting started installing the Option 11C Mini" on page 71.

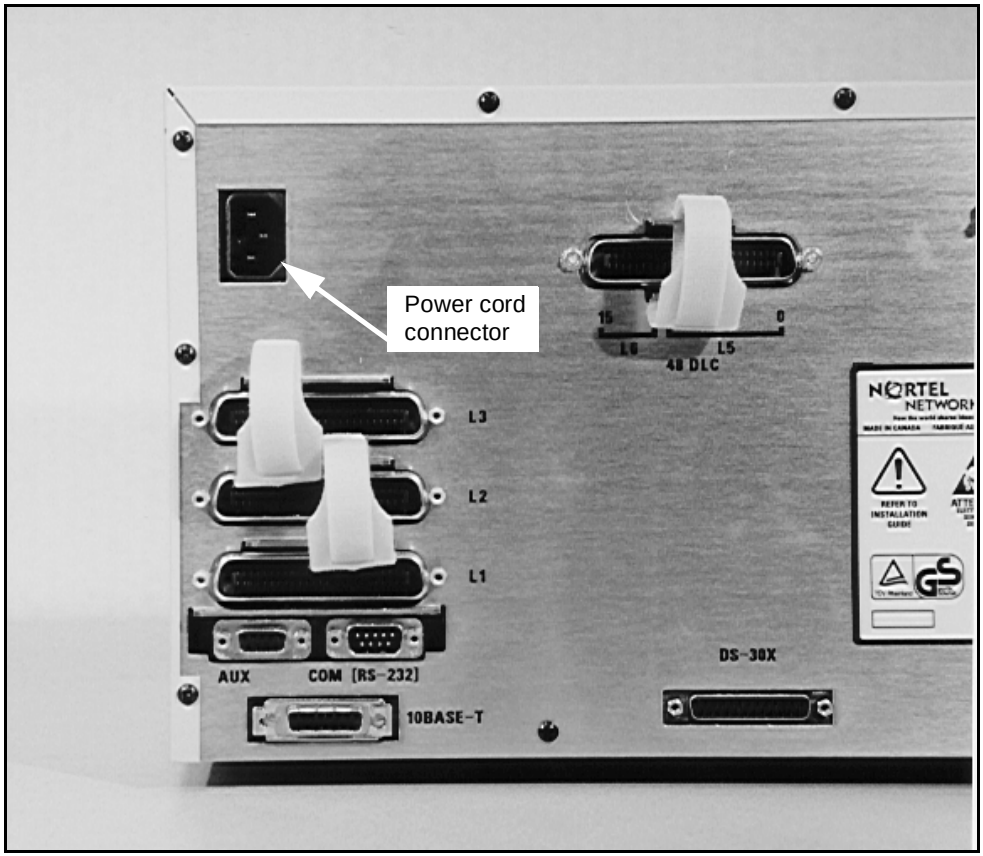
Start-up procedures

Procedure 60
Start-up procedure for a first-time system installation, using the MSC card

1 Test the power outlet. Make sure that the correct voltage of power is present before you plug the power cord into the outlet. The source must match the label on the back of the chassis.

2 Connect the power cord from the power connector on the back of the chassis to an AC power source. See Table 65.

Figure 65
Power connector on the back of the chassis



3 Observe the TTY or terminal screen. The TTY must be connected to TTY port 0.

4 When you have completed the software installation (see “Installing software in a new system” on page 275), observe the screen again.

5 Perform an EDD using Overlay 43.

After the system is loaded, a menu-driven program called the “Software Installation Program” is automatically called up.

End of Procedure

Procedure 61
Start-up procedure for a previously installed system

1 Test the power outlet. Make sure that the correct voltage of power is present before you plug the power cord into the outlet. The source must match the label on the back of the chassis.

2 Connect the system to an AC power source.

3 Observe the TTY or terminal screen.

Messages appear on the TTY or the terminal screen. When the message “INIXXX” appears, the system is in operation.

4 If required, set the system time and date using Overlay 2.

5 Perform an EDD using Overlay 43.

End of Procedure

Software Installation Program

The Software Installation Program provides a menu-driven method of selecting from the different options of installing, modifying, or upgrading the following:

- software
- customer data
- feature set
- Incremental Software Management (ISM) parameters

The flash ROM stores information about the selections. This information is in the form of a list of instructions for the program to follow when it runs.

Starting the program

The Software Installation Program must run from TTY 0 (port 0 on card 0). The following are the two methods of starting the Software Installation Program:

- Issue the “upgrade” command in Overlay 143.
- Press the <Control> I keys while the terminal screen displays the installation prompt during SYSLOAD.

  Note: When you turn on a new system before the software has been installed, the Software Installation Program is called up automatically.

Function selection

The Software Installation Program is menu-driven. The main menu provides the core functionality of the program. The Software Installation Program includes the following key functions:

- installs software in a new system
- upgrades and modifies software in an existing system
- uses utilities to work with archived databases, review data, back up data, undo an installation in progress, and clear unwanted data.

After you have made all installation or upgrade selections, you must enter valid keycodes. The system validates the keycode. If you enter an invalid keycode, the installation function does not continue.

Note: If you enter a keycode that is not valid, the software and databases on the present system are not affected.

When the keycode validation passes, the software is installed on the system.

The Software Installation Program has the following additional options:

- **Clear Upgrade Information:** If for any reason the installation terminates after you have entered the keycodes, but before the installation is complete, you can abort the installation with the “Clear Upgrade Information” option.

- **Confirm Upgrade Information:** This option allows you to review the selected installation options. You can use the "Confirm Upgrade Information" after the system validates the keycodes, but before the installation is complete.
- **Set system time and date:** The system time and date is usually set before installation. This makes sure that all flash drive files have the correct creation date.

Keycodes

A security keycode system protects the installation of software, feature set, and ISM parameters. The installation does not continue unless you enter the correct keycodes.

You require keycodes for each new installation, and for existing system upgrades. Keycodes are on a Keycode Data Sheet, which is supplied with the software and security device. There is a different keycode assigned to each site for a particular combination of items, such as software release, feature set, and ISM parameters.

> ***Note:*** Contact your Nortel Networks representative if the Keycode Data Sheet is missing.

The Software Installation Program validates the keycodes. If the keycodes are valid, the installation function continues.

If the system rejects the keycodes that you enter, the installation function stops. Take one of the following actions:

- Check the software and make sure that it is the correct version for this site.
- Check the feature set and make sure you entered the correct data.
- Check the keycodes and make sure you entered the correct keycodes.
- Check the ISM parameters and make sure you entered the correct data.
- Abort the installation.

The system limits the validation of keycodes to three consecutive attempts. After the third unsuccessful attempt, the Software Installation Program returns to the main menu. Any data entered during this session is lost.

Feature set and ISM parameters

The Software Installation Program allows the selection of a feature set to be installed and enabled on the Option 11C Mini system. A feature set, such as Enhanced Business or Networking Services, has an associated list of software packages and ISM parameters. The Software Delivery Card can include several preconfigured feature sets.

The Software Installation Program also allows the addition of individual packages from the feature set and the changing of ISM system parameters.

Additions and changes are keycode controlled; therefore, the packages and ISM parameters must match those corresponding to the site's keycodes.

> ***Note:*** The Software Installation Program does not check the prerequisites and interactions of added packages.

Security Device

A Security Device is provided with each new Option 11C Mini system. Attach this device to the component side of the NTDK97 MSC card at the time of initial installation. The Security Device remains there for the life of the system.

AUX ID

Enter the AUX ID using the Software Installation Program. For new Option 11C Mini sites, the AUX ID is the system security ID. When assigned, the AUX ID remains for the life of the system.

Customer database

The Software Installation Program allows the installation of a customer database from one of the following sources:

Preconfigured database

The Software Delivery card can include several preconfigured databases and their associated feature sets. In addition, a minimal database is provided which contains basic system configuration information with no customer data.

Archived database

The Software Installation Program allows the archiving of various databases which can be used later at Option 11C Mini sites. It allows multiple databases to be configured off-site and then installed ready-to-use at customer sites.

> ***Note:*** Off-site programming of databases is subject to all security keycode restrictions. The off-site system must either use the Security Device that will be installed in the Option 11C Mini at the customer site, or must have its own keycodes for the feature set used.

Remote restored database

A database can be remotely restored using the Overlay 143 CCBR remote restore command.

Backed up Database

The Backed up Database option allows the copy on the backup flash drive to be installed. It is provided to recover a customer database if the customer database on the primary flash drive becomes corrupted.

Installing software in a new system

Before beginning the software installation process, complete Step 1 through Step 19 in “Summary of installation procedures” on page 72. You must install the security device on the MSC card, and you must have the Keycode Data Sheet available.

> ***Note:*** In the menus and screens, there are references to Option 11 and Option 11E. These references do not apply to the Option 11C Mini.

Summary of steps

The Software Installation steps are summarized in the following list:

- Setting the system time and date
- Selecting the New System Installation menu
- Selecting Feature Set and packages
- Selecting a database
- Selecting Incremental Software Management (ISM) parameters
- Validating keycodes
- Loading the software

Procedure 62
Installing software

1 **Make sure the MSC card is in CPU slot (slot 00) of the Main Chassis.**

For first-time installations, software is installed from the MSC card. Software is loaded on the MSC card when it arrives at the customer site.

2 **Observe the terminal screen.**

One of two messages will appear and the software installation proceeds accordingly. If the message is:

INSERT SOFTWARE DELIVERY CARD

Go to Step 3.

OR if the following is displayed:

SOFTWARE INSTALLATION PROGRAM

proceed with Step 4 on page 277.

3 Skip this step unless the Software Delivery (PCMCIA) card is being used to install the software.

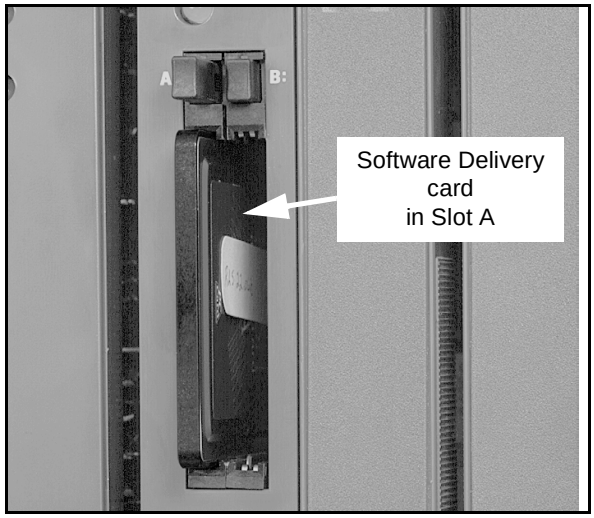
If you have not already done so, install the Software Delivery card in Slot A in the socket in the faceplate of the MSC card.

Note: You do not have to disconnect the power from the system before you install the Software Delivery card in Slot A.

See Figure 66.

Insert the card in slot A in the PCMCIA socket located in the faceplate of the NTDK97 MSC card. Carefully press on the Software Delivery card until it is firmly seated. See Figure 66.

Figure 66
PCMCIA card slot location



4 Observe the terminal screen.

If the screen displays the following:

Current system time and date: 00:00:00 -- 00/00/00

go to Step 5 on page 278.

OR if the screen displays the following:

Software Installation Main Menu

go to Step 6 on page 278.

5 Set the system Time and Date.

Note: The Time and Date prompt appears when the Install Setup Program detects a system Year Date that is not in the range of 1995-2095. The responses shown below are examples of how to enter the system Time and Date:

Enter new time (hh/mm/ss)

08:00:00 <cr>

Enter new date (yy/mm/dd)

95/05/01 <cr>

08:00:00 -- 95/05/01 is the new system time and date

y <cr>

6 Select item 1 from the Main Menu if you are installing the software from the MSC card. Although the MSC card does not have a software daughterboard, item 1 is the correct selection.

If you are installing from a Software Delivery card, select item 4.

Software Installation Main Menu

1. New System Installation - From Software Daughterboard

2. System Upgrade

3. Utilities

4. New System Installation - From Software Delivery Card

[q]uit, [h]elp or [?], <cr> - redisplay

Enter selection

1 <cr>

7 Select the Feature Set to be enabled.

Note: The Feature Set selected must match the one provided with keycodes. The Feature Set names shown below are examples only.

Select Feature Set You Wish to Enable:

1. General Services (NTSKxxxx)

2. Enhanced Services (NTSKxxxx)

3. Call Center Services (NTSKxxxx)

4. Enhanced Call Center Services (NTSKxxxx)

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr> redisplay

(example only:)

Enter Selection: **2 <cr>** (Enhanced Services)

8 Indicate if you want to add packages.

Feature Set Selection: Enhanced Services

Do you wish to add packages?

Select no, yes, or abort:

n <cr> (no)

y <cr> (yes)

a <cr> (abort)

Note: Abort returns you to the main menu.

If the response was **NO** go to Step 11 on page 280.

If the response was **YES** go to Step 9.

9 Select the Feature packages that you want to add.

Summary of Packages selected is:

0-2 4-5 7-14 16-25 28-29 32-64 67 70-77 79-83 86-93 95 98-104 107-111 113-116 118-120 122-125 127-129 131-133 135 137-141 167

Enter packages (s) to be added, blank line to end:

215-235 <cr>

Note: A Carriage Return, <CR>, ends selection entry or if no packages are to be added.

10 Confirm Feature Set and packages.

Your Feature Set Selection is “Enhanced Services”:

Additional Packages selected: 215-235

Summary of Packages selected is:

0-2 4-5 7-14 16-25 28-29 32-64 67 70-77 79-83 86-93 95 100-104 107-111 113-116 118-120 122-125 127-129 131-133 135 137-141 167

...

...

200-208 215-235

Is this selection correct?

n <cr> (no)

y <cr> (yes)

a <cr> (abort, return to main menu)

If the response was **NO** go to Step 7 on page 279.

If the response was **YES** go to Step 11 on page 280.

11 Select a Database.

If you are installing from a Software Delivery (PCMCIA) card go to Step 12 on page 281.

IF you are installing from an MSC card, continue here:

Select database to Install:

1. Pre-Configured database - Enhanced Services

2. Basic Configuration

3. CCBR Restore File

4. Option 11/11E Software Cartridge

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr> redisplay

Enter Selection: 1 or 2 <cr>

Note: Use Options 3 and 4 when upgrading an Option 11/11E to an Option 11C. There is no supported upgrade path from Option 11/11E to Option 11C Mini. Therefore, do not use these options for the Option 11C Mini.

If you selected 1 or 2, go to Step 14 on page 282.

12 Select a Database using the PCMCIA card.

If you are installing from the MSC card, go to Step 11 on page 280.

If you are installing from a Software Delivery (PCMCIA) card continue here:

Select database to Install:

1. Pre-Configured database - Enhanced Services

2. Basic Configuration

3. Archived Database

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr> redisplay

Enter Selection: 3 <cr>

IF you selected 3 'Archived Database', go to Step 13. If you selected 1 or 2, go to Step 14 on page 282.

13 Select an Archived Database.

The terminal screen displays the available archived databases. The following are examples only.

Archived Database available:

1. Company ABC

2. XYZ.Offices

3. Green.Packaging

[q]uit, [m]ain menu, [p]revious menu, <cr> - redisplay

14 Review ISM parameters.

Note: On a new installation, the ISM parameters displayed on the terminal screen are the default settings related to the Feature Set selection. You can accept these settings without changes or change the settings to meet the requirements of the new system.

Current ISM Parameters:

TNS (1000) **(maximum number of terminal numbers)**

ACDN (0300) **(maximum number of ACD DNs)**

AST (0100) **(maximum number of associate Sets)**

LTID (0100) **(maximum number of Logical Terminal IDs)**

RAN_CON (0012) **(default RAN connection)**

RAN_RTE (9999) **(default RAN routes)**

MUS_CON (0100) **(default MUS connection)**

BRAND (0) **(brandline)**

ACD AGENTS (1000) **(maximum number of ACD agents)**

ANALOGUE TELEPHONES (0100) **(maximum number of analogue sets)**

BRI DSL (0100) **(maximum number of Digital Subscriber Loops)**

DIGITAL TELEPHONES (0100) **(maximum number Digital sets)**

WIRELESS TELEPHONES (0) **(maximum number Wireless sets)**

TMDI D-CHANNELS (0) **(maximum number of channels)**

MOPT (0000) **(Meridian Mail option)**

Note: The above underscores represent a space.

Do you wish to change ISM parameters?

n <cr> (no change)

y <cr> (change)

a <cr> (abort, return to main menu)

If the response was **YES** go to Step 15 on page 283.

If the response was **NO** go to Step 17 on page 285.

15 Select ISM parameters.

Enter new ISM parameters, <cr> to leave as is:

TNS (1000)

ACDN (0300)

AST (0100)

LTID (0100)

RAN_CON (0012)

RAN_RTE (9999)

MUS_CON (0100)

BRAND (0)

ACD AGENTS (1000)

ANALOGUE TELEPHONES (0100)

BRI DSL (0100)

DIGITAL TELEPHONES (0100)

WIRELESS TELEPHONES (0)

TMDI D-CHANNELS (0)

MOPT (0000)

16 Confirm ISM parameters.

New ISM parameters are:

TNS (1000)

ACDN (0300)

AST (0100)

LTID (0100)

RAN_CON (0012)

RAN_RTE (9999)

MUS_CON (0100)

BRAND (0)

ACD AGENTS (1000)

ANALOGUE TELEPHONES (0100)

BRI DSL (0100)

DIGITAL TELEPHONES (0100)

WIRELESS TELEPHONES (0)

TMDI D-CHANNELS (0)

MOPT (0000)

Is this correct?

n <cr> (no)

y <cr> (yes)

a <cr> (abort, return to main menu)

If the response was **NO** go to Step 14 on page 282.

If the response was **YES** go to Step 17 on page 285.

17 Define the AUX ID.

Note: The default AUX ID is the system ID provided with the Option 11C Mini.

Security ID: 20000326

Current AUX ID: 20000326

Do you wish to change the AUX ID?

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu)

If the response was **NO** go to Step 19 on page 286.

If the response was **YES** go to Step 18 on page 285.

18 Enter the AUX ID.

Enter the AUX ID, as printed on the Keycode Data Sheet. Enter a <cr> to maintain.

<cr> to maintain

12121212 <cr>

New AUX ID: 12121212

Is this correct?

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu)

If the response was **NO** go to Step 17 on page 285.

If the response was **YES** go to Step 19 on page 286.

19 Review and confirm information entered.

New Installation Information Summary:

Security ID: 20000326

Aux ID: 20000326

Added Pkgs: 215-235

Feature Set: Enhanced Business

Database: Company.ABC

S/W Release: 2304C

ISM Parameters

TSN: 1000 1000

AGNT: 1000 1000

ACDN: 0100 0100

AST: 0000 0150

DSL: 0000 0100

LTID: 0000 0000

RAN_CON (0010)

RAN_RTE (9999)

MUS_CON (0100)

BRAND (0)

MOPT: 0000 0000

Note: The terminal screen displays both the old and the new parameter values.

Is this correct?

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu)

If the response was **NO** go to Step 7 on page 279.

If the response was **YES** go to Step 20 on page 287.

20 Enter the keycodes from the Keycode Data Sheet.

Enter new Keycodes:

Key 1:

Key 2:

Key 3:

xxxxxxxx <cr>

yyyyyyyy <cr>

zzzzzzzz <cr>

After you enter the last keycode, the system displays a successful or unsuccessful message. Follow the instructions given below.

'Keycode validation successful'

WARNING A system restart will occur as part of the software installation process"

If the **successful** message appears go to Step 21 on page 287.

'Keycode validation unsuccessful'

If the **unsuccessful** message appears, repeat this step (Step 20).

After three unsuccessful keycode validation attempts, the following message appears:

Keycode validation unsuccessful.

Installation aborted...returning to main menu.

21 Complete the software installation.

Are you sure you wish to perform the installation?

y <cr> (yes)

n <cr> (no)

a <cr> (abort, return to main menu)

If the response was **YES,** this is the end of the Software Installation program. The system will now start to sysload. See Procedure 60 Step 4 on page 271.

If the response was **NO,** go to Step 6 on page 278.

———————— ***End of Procedure*** ————————

Chapter 17 — Connecting the telephones

This chapter contains instructions for connecting telephones to the cross-connect terminal. Refer to “Telephones and Attendant Consoles” on page 17 for a list of telephones and Attendant Consoles supported by the Option 11C Mini.

Refer to the instructions provided with the telephone or Attendant Console and to the following documents for detailed information about installing telephones and Attendant Consoles:

- *Meridian 1 Telephone and Attendant Console Installation* (553-3001-215)
- *Meridian 1 European Digital Telephones* (553-3001-114)
- *M3900 Series Meridian Digital Telephone Description, Installation, and Administration* (553-3001-216)

Refer to “Appendix C – Preprogrammed data” on page 433 and “Appendix D – Preprogrammed data for the United Kingdom” on page 485 for information about preprogrammed data.

Before you continue, install the cable from the slot that contains the line card associated with the telephone being connected. Refer to "Chapter 13 — Installing and connecting the cross-connect terminal" on page 229, if you require additional cable installation.

WARNING

Always use caution when installing or modifying telephone lines. Do not install telephone wiring during a lightning storm. Do not install telephone jacks in wet locations unless the jack is designed for wet locations. Never touch uninsulated telephone wiring unless the line is disconnected at the network interface.

Cross connecting telephones

Connect the telephones according to Figures 67 and 68.

Procedure 63
Cross connecting telephones

1. **Locate the telephone terminations at the cross-connect terminal.**
2. **Connect the Z-type cross-connect wire to the leads of the telephone.**
3. **Locate line circuit card (TN) terminations at the cross-connect terminal.**
4. **Connect the other end of the cross-connect wire to the assigned TN terminal block.**
5. **For installations in Germany, attach a BZT approval label to the bottom of the telephone. Refer to "Appendix B – Additional information for installations in Germany" on page 411 for a listing of BZT approval labels.**

End of Procedure

Figure 67
NE-500/2500-type telephone cross connections

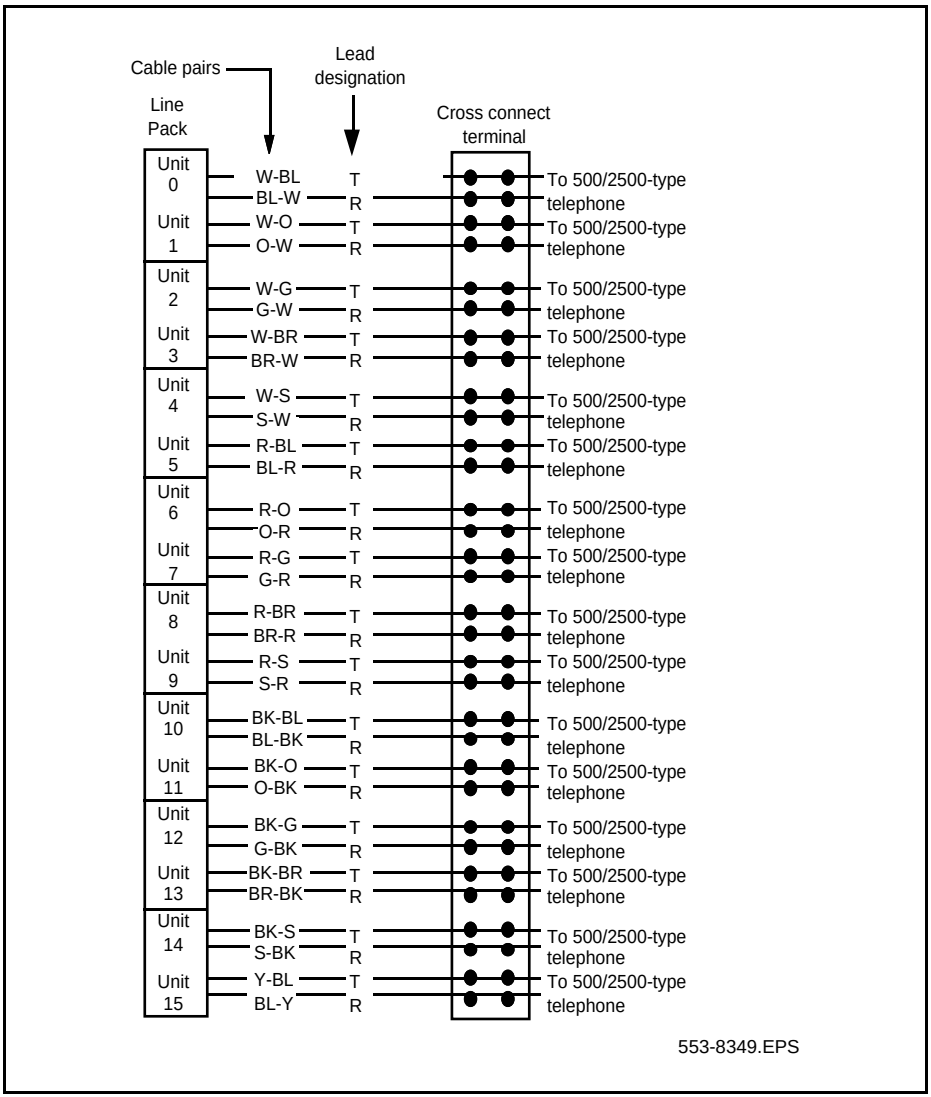
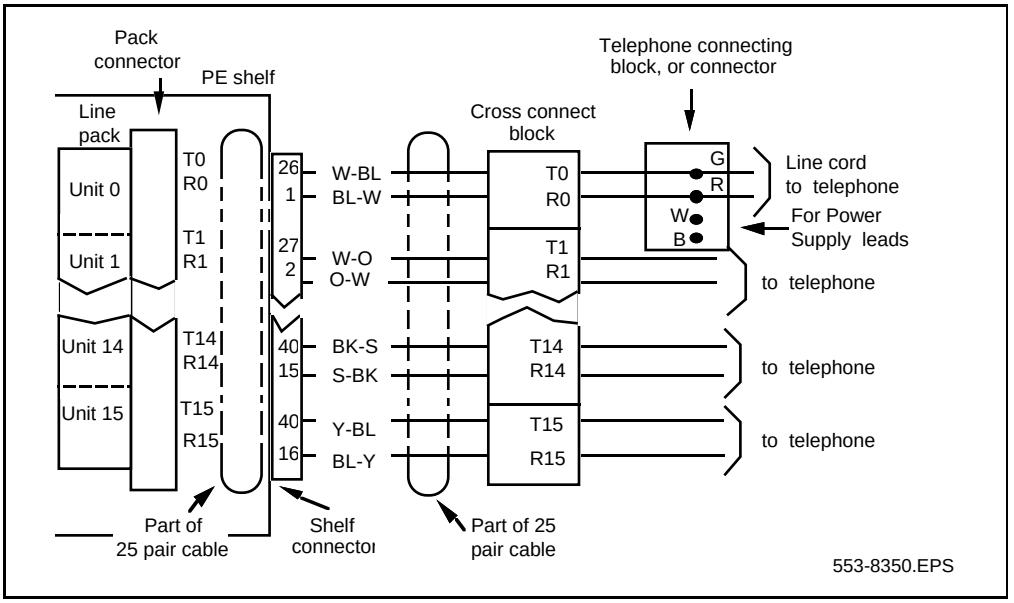


Figure 68
Meridian Digital Telephone cross connections



Connecting telephones without a PFTU

Procedure 64
Connecting telephones without a PFTU

1 **Locate the telephone terminations on the cross-connect terminal.**

2 **Connect one end of the cross-connect wire to the leads of the telephone.**

3 **Locate the line card terminations on the cross-connect terminal.**

Refer to Table 41 on page 299.

4 **Connect the other end of the cross-connect wire to the assigned TN terminal block.**

Table 44 on page 302 provides default DN assignments.

Now, you can activate the telephone, as described on page 303.

5 For installation in Germany, attach a BZT approval label to the bottom of the telephone. Refer to "Appendix B – Additional information for installations in Germany" on page 411 for a listing of BZT approval labels.

End of Procedure

Connecting analog (500/2500-type) telephones with a PFTU

Procedure 65
Connecting 500/2500-type telephones with a PFTU

1 Locate the telephone terminations on the cross-connect terminal.

2 Connect one end of the cross-connect wire to the leads of the telephone.

3 Locate the PFTU connections (unit PFT 1 through PFT 5) assigned to this telephone at the cross-connect terminal.

Refer to Table 42 on page 299.

4 Connect the other end of the cross-connect wire to the pair assigned to the telephone on the PFTU.

5 Connect a second cross-connect wire to the pair assigned to the line card on the PFTU.

6 Locate the line card terminations on the cross-connect terminal.

Refer to Table 41 on page 299.

7 Connect the other end of the cross-connect wire to the assigned TN terminal block.

Table 44 on page 302 provides the default DN assignments.

8 For installations in Germany, attach a BZT approval label to the bottom of the telephone. Refer to "Appendix B – Additional information for installations in Germany" on page 411 for a listing of BZT approval labels.

Now, you can activate the telephone, as described on page 303.

End of Procedure

Connecting off-premise telephones

Connect off-premise analog (500/2500-type) telephones through an NTAK92AA Off-Premise Protection Module. Each module can connect up to four analog (500/2500-type) telephones and can interface with one of the following:

- NT1R20 Off-Premise Station Analog Line Card
- NT8D03 Analog Line Card
- NT8D09 Message Waiting Line Card

WARNING

The message waiting line card produces -150 volts which is considered hazardous on off-premise telephones. Make sure that the -150 V is disabled on off-premise telephones.

The voltage is disabled when the telephone's Class of Service (CLS) is Message Waiting Lamp Denied (LPD) and Message Waiting Denied (MWD) in Overlay 10.

Refer to the *X11 Software guides* for information about Overlay 10.

Do not assign a Class of Service of LPA or MWA to an off-premise telephone.

Procedure 66
Connecting an off-premise telephone

1 **Install the NTAK92AA Off-Premise Protection Module on the wall using four #10 1/2 in (minimum) screws.**

2 **Connect a #6 AWG (#40 Metric Wire Gauge) from the ground lug at the bottom of the NTAK92AA Off-Premise Protection Module to an earth ground. Refer to Figure 69 on page 297.**

Note: In the UK, use a 2 mm^2 (#6 AWG) ground lug. In Europe, use a #6 AWG (16 mm^2) ground lug.

WARNING

If connecting to a message waiting line card, unseat the card from its assigned slot before continuing with the next step.

3 **Connect two NTAK9204 cables (one from connector J1 and one from connector J2) from the protection module to the cross-connect terminal.**

Terminate the cables as shown in Figure 67 on page 291.

4 **Cross-connect the J1 cable to the Tip and Ring connections coming from the line card.**

Table 44 on page 302 provides the default DN assignments.

5 **Cross-connect the J2 cable to the off-premise telephone.**

6 **Install the regulatory label provided with the Off-Premise Protection Module on the inside right-hand wall of the chassis.**

7 **Install the line card in its assigned position.**

8 **For installations in Germany, attach a BZT approval label to the bottom of the telephone. Refer to "Appendix B – Additional information for installations in Germany" on page 411 for a listing of BZT approval labels.**

Now, you can activate the telephone, as described on page 303.

——————————— ***End of Procedure*** ———————————

Connecting an Attendant Console

Procedure 67
Connecting Attendant Console

1 **Locate the Attendant Console terminations at the cross-connect terminal.**

2 **Locate the line card terminations at the cross-connect terminal.**

3 **With cross-connect wire, connect the line card and other connections to the console as shown in Figure 70 on page 298.**

4 **For installations in Germany, attach a BZT approval label to the bottom of the telephone. Refer to "Appendix B – Additional information for installations in Germany" on page 411 for a listing of BZT approval labels.**

——————————— *End of Procedure* ———————————

Figure 69
NTAK92AA Off-Premise Protection Module connections

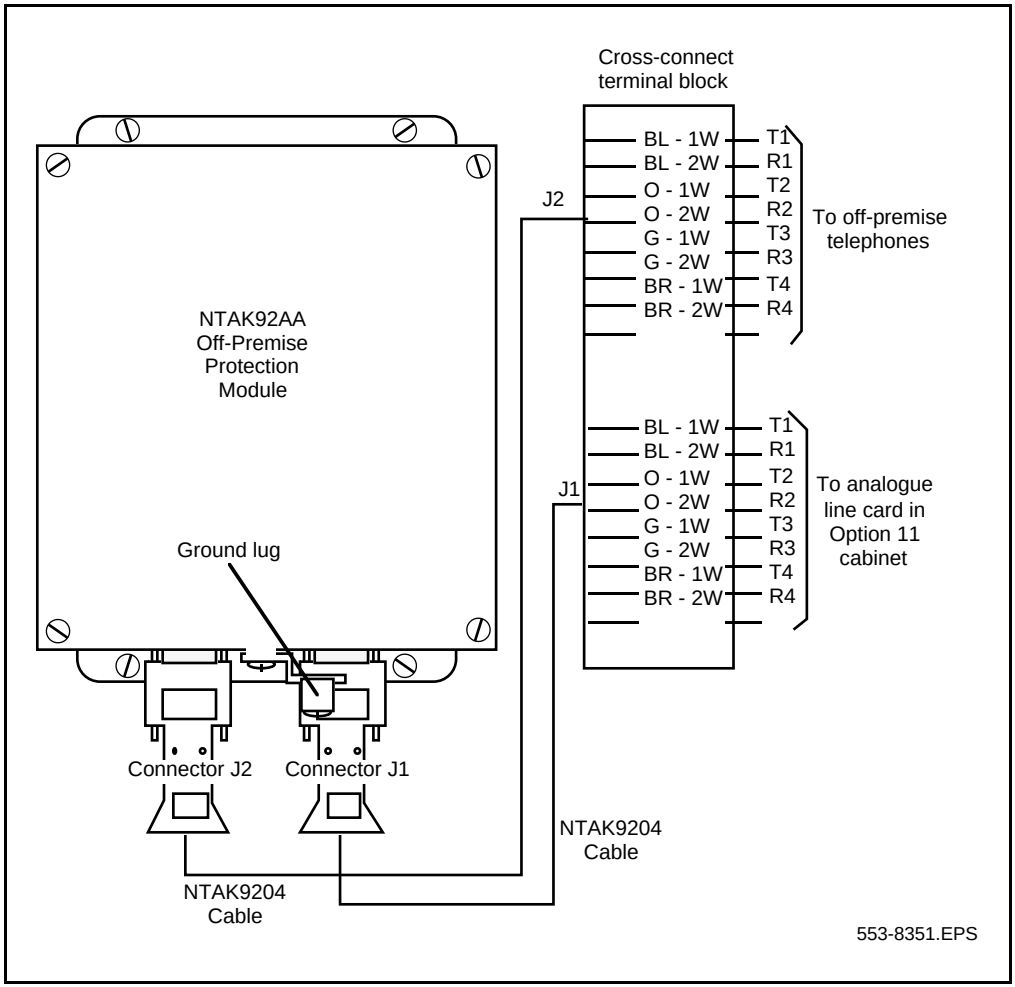
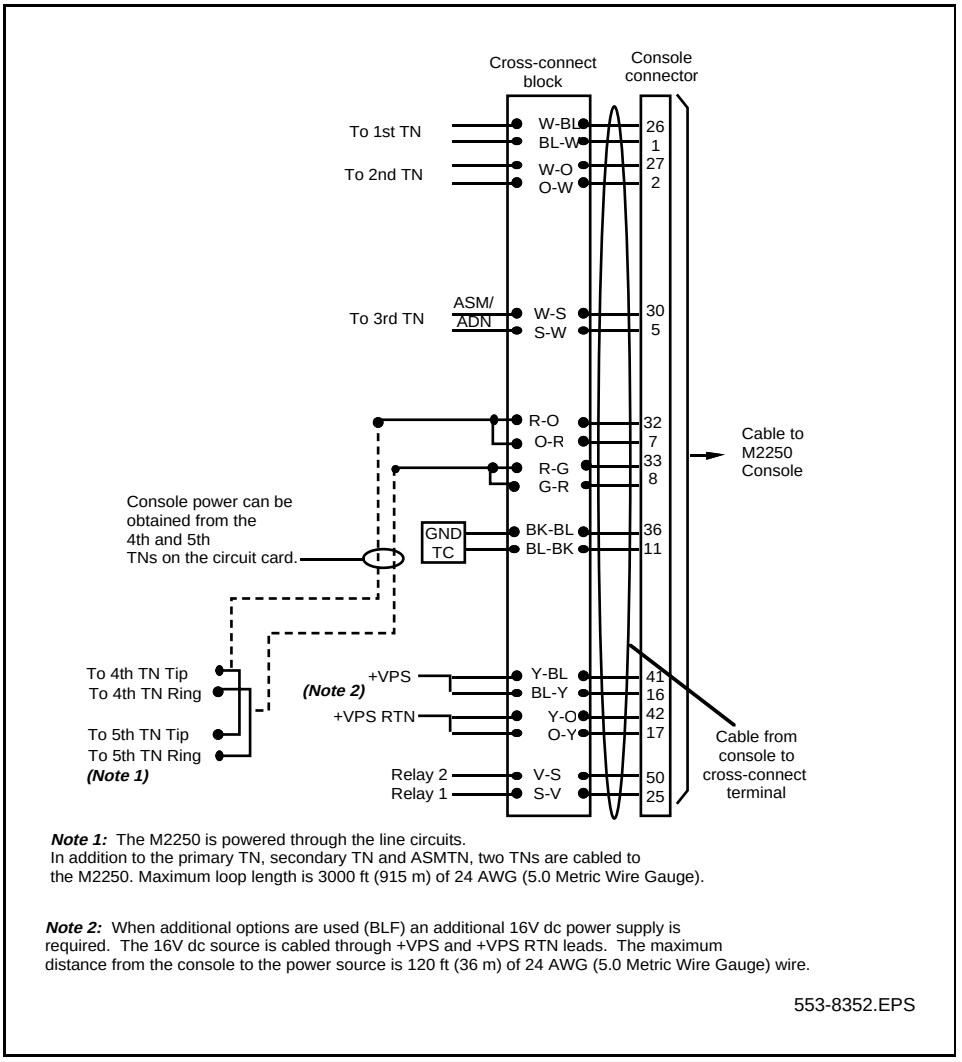


Figure 70
Attendant console connections



Note 1: The M2250 is powered through the line circuits. In addition to the primary TN, secondary TN and ASMTN, two TNs are cabled to the M2250. Maximum loop length is 3000 ft (915 m) of 24 AWG (5.0 Metric Wire Gauge).

Note 2: When additional options are used (BLF) an additional 16V dc power supply is required. The 16V dc source is cabled through +VPS and +VPS RTN leads. The maximum distance from the console to the power source is 120 ft (36 m) of 24 AWG (5.0 Metric Wire Gauge) wire.

553-8352.EPS

Table 41
Terminal Number assignments — Main Chassis and Chassis Expander

Physical slot	Logical slot	First TN...Last TN	Cable	Chassis
01	1	01 00...01 15	L1	Main
02	2	02 00...02 15	L2	Main
03	3	03 00...03 15	L3	Main
04	4 5 6	04 00...04 15 05 00...05 15 06 00...06 07 06 08...06 15	L4/L6 (see note) L5/L6 (see note) L4/L6 (see note) L5/L6 (see note)	Main Main Main Main
07	7	07 00...07 15	L1	Expander
08	8	08 00...08 15	L2	Expander
09	9	09 00...09 15	L3	Expander
10	10	10 00...10 15	L4	Expander
Note: Refer to the labels on the back of the Main Chassis. See Figure 54 on page 240.				

Table 42
Power Failure Transfer Unit connections

QUA6 J1 Cable			
Function	**Pair**	**Color**	**Connects to**
PFT 1	5T 5R	W-S S-W	Connect to the telephone
	6T 6R	R-BL BL-R	Connect to the telephone line card
	7T 7R	R-O O-R	Connect to the central office trunk
	8T 8R	R-G G-R	Connect to the trunk line card

Table 42
Power Failure Transfer Unit connections (Continued)

PFT 2	9T 9R	R-BR BR-R	Connect to the telephone
	10T 10R	R-S S-R	Connect to the telephone line card
	11T 11R	BK-BL BL-BK	Connect to the central office trunk
	12T 12R	BK-O O-BK	Connect to the trunk line card
PFT 3	13T 13R	BK-G G-BK	Connect to the telephone
	14T 14R	BK-BR BR-BK	Connect to the telephone line card
	15T 15R	BK-S S-BK	Connect to the central office trunk
	16T 16R	Y-BL BL-Y	Connect to the trunk line card
PFT 4	17T 17R	Y-O O-Y	Connect to the telephone
	18T 18R	Y-G G-Y	Connect to the telephone line card
	19T 19R	Y-BR BR-Y	Connect to the central office trunk
	20T 20R	Y-S S-Y	Connect to the trunk line card
PFT 5	21T 21R	V-BL BL-V	Connect to the telephone
	22T 22R	V-O O-V	Connect to the telephone line card
	23T 23R	V-G G-V	Connect to the central office trunk
	24T 24R	V-BR BR-V	Connect to the trunk line card

Table 43
Color combinations of cable pairs

Color	W-Bl Bl-W	W-O O-W	W-G G-W	W-BR BR-W	W-S S-W	R-BL BL-R	R-O O-R	R-G G-R
Unit	0	1	2	3	4	5	6	7
Color	R-BR BR-R	R-S S-R	BK-BL BL-BK	BK-O O-BK	BK-G G-BK	BK-BR BR-BK	BK-S S-BK	Y-B B-Y
Unit	8	9	10	11	12	12	14	15

Table 44
Default DN assignments for the Main Chassis and Chassis Expander

	Cable	Unit	Default Directory Number (DN)							
Main Chassis	L1	0 - 7	2200	2201	2202	2203	2204	2205	2206	2207
	L1	8 - 15	2208	2209	2210	2211	2212	2213	2214	2215
	L2	0 - 7	2216	2217	2218	2219	2220	2221	2222	2223
	L2	8 - 15	2224	2225	2226	2227	2228	2229	2230	2231
	L3	0 - 7	2232	2233	2234	2235	2236	2237	2238	2239
	L3	8 - 15	2240	2241	2242	2243	2244	2245	2246	2247
	L4	0 - 7	2248	2249	2250	2251	2252	2253	2254	2255
	L4	8 - 15	2256	2257	2258	2259	2260	2261	2262	2263
	L5	0 - 7	2264	2265	2266	2267	2268	2269	2270	2271
	L5	8 - 15	2272	2273	2274	2275	2276	2277	2278	2279
	L6	0 - 7	2280	2281	2282	2283	2284	2285	2286	2287
	L6	8 - 15	2288	2289	2290	2291	2292	2293	2294	2295
Chassis Expander	L1	0 - 7	2296	2297	2298	2299	2300	2301	2302	2303
	L1	8 - 15	2304	2305	2306	2307	2308	2309	2310	2311
	L2	0 - 7	2312	2313	2314	2315	2316	2317	2318	2319
	L2	8 - 15	2320	2321	2322	2323	2324	2325	2326	2327
	L3	0 - 7	2328	2329	2330	2331	2332	2333	2334	2335
	L3	8 - 15	2336	2337	2338	2339	2340	2341	2342	2343
	L4	0 - 7	2344	2345	2346	2347	2348	2349	2350	2351
	L4	8 - 15	2352	2353	2354	2355	2356	2357	2358	2359

Cross-connecting terminal Digital Subscriber Loops

Refer to *ISDN BRI Administration and Maintenance Guide (553-3011-311)* for a complete description of terminal Digital Subscriber Loops (DSL) cross-connecting and installation.

Activating telephones

Activating telephones is not difficult. Activate each telephone by performing a procedure on the telephone. Automatic Set Configuration is the software feature used to activate telephone sets.

> ***Note:*** You cannot activate the data feature using the procedures in this chapter. To program a telephone with the data feature, configure it in LD 11 with Data Class of Service. See the *X11 Software guides*.

INSTRUCTIONS FOR GERMANY

"Appendix B – Additional information for installations in Germany" on page 411 contains instructions for activating telephones in Germany.

This chapter contains procedures for activating the following models of telephones:

- a default model with a default extension number
- a customized model with a customized extension number

This chapter provides these procedures for telephones with and without character displays.

Telephone tones

There are a number of different telephone tones. Table 45 includes tones that you hear during telephone activation:

Table 45
Telephone tones

Tone	Description
Dial tone	A continuous tone.
Special dial tone	Three beeps followed by continuous dial tone.
Overflow tone	Like a busy tone, except faster and higher.
Relocation tone	A short high-pitched beep that continues for 4 seconds, followed by silence.

Note 1: Before you activate a telephone, make sure that you have decided on its final location. Also, know the model number assigned to the telephone and if it is to be customized.

Note 2: When you are activating Meridian Digital telephones, remember that they are different from the older Meridian Modular telephones. Meridian Modular telephones can have a combined total of 128 model telephones. Meridian Digital telephones can have 128 models for each type of telephone. When you activate a Meridian Digital telephone, select the model associated with that telephone type, or the telephone will not work.

Activating a default model with a character display

Procedure 68
Activating the telephone

1 Plug the telephone set into the jack and wait 20 seconds before you lift the handset. If you do not receive a dial tone, replace the handset and wait another 10 seconds before lifting the handset again. Repeat this procedure until you receive dial tone.

If successful, the character display shows either “MODEL? X” (if the telephone relocation feature is **not** in use) or “RELOC OR MODEL? X” (if the telephone relocation feature **is** in use). “X” represents the default model for the telephone that you are activating.

Note: If you do not see the prompt “MODEL X” after lifting the handset, disconnect the telephone from the wall jack. Wait five seconds, and insert the telephone into the jack again. The telephone now shows “MODEL X” when you lift the handset.

Note: The system requires the 20 second time interval to determine if the set is new or if it is being relocated using the Modular Telephone Relocation feature.

2 Press the pound key (#) to select the default model.

The character display shows “OK, EXTENSION? XXXX”. “XXXX” represents the default extension number for this telephone type.

3 Press the pound key again to select the default extension number.

You hear the relocation tone. The character display shows “OK”.

OR

If the extension number is already in use by another telephone, you hear the special dial tone. If the telephone has a display it shows “MULTI-LINE, EXTENSION?”.

To accept the default extension number, press the pound key.

To select a new extension number, manually enter an extension number and press the pound key.

OR

If the extension number is not available for use, the character display shows “ERROR, EXTENSION?“ and you hear overflow tone.

This situation occurs when you select an extension number manually, or when extension numbers are entered for additional keys. A default extension number will not be offered if it is not available.

You must repeat step 3 and manually enter a new extension number.

Note 1: If other keys require secondary extension numbers, you are prompted until you enter all of the required extension numbers for the model.

Note 2: These extension numbers cannot be defaulted. The text display that prompts for additional extension numbers is “KEY kk EXT?” where “kk” represents the key number requiring the extension number.

Note 3: Each prompt for another extension number is accompanied by special dial tone. When you are programming an extension number, the lamp associated with that number on the telephone is lit.

4 Hang up the telephone receiver.

After approximately 10 seconds, the telephone is configured.

Note: If you replace the handset before completing the prompt sequence, the installation will automatically fail. This can be useful if you make an error and want to restart the procedure.

End of Procedure

Activating a default model without a character display

Procedure 69
Activating the telephone

1 **Plug the telephone set into the jack and wait 20 seconds before picking up the handset. If you do not receive dial tone, replace the handset and wait another 10 seconds before going off-hook again. Repeat this procedure until dial tone is received.**

Note: The 20 second time interval is required for the system to determine whether the set is new or if it is being relocated using the Modular Telephone Relocation feature.

2 **Press the pound key (#) to select the default model.**

3 **Press the pound key (#) again to select the default extension number.**

You hear a short, high-pitched beep lasting four seconds followed by silence (relocation tone).

Note: If the extension number is already in use by another telephone, you hear three beeps followed by continuous dial tone (special dial tone).

To accept the default extension number press the pound key (#).

To select a new extension number, manually enter an extension number and press the pound key.

If the extension number is not available for use, you hear a fast, high-pitched broken tone (overflow tone). This happens when you choose an extension number manually or when extension numbers are entered for additional keys. A default extension number will not be offered if it is not available. Step 3 must be repeated and you must manually enter a new extension number.

Note: If other keys require secondary extension numbers, you are prompted until you enter all of the required extension numbers for the model. These extension numbers cannot be defaulted. You are prompted for each additional extension number with three beeps followed by continuous dial tone (special dial tone). When you are programming an extension number, the lamp associated with that number on the telephone is lit.

———————— ***End of Procedure*** ————————

Activating a customized model with a character display

Procedure 70
Activating a customized telephone

1 Plug the telephone set into the jack and wait 20 seconds before picking up the handset. If you do not receive dial tone, replace the handset and wait another 10 seconds before going off-hook again. Repeat this procedure until dial tone is received.

If successful, the character display shows either “MODEL? X” (if the telephone relocation feature is **not** in use) or “RELOC OR MODEL? X” (if the telephone relocation feature **is** in use). “X” represents the default model for the telephone that you are activating.

Note 1: If you do not see the prompt “MODEL X” after lifting the handset, disconnect the telephone from the wall jack, wait five seconds, and re-insert the telephone into the jack. The telephone now shows “MODEL X” when you lift the handset.

Note 2: The 20 second time interval is required for the system to determine whether the set is new or if it is being relocated using the Modular Telephone Relocation feature.

2 Press the digits associated with the customized model and press the pound key (#).

Dial tone disappears after the first digit is pressed and you hear special dial tone after you press the pound key. If you enter a valid model number, the character display reads “OK, EXTENSION?”. If you enter an invalid model, the previous prompt is reissued and you hear overflow tone.

3 Enter the customized extension number and press the pound key.

You hear relocation tone. The character display shows “OK”.

OR

If the extension number is already in use by another telephone, you hear special dial tone again. The character display shows “MULTI-LINE, EXTENSION?”.

OR

If the extension number is not available for use, you hear overflow tone. The character display shows “ERROR, EXTENSION?” and you must repeat this step.

Note: If other keys require secondary extension numbers, you are prompted until you enter all of the required extension numbers for the model. These extension numbers cannot be defaulted. The text display prompting for further extension numbers is “KEY kk EXT?” where “kk” represents the key number requiring the extension number. Each prompt for another extension number is accompanied by special dial tone. When you are programming an extension number, the lamp associated with that number on the telephone is lit.

4 Hang up the telephone handset.

After approximately 10 seconds, the telephone is configured.

Note: If you replace the handset before you complete the prompt sequence, the installation automatically fails. This can be useful if you make an error and want to restart the procedure.

——————————— ***End of Procedure*** ———————————

Activating a customized model without a character display

Procedure 71
Activating a customized telephone

1 **Plug the telephone set into the jack and wait 20 seconds before picking up the handset. If you do not receive dial tone, replace the handset and wait another 10 seconds before going off-hook again. Repeat this procedure until dial tone is received.**

Note: The 20 second time interval is required for the system to determine whether the set is new or if it is being relocated using the Modular Telephone Relocation feature.

2 **Press the digits associated with the customized model and press the pound key (#).**

Dial tone disappears after the first digit is pressed, and you hear three beeps followed by continuous dial tone (special dial tone) after you press the pound key.

3 **Enter the customized extension number and press the pound key.**

You hear a short high-pitched beep lasting four seconds, followed by silence (relocation tone).

If the extension number is already in use by another telephone, you hear special dial tone again.

If the extension number is not available for use, you hear a fast, high-pitched broken tone (overflow tone), and you must repeat this step.

4 **Hang up the telephone handset.**

After approximately 10 seconds, the telephone is configured.

Note: If other keys require secondary extension numbers, you are prompted until you enter all of the required extension numbers for the model. These extension numbers cannot be defaulted. You are prompted for each additional extension number with three beeps followed by continuous dial tone (special dial tone). When you are programming an extension number, the lamp associated with that number on the telephone is lit.

——————————— *End of Procedure* ———————————

Activating terminals on a DSL

Refer to the *ISDN BRI Administration and Maintenance Guide (553-3011-311)* for information about activating and initializing the various terminals that can be connected to a terminal DSL.

Chapter 18 — Connecting the trunks

This chapter describes how to connect trunks directly to the trunk card, with or without the use of a Power Failure Transfer Unit (PFTU).

> ***Note:*** The QUA6 PFTU operates with loop-start and ground-start CO trunks. However, with ground-start trunks the related telephone set must have a ground-start button.

During initial software installation on the Option 11C Mini, you can load a default database, containing preprogrammed trunk data, into software. If necessary, you can modify the default data at any time to meet the specific needs of a customer. For a description of how to modify preprogrammed trunking data, refer to “Appendix C – Preprogrammed data” on page 433 in this Guide.

WARNING

Always use caution when installing or modifying telephone lines. Avoid installing telephone wiring during a lightning storm. Do not install telephone jacks in wet locations unless the jack is designed for wet locations. Never touch uninsulated telephone wiring unless the line is disconnected at the network interface.

Connecting trunks without a PFTU

Procedure 72
Connecting trunks without a PFTU

1 **From the assignment record, determine the location of the trunk connection and its associated Terminal Number (TN) at the cross-connect terminal.**

2 **With cross-connect wire, connect the trunk to the TN.**

Make sure that the wiring is not reversed and is on the correct terminals.

Tables 47 to 49 list the connections for trunks. For trunk connections for Europe, see Tables 50 to 58. For trunk connections for the UK, see Tables 59 to 65.

End of Procedure

Connecting trunks with PFTU

Procedure 73
Connecting trunks with a PFTU

1 **Locate the PFTU terminal blocks at the cross-connect terminal.**

2 **Cross-connect the first pair of the assigned PFT to the telephone.**

See Table 46 on page 315 for PFTU connections.

3 **Cross-connect the second pair of the PFT to the TN assigned to the telephone.**

4 **Cross-connect the third pair of the PFT to the central office trunk.**

5 **Cross-connect the third pair of the PFT to the TN assigned to the trunk.**

6 **Repeat for each trunk assigned to the PFTU.**

End of Procedure

Table 46
Power Failure Transfer Unit connections

QUA6 J1 cable				
Function	**Pair**	**Color**	**Connects to**	**Comments**
PFT 1	5T 5R	W-S S-W	Connect to the telephone	
	6T 6R	R-BL BL-R	Connect to the telephone line card	Connect to TN assigned to the telephone
	7T 7R	R-O O-R	Connect to the central office trunk	
	8T 8R	R-G G-R	Connect to the trunk line card	Connect to TN assigned to the trunk
PFT 2	9T 9R	R-BR BR-R	Connect to the telephone	
	10T 10R	R-S S-R	Connect to the telephone line card	Connect to TN assigned to the telephone
	11T 11R	BK-BL BL-BK	Connect to the central office trunk	
	12T 12R	BK-O O-BK	Connect to the trunk line card	Connect to TN assigned to the trunk
PFT 3	13T 13R	BK-G G-BK	Connect to the telephone	
	14T 14R	BK-BR BR-BK	Connect to the telephone line card	Connect to TN assigned to the telephone
	15T 15R	BK-S S-BK	Connect to the central office trunk	
	16T 16R	Y-BL BL-Y	Connect to the trunk line card	Connect to TN assigned to the trunk
PFT 4	17T 17R	Y-O O-Y	Connect to the telephone	
	18T 18R	Y-G G-Y	Connect to the telephone line card	Connect to TN assigned to the telephone
	19T 19R	Y-BR BR-Y	Connect to the central office trunk	
	20T 20R	Y-S S-Y	Connect to the trunk line card	Connect to TN assigned to the trunk

P F T 5	21T 21R	V-BL BL-V	Connect to the telephone	
	22T 22R	V-O O-V	Connect to the telephone line card	Connect to TN assigned to the telephone
	23T 23R	V-G G-V	Connect to the central office trunk	
	24T 24R	V-BR BR-V	Connect to the trunk line card	Connect to TN assigned to the trunk

Trunk connections

NT8D14 Universal trunk card

The Universal trunk card provides eight analog trunks that can function in the modes shown in Table 47.

Table 47
NT8D14 Universal trunk — modes and option settings

Modes	Location	Jumper strap
Central (CO)	J1, J2	OFF
2- way TIE trunk (loop Dial Repeat)	J1, J2	OFF
2 - way TIE trunk (Outgoing Incoming Dial)	J1, J2	OFF
Recorded Announcement (RAN)	J1, J2	OFF
Paging trunk	J1, J2	OFF
Japan CO/DID operation	J1, J2	OFF
DID operation Loop length>2000 ¾	J1, J2	ON
DID operation Loop length <2000¾	J1, J2	OFF
Note: OFF indicates no strap present. J1 and J2 locations apply to all eight trunks.		

Refer to Table 48 on page 317 for the connections to the NT8D14 Universal trunk at the cross-connect terminal.

Table 48
NT8D14 Universal trunk connections

Cable from chassis			RAN mode	Paging mode	All other modes
Pair	**Color**		**Designations**		
1T 1R	W-BL BL-W	Unit 0	T0 R0	T0 R0	T0 R0
2T 2R	W-O O-W		CP MB	A PG	
3T 3R	W-G G-W	Unit 1	T1 R1	T1 R1	T1 R1
4T 4R	W-BR BR-W		CP MB	A PG	
5T 5R	W-S S-W	Unit 2	T2 R2	T2 R2	T2 R2
6T 6R	R-BL BL-R		CP MB	A PG	
7T 7R	R-O O-R	Unit 3	T3 R3	T3 R3	T3 R3
8T 8R	R-G G-R		CP MB	A PG	
9T 9R	R-BR BR-R	Unit 4	T4 R4	T4 R4	T4 R4
10T 10R	R-S S-R		CP MB	A PG	
11T 11R	BK-BL BL-BK	Unit 5	T5 R5	T5 R5	T5 R5
12T 12R	BK-O O-BK		CP MB	A PG	
13T 13R	BK-G G-BK	Unit 6	T6 R6	T6 R6	T6 R6
14T 14R	BK-BR BR-BK		CP MB	A PG	
15T 15R	BK-S S-BK	Unit 7	T7 R7	T7 R7	T7 R7
16T 16R	Y-BL BL-Y		CP MB	A PG	
Note: Remaining pairs are spare					

NT8D15 E&M Trunk card

Table 49
NT8D15 E&M Trunk card

Cables L1 through L10 from chassis			2W Paging mode	2W Type 1 mode	4W Type 1 mode	4W Type 2 mode
Pair	**Color**		**Designations**			
1T 1R	W-BL BL-W	Unit 0	T0 R0	T0 R0	TA TB	TA TB
2T 2R	W-O O-W				RA RB	RA RB
3T 3R	W-G G-W			E M	E M	EA EB
4T 4R	W-BR BR-W		A PG		ESC ESCG	MA MB
5T 5R	W-S S-W	Unit 1	T1 R1	T1 R1	TA TB	TA TB
6T 6R	R-BL BL-R				RA RB	RA RB
7T 7R	R-O O-R			E M	E M	EA EB
8T 8R	R-G G-R		A PG		ESC ESCG	MA MB
9T 9R	R-BR BR-R	Unit 2	T2 R2	T2 R2	TA TB	TA TB
10T 10R	R-S S-R				RA RB	RA RB
11T 11R	BK-BL BL-BK			E M	E M	EA EB
12T 12R	BK-O O-BK		A PG		ESC ESCG	MA MB

Table 49
NT8D15 E&M Trunk card (Continued)

13T 13R	BK-G G-BK	Unit 3	T3 R3	T3 R3	TA TB	TA TB
14T 14R	BK-BR BR-BK				RA RB	RA RB
15T 15R	BK-S S-BK			E M	E M	EA EB
16T 16R	Y-BL BL-Y		A PG		ESC ESCG	MA MB
Note: A and B are the transmit and receive pairs, where: TA = Transmit Tip, and RA = Receive Tip TB = Transmit Ring, and RB = Receive Ring						

NT6D70 SILC and NT6D71 UILC cards

Refer to *ISDN BRI Administration and Maintenance Guide (553-3011-311)* for a complete description of trunk DSL installation and connections.

Trunk connections (Europe)

E&M TIE trunk card (2-Wire)

Note: Refer to the *Intelligent Peripheral Equipment Supplements* for a complete description of European circuit cards.

Table 50
E&M TIE trunk card (2-wire)

Cables L1 through L10 from chassis				Column 1 Paging	Column 2 Paging	Column 3 Type 5(BPO)
Pair	**Color**	**Unit #**	**Pins**	**Lead Designations**		
1T 1R	W-O O-W	Unit 0	27 2	T0 R0	T0 R0	T0 R0
2T 2R	W-BR BR-W		29 4	A PG	SIGB SIGA	E M
3T 3R	R-BL BL-R	Unit 1	31 6	T1 R1	T1 R1	T1 R1
4T 4R	R-G G-R		33 8	A PG	SIGB SIGA	E M
5T 5R	R-S S-R	Unit 2	35 10	T2 R2	T2 R2	T2 R2
6T 6R	BK-O O-BK		37 12	A PG	SIGB SIGA	E M
7T 7R	BK-BR BR-BK	Unit 3	39 14	T3 R3	T3 R3	T3 R3
8T 8R	Y-BL BL-Y		41 16	A PG	SIGB SIGA	E M

Table 51
E&M 2-wire Type 2

Lead designations	Pins	Pair color	Unit number
T0 R0	27 2	W-O O-W	
E1 E2	28 3	W-G G-W	Unit 0
M1 M2	29 4	W-G G-W	
T1 R1	31 6	R-BL BL-R	
E1 E2	32 7	R-O O-R	Unit 1
M1 M2	33 8	R-G G-R	
T2 R2	35 10	R-S S-R	
E1 E2	36 11	BK-BL BL-BK	Unit 2
M1 M2	37 12	BK-O O-BK	
T3 R3	39 14	BK-BR BR-BK	
E1 E2	40 15	BK-S S-BK	Unit 3
M1 M2	41 16	Y-BL BL-Y	

E&M TIE trunk card (4-Wire)

Table 52
E&M TIE trunk card (4-wire)

Cables L1 through L10 from chassis				Column 1 Type 1 & 5	Column 2 Type 1 & 5
Pair	**Color**	**Unit #**	**Pins**	**Lead Designations**	
1T 1R	W-BL BL-W	Unit 0	26 1	RA RB	TA TB
2T 2R	W-O O-W		27 2	TA TB	RA RB
3T 3R	W-G G-W		28 3	E M	E M
4T 4R	W-S S-W	Unit 1	30 5	RA RB	TA TB
5T 5R	R-BL BL-R		31 6	TA TB	RA RB
6T 6R	R-O O-R		32 7	E M	E M
7T 7R	R-BR BR-R	Unit 2	34 9	RA RB	TA TB
8T 8R	R-S S-R		35 10	TA TB	RA RB
9T 9R	BK-BL BL-BK		36 11	E M	E M
10T 10R	BK-G G-BK	Unit 3	38 13	RA RB	TA TB
11T 11R	BK-BR- BR-BK		39 14	TA TB	RA RB
12T 12R	BK-S S-BK		40 15	E M	E M

Note: The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.

Table 53
E&M TIE trunk card (4-wire)

Cables L1 through L10 from chassis				Column 1 Type 2	Column 2 Type 2
Pair	**Color**	**Unit #**	**Pins**	**Lead Designations**	
1T 1R	W-BL BL-W	Unit 0	26 1	RA RB	RA RB
2T 2R	W-O O-W		27 2	TA TB	TA TB
3T 3R	W-G G-W		28 3	E1 E2	E M
4T 4R	W-BR BR-W		29 4	M1 M2	SIG0A SIG0B

Table 53
E&M TIE trunk card (4-wire) (Continued)

Cables L1 through L10 from chassis				Column 1 Type 2	Column 2 Type 2
5T 5R	W-S S-W	Unit 1	30 5	RA RB	RA RB
6T 6R	R-BL BL-R		31 6	TA TB	TA TB
7T 7R	R-O O-R		32 7	E1 E2	E M
8T 8R	R-G G-R		33 8	M1 M2	SIG1A SIG1B
9T 9R	R-BR BR-R	Unit 2	34 9	RA RB	RA RB
10T 10R	R-S S-R		35 10	TA TB	TA TB
11T 11R	BK-BL BL-BK		36 11	E1 E2	E M
12T 12R	BK-O O-BK		37 12	M1 M2	SIG2A SIG2B
13T 13R	BK-G G-BK	Unit 3	38 13	RA RB	RA RB
14T 14R	BK-BR BR-BK		39 14	TA TB	TA TB
15T 15R	BK-S S-BK		40 15	E1 E2	E M
16T 16R	Y-BL BL-Y		41 16	M1 M2	SIG3A SIG3B

Note: The cable pair designated TA, TB is the transmit pair. The pair designated RA, RB is the receive pair.

E&M TIE trunk card (2280Hz)

Table 54
E&M 2280 Hz TIE trunk connections

Lead designations	Pins	Pair color	Unit number
TA TB	26 1	W-BL BL-W	Unit 0
RA RB	27 2	W-O O-W	
TA TB	30 5	W-S S-W	Unit 1
RA RB	31 6	R-BL BL-R	
TA TB	34 9	R-BR BR-R	Unit 2
RA RB	35 10	R-S S-R	
TA TB	38 13	BK-G G-BK	Unit 3
RA RB	39 14	BK-BR BR-BK	

E&M TIE trunk card (RAN)

Table 55
E&M 2-wire Recorded Announcement trunk connections

Lead designations	Pins	Pair color	Unit number
T0 R0	26 1	W-BL BL-W	Unit 0
SIG B SIG A	29 4	W-BR BR-W	
T1 R1	30 5	W-S S-W	Unit 1
SIG B SIG A	33 8	R-G G-R	
T2 R2	34 9	R-BR BR-R	Unit 2
SIG B SIG A	37 12	BK-O O-BK	
T3 R3	38 13	BK-G G-BK	Unit 3
SIG B SIG A	41 16	Y-BL BL-Y	

E&M TIE trunk card (MUS)

Table 56
E&M 2-wire Music trunk connections

Lead designations	Pins	Pair color	Unit number
T0 R0	26 1	W-BL BL-W	Unit 0
T1 R1	30 5	W-S S-W	Unit 1
T2 R2	34 9	R-BR BR-R	Unit 2
T3 R3	38 13	BK-G G-BK	Unit 3

CO & DID trunk card

Table 57
Central Office & Direct Inward Dial trunk connections

Cable from chassis				Column 1	Column 2	Column 3
Pair	**Color**		**Pins**	**Lead designations**		
1T 1R	W-BL BL-W	Unit 0	26 1	T0 R0	T0 R0	A0 B0
2T 2R	W-O O-W		27 2		PPM0 —	C0 Spare
3T 3R	W-G G-W	Unit 1	28 3	T1 R1	T1 R1	A1 B1
4T 4R	W-BR BR-W		29 4		PPM1 —	C1 Spare
5T 5R	W-S S-W	Unit 2	30 5	T2 R2	T2 R2	A2 B2
6T 6R	R-BL BL-R		31 6		PPM2 —	C2 Spare
7T 7R	R-O O-R	Unit 3	32 7	T3 R3	T3 R3	A3 B3
8T 8R	R-G G-R		33 8		PPM3 —	C3 Spare
9T 9R	R-BR BR-R	Unit 4	34 9	T4 R4	T4 R4	A4 B4
10T 10R	R-S S-R		35 10		PPM4 —	C4 Spare
11T 11R	BK-BL BL-BK	Unit 5	36 11	T5 R5	T5 R5	A5 B5
12T 12R	BK-O O-BK		37 12		PPM5 —	C5 Spare
13T 13R	BK-G G-BK	Unit 6	38 13	T6 R6	T6 R6	A6 B6
14T 14R	BK-BR BR-BK		39 14		PPM6 —	C6 Spare
15T 15R	BK-S S-BK	Unit 7	40 15	T7 R7	T7 R7	A7 B7
16T 16R	Y-BL BL-Y		41 16		PPM7 —	C7 Spare

Central Office trunk card

Table 58
Central Office trunk connections

Cable from chassis				
Pair	**Color**		**Pins**	**Lead designations**
1T 1R	W-BL BL-W	Unit 0	26 1	T0 R0
2T 2R	W-O O-W		27 2	
3T 3R	W-G G-W		28 3	
4T 4R	W-BR BR-W		29 4	
5T 5R	W-S S-W	Unit 1	30 5	T1 R1
6T 6R	R-BL BL-R		31 6	
7T 7R	R-O O-R		32 7	
8T 8R	R-G G-R		33 8	
9T 9R	R-BR BR-R	Unit 2	34 9	T2 R2
10T 10R	R-S S-R		35 10	
11T 11R	BK-BL BL-BK		36 11	
12T 12R	BK-O O-BK		37 12	
13T 13R	BK-G G-BK	Unit 3	38 13	T3 R3
14T 14R	BK-BR BR-BK		39 14	
15T 15R	BK-S S-BK		40 15	
16T 16R	Y-BL BL-Y		41 16	

Trunk connections (UK)

NT5K17 Direct Inward Dial card terminations

Cross connect the NT5K17 DDI card as follows:

Table 59
NT5K17 DDI cross-connect terminations

Pair	Pins	Pair color	Unit number
T0 R0	26 1	W-BL BL-W	Unit 0
	27 2	W-O O-W	
T1 R1	28 3	W-G G-W	Unit 1
	29 4	W-BR BR-W	
T2 R2	30 5	W-S S-W	Unit 2
	31 6	R-BL BL-R	
T3 R3	32 7	R-O O-R	Unit 3
	33 8	R-G G-R	
T4 R4	34 9	R-BR BR-R	Unit 4
	35 10	R-S S-R	
T5 R5	36 11	BK-BL BL-BK	Unit 5
	37 12	BK-O O-BK	

Table 59
NT5K17 DDI cross-connect terminations (Continued)

Pair	Pins	Pair color	Unit number
T6 R6	38 13	BK-G G-BK	Unit 6
	39 14	BK-BR BR-BK	
T7 R7	40 15	BK-S S-BK	Unit 7
	41 16	Y-BL BL-Y	

NT5K18 Exchange line trunk card terminations

Cross connect the NT5K18 Exchange line trunk card as shown in the Table 60.

Note: The connections on the NT5K18 Exchange line trunk card are polarity sensitive. Make sure the ground side of the trunk is connected to the A leg of the NT5K18 circuit. Make sure the -50 volt side of the trunk is connected to the B leg of the NT5K18 circuit.

Table 60
NT5K18 Exchange line trunk card cross-connect terminations

Pair	Pins	Pair color	Unit number
T0 R0	26 1	W-BL BL-W	Unit 0
	27 2	W-O O-W	
T1 R1	28 3	W-G G-W	Unit 1
	29 4	W-BR BR-W	

Table 60
NT5K18 Exchange line trunk card cross-connect terminations

Pair	Pins	Pair color	Unit number
T2 R2	30 5 31 6	W-S S-W R-BL BL-R	Unit 2
T3 R3	32 7 33 8	R-O O-R R-G G-R	Unit 3
T4 R4	34 9 35 10	R-BR BR-R R-S S-R	Unit 4
T5 R5	36 11 37 12	BK-BL BL-BK BK-O O-BK	Unit 5
T6 R6	38 13 39 14	BK-G G-BK BK-BR BR-BK	Unit 6
T7 R7	40 15 41 16	BK-S S-BK Y-BL BL-Y	Unit 7

NT5K19 Analog TIE line trunk card terminations

Cross connect the NT5K19 analog TIE line trunk card as shown in Table 61.

Note: The speech pairs on the NT5K19 card are polarity insensitive. The E&M signalling pairs, however, are polarity sensitive. Make sure the ground side of the trunk is connected to the A leg of the NT5K19 circuit. Make sure the -50 volt side of the trunk is connected to the B leg.

Table 61
NT5K19 2W paging mode terminations

Pair	Pins	Pair color	Unit number
T0 R0 A PG	27 2 29 4	W-O O-W W-BR BR-W	Unit 0
T1 R1 A PG	31 6 33 8	R-BL BL-R R-G G-R	Unit 1
T2 R2 A PG	35 10 37 12	R-S S-R BK-O O-BK	Unit 2
T3 R3 A PG	39 14 41 16	BK-BR BR-BK Y-BL BL-Y	Unit 3

Table 62
NT5K19 2W Type 1 mode terminations

Pair	Pins	Pair color	Unit number
T0 R0 E M	27 2 28 3	W-O O-W W-G G-W	Unit 0
T1 R1 E M	31 6 32 &	R-BL BL-R R-O O-R	Unit 1
T2 R2 E M	35 10 36 11	R-S S-R BK-BL BL-BK	Unit 2
T3 R3 E M	39 14 40 15	BK-BR BR-BK BK-S S-BK	Unit 3

Table 63
NT5K19 4W Type 1 mode terminations

Pair	Pins	Pair color	Unit number
TA	26	W-BL	
TB	1	BL-W	
RA	27	W-O	
RB	2	O-W	Unit 0
E	28	W-G	
M	3	G-W	
RA	30	W-S	
RB	5	S-W	
TA	31	R-BL	
RB	6	BL-R	Unit 1
E	32	R-O	
M	7	O-R	
TA	34	R-BR	
TB	9	BR-R	
RA	35	R-S	
RB	10	S-R	Unit 2
E	36	BK-BL	
M	11	BL-BK	
TA	38	BK-G	
TB	13	G-BK	
RA	39	BK-BR	
TB	14	BR-BK	Unit 3
E	40	BK-S	
M	15	S-BK	

Table 64
NT5K19 AC15 mode pair terminations

Pair	Pins	Pair color	Unit number
TA	26	W-BL	
TB	1	BL-W	Unit 0
RA	27	W-O	
RB	2	O-W	
TA	30	W-S	
TB	5	S-W	Unit 1
RA	31	R-BL	
RB	6	BL-R	
TA	34	R-BR	
TB	9	BR-R	Unit 2
RA	35	R-S	
RB	10	S-R	
TA	38	BK-G	
TB	13	G-BK	Unit 3
RA	39	BK-BR	
TB	14	BR-BK	

Table 65
NT5K19 Recorded announcement mode pair terminations

Pair	Pins	Pair color	Unit number
T0 R0 SIG B SIG A	26 1 29 4	W-BL BL-W W-BR BR-W	Unit 0
T1 R1 SIG B SIG A	30 5 33 8	W-S S-W R-G G-R	Unit 1
T2 R2 SIG B SIG A	34 9 37 12	R-BR BR-R BK-O O-BK	Unit 2
T3 R3 SIG B SIG A	38 13 41 16	BK-G G-BK Y-BL BL-Y	Unit 3

Activating a default model trunk

Due to the automatic 30 second time-out on the administration menu, prepare the data that you want to input before you begin. To determine the corresponding TNs and trunks, check the location of trunk cards in the chassis or use LD 32.

INSTRUCTIONS FOR THE UK

"Appendix A – General information for the United Kingdom" on page 347 lists the default trunk models and trunk routes used in the UK.

INSTRUCTIONS FOR GERMANY

"Appendix B – Additional information for installations in Germany" on page 411 contains instructions for activating trunks in Germany.

Procedure 74
Activating a default model trunk

1 Lift the handset of the administration telephone.

2 Enter the administration Flexible Feature Code to access the administration menu.

The prompt "PASSWORD?" appears.

3 Enter the default administration telephone password.

You hear special dial tone and the prompt "TASK?" appears in the top line of the character display.

The second line of the display reads"1 ADD TRUNK".

4 Select "1 ADD TRUNK" by entering the number "1".

The prompt "ROUTE ACCESS?" appears on the character display.

5 Enter the access code of the route to which you want to add a trunk and press the pound key (#).

The prompt
"TN?" asks you to enter a TN (Terminal Number) from one of the installed trunk cards.

If you do not enter a valid route number, "TN?" does not appear and the screen remains the same. If the type of trunk card does not match the route, the prompt "ROUTE ACCESS?" appears again, and you hear overflow tone.

6 Enter the TN in Option 11 format (CCUU) and press the pound key.

The prompt
"MODEL" appears. If you enter an invalid TN, the display shows "INVALID, TN?" and you must enter a new TN using the Option 11 format.

7 Press the digits to select a trunk model (as assigned in LD 16).

The character display shows
"OK".
After a delay of approximately four seconds, you hear special dial tone.
The sequence repeats when the prompt
"TN?" appears on the character display.
The next valid trunk TN automatically increments after each trunk is activated.

8 Terminate the sequence by hanging up the telephone receiver.

OR

Repeat the sequence by going through the steps again.

When you enter "#" when the procedure repeats, you accept the next TN and are prompted for the model type.

When you enter "#" again, you accept the previously accepted model.

Note: The model selected during the first trunk activation sequence is the default model for all subsequent trunks until you hang up the telephone or manually enter a new trunk model number.

———————— ***End of Procedure*** ————————

Activating a selected model trunk

Due to the automatic 30 second time-out on the administration menu, prepare the data that you want to input before you begin. To determine the corresponding TNs and trunks, check the location of trunk cards in the chassis or use LD 32.

Procedure 75
Activating a selected model trunk

1 **Lift the handset of the administration telephone.**

2 **Enter the administration Flexible Feature Code to access the administration menu.**

3 **Enter the default administration telephone password.**

You hear special dial tone and the prompt “TASK?” appears on the top line of the character display. The second line of the character display reads “1 ADD TRUNK”.

4 **Select “1 ADD TRUNK” by entering the number “1”.**

The prompt
“ROUTE ACCESS?” appears.

5 **Enter the access code of the configured trunk route to which you want to add the trunk and press the pound key (#).**

The prompt
“TN?” asks you to enter a TN from one of the installed trunk cards. If you do not enter a valid route number, “TN?” does not appear and the screen remains the same. If the card does not match the route, the prompt “ROUTE ACCESS?” appears again, and you hear overflow tone.

6 **Enter the TN in Option 11 format (CCUU).**

The response
“MODEL?”
prompts you to select a model number for the trunk.

7 Enter a trunk model number for the specified TN, and route and press the pound key (#).

The character display shows:

"OK"

After a delay of approximately four seconds, you hear special dial tone. The sequence is repeated when the following prompt appears on the character display.

"TN?"

8 Hang up or repeat the sequence.

The sequence ends when the last unit in the card is used and the program is complete, or when you hang up the telephone receiver.

Note: The model used for the first trunk activated in the sequence will be the default for all subsequent trunks until you hang up or you manually enter a new trunk model number.

——————————— ***End of Procedure*** ———————————

Chapter 19 — Connecting an external alarm

This chapter describes the procedures for connecting an external alarm to the Option 11C Mini system.

The following are the two methods of connecting an external alarm to the Option 11C Mini system:

- through an alarm port assigned in software
- through contacts in a QUA6 Power Failure Transfer Unit (PFTU)

Alarm port assigned in software

You can equip the system with an alarm port. Connect an analog line to an analog (500/250 type) telephone or other similar type of ringing or alerting device.

Procedure 76
Installing an alarm using an alarm port

1 Install an analog (500/2500 type) line as described in "Chapter 17 — Connecting the telephones" on page 289.

2 Connect an analog (500/2500 type) telephone, or other similar alerting device used as an alarm, to the line.

You can assign the set as Model 20.

3 Use LD 15 and make the following changes.

Note: The following list only contains the prompts requiring a response. Use a Carriage Return, <CR>, to accept the default values for the other prompts.

a) Enter CHG in response to the REQ prompt.

b) Enter CDB in response to the TYPE prompt.

c) Enter the customer number (0-99) in response to the CUST prompt.

d) Enter the DN of the line assigned as an alarm port in response to the ALDN prompt.

Note: If the DN assigned to the alarm is accidentally called, the alarm activates. To avoid false alarms, make sure the DN is not consistent with the assigned numbering.

e) Press *return* in response to the remaining prompts.

———————— ***End of Procedure*** ————————

Alarm through a QUA6 PFTU

A QUA6 PFTU can be used to connect an external alarm through normally open or normally closed contacts of one of its units. The contacts operate under the same conditions as the PFTU, and can support the capacities listed in Table 66.

Table 66
AC capacities

	AC capacities
Maximum switching power	50.0 V A.
Maximum switching voltage	125.0 V rms
Maximum switching current	0.5 A

Figure 71 on page 343 shows an example of the contacts on one unit (PFT1) of the PFTU. Figure 71 shows the contacts in normal operating mode, not in failure mode. Table 67 on page 344 provides the connections for all units on the PFTU.

Figure 71
Contacts in PFTU

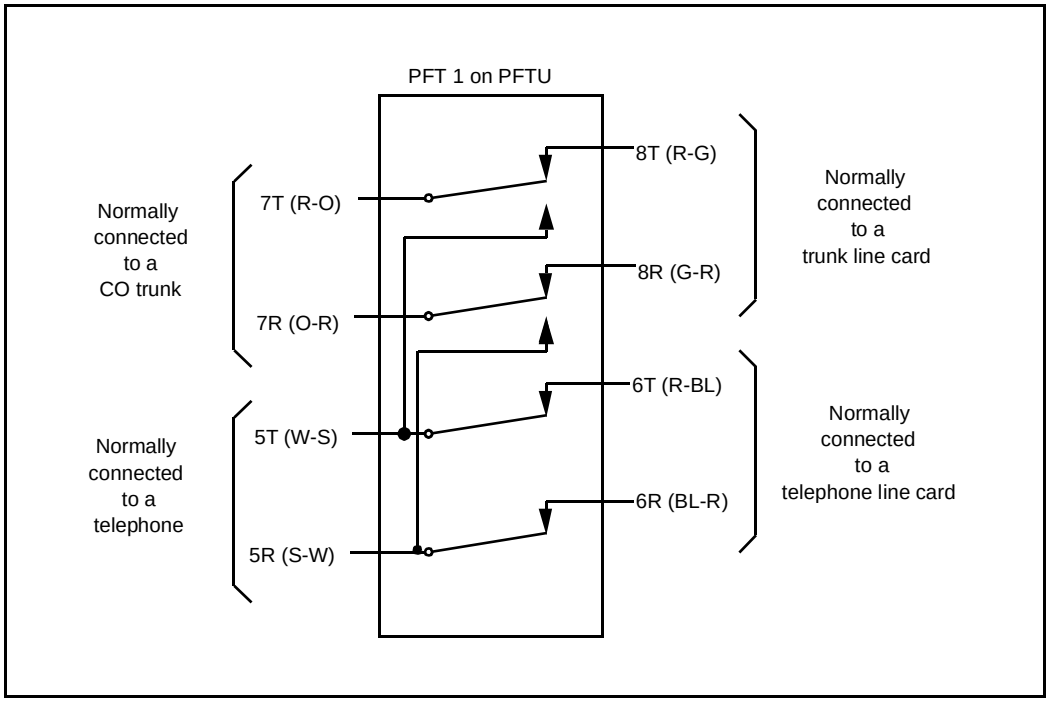


Table 67
Power Failure Transfer Unit connections

Unit	Pair	Color	Normal mode	Failure mode
PFT 1	5T 5R	W-S S-W	Makes with 6T and 6R	Opens 6T and 6R Makes with 7T and 7R
	6T 6R	R-BL BL-R	Makes with 5T and 5R	Open
	7T 7R	R-O O-R	Makes with 8T and 8R	Opens 8T and 8R Makes with 5T and 5R
	8T 8R	R-G G-R	Makes with 7T and 7R	Open
PFT 2	9T 9R	R-BR BR-R	Makes with 10T and 10R	Opens 10T and 10R Makes with 11T and 11R
	10T 10R	R-S S-R	Makes with 9T and 9R	Open
	11T 11R	BK-BL BL-BK	Makes with 12T and 12R	Opens 12T and 12R Makes with 9T and 9R
	12T 12R	BK-O O-BK	Makes with 11T and 11R	Open
PFT 3	13T 13R	BK-G G-BK	Makes with 14T and 14R	Opens 14T and 14R Makes with 15T and 15R
	14T 14R	BK-BR BR-BK	Makes with 13T and 13R	Open
	15T 15R	BK-S S-BK	Makes with 16T and 16R	Opens 16T and 16R Makes with 13T and 13R
	16T 16R	Y-BL BL-Y	Makes with 15T and 15R	Open
PFT 4	17T 17R	Y-O O-Y	Makes with 18T and 18R	Opens 18T and 18R Makes with 19T and 19R
	18T 18R	Y-G G-Y	Makes with 17T and 17R	Open
	19T 19R	Y-BR BR-Y	Makes with 20T and 20R	Opens 20T and 20R Makes with 17T and 17R
	20T 20R	Y-S S-Y	Makes with 19T and 19R	Open

PFT 5	21T 21R	V-BL BL-V	Makes with 22T and 22R	Opens 22T and 22R Makes with 23T and 23R
	22T 22R	V-O O-V	Makes with 21T and 21R	Open
	23T 23R	V-G G-V	Makes with 24T and 24R	Opens 24T and 24R Makes with 21T and 21R
	24T 24R	V-BR BR-V	Makes with 23T and 23R	Open

Appendix A – General information for the United Kingdom

This appendix identifies the hardware and software features used with Option 11C Mini systems in the United Kingdom (UK). This appendix also explains how to use Option 11C and Option 11C Mini documents in the UK. See “Terminology used in this guide” on page xviii for a glossary of terms showing North American terms and their equivalent in the UK.

UK-applicable software features

Option 11C Mini software provides both standard and supplementary features. Tables 68 and 69 provide the following information for each feature:

UK-applicable: This column indicates which features are approved and not approved for use in the UK.

Market released: This column indicates which features have been approved for market release. Features that are not market released must not be used without first getting permission from British Telecom and Nortel Networks product management

Table 68
Standard features

Feature	UK-applicable	Market released
Access Restrictions	Yes	Yes
Attendant Administration	Yes	Yes
Attendant Alternative Answering	Yes	Yes
Attendant Barge-in	No	-
Attendant Busy Verify	Yes	Yes
Attendant Call Selection	Yes	Yes
Attendant Calls Waiting Indication	Yes	Yes
Attendant Consoles	Yes	Yes
Attendant Incoming Call Indicators	Yes	Yes
Attendant Inter-positional Transfer	Yes	Yes
Attendant Lockout	Yes	Yes
Attendant Overflow Position	Yes	Yes
Attendant Position Busy	Yes	Yes
Attendant Recall	Yes	Yes
Attendant Secrecy	Yes	Yes
Attendant Splitting	Yes	Yes
Attendant Supervisory Console	No	-
Attendant Trunk Group Busy Indication	Yes	Yes
Audible Reminder of Held Call	Yes	Yes
Autodial	Yes	Yes
Automatic Answerback	Yes	Yes

Table 68
Standard features (Continued)

Feature	UK-applicable	Market released
Automatic Call Distribution **(See Note 1)**	Yes	Yes
Automatic Line Selection	Yes	Yes
Automatic Number Identification	No	-
Automatic Number Identification on DTI	No	-
Automatic Pre-selection of Prime Directory Number	Yes	Yes
Automatic Set Relocation	Yes	Yes
Automatic Timed Reminders	Yes	Yes
Automatic Wake-Up	Yes	Yes
Auxiliary Processor Link	Yes	Yes
Auxiliary Signaling	Yes	Yes
Background Terminal	Yes	Yes
Bridging	Yes	Yes
Busy Lamp Field Array	Yes	Yes
Call Detail Recording	Yes	Yes
Call Forward All Calls	Yes	Yes
Call Forward Busy	Yes	Yes
Call Forward External Deny	Yes	Yes
Call Forward and Hunt by Call Type	Yes	Yes

Table 68
Standard features (Continued)

Feature	UK-applicable	Market released
Call Forward No Answer/ Flexible Call Forward No Answer	Yes	Yes
Call Forward No Answer, Second Level	Yes	Yes
Call Hold, Deluxe	Yes	Yes
Call Hold, Permanent	Yes	Yes
Call Park	Yes	Yes
Call Party Name Display	Yes	Yes
Call Pickup	Yes	Yes
Call Pickup, Directed	Yes	Yes
Call Transfer	Yes	Yes
Call Waiting/Internal Call Waiting **(See Note 2)**	Yes	Yes
Called Party Disconnect Control	No	-
Camp-on	Yes	Yes
Capacity Expansion	Yes	Yes
Centralized Attendant Service	No	-
Centrex Switchhook Flash	No	-
Charge Account and Calling Party Number	Yes	Yes
Charge Account, Forced	Yes	Yes
Conference **(See Note 3)**	Yes	Yes

Table 68
Standard features (Continued)

Feature	UK-applicable	Market released
Console Presentation Group Level Services	Yes	Yes
Controlled Class Of Service	Yes	Yes
Controlled Class of Service, Enhanced	Yes	Yes
Departmental Listed Directory Number	Yes	Yes
Dial Intercom	Yes	Yes
Dial Pulse/Dual Tone Multifrequency Conversion	Yes	Yes
Digit Display	Yes	Yes
Direct Inward System Access	Yes	Yes
Directory Number	Yes	Yes
Directory Number Expansion.	Yes	Yes
Distinctive/New Distinctive Ringing	Yes	Yes
Do Not Disturb	Yes	Yes
Electronic Switched Network	Yes	Yes
End-to-End Signaling	Yes	Yes
Fast Tone Digit Switch	No	-
Flexible Feature Codes	Yes	Yes
Group Call	Yes	Yes

Table 68
Standard features (Continued)

Feature	UK-applicable	Market released
History File	Yes	Yes
Hot Line	Yes	Yes
Hunting	Yes	Yes
In Band ANI	No	-
Incoming DID Digit Conversion	Yes	Yes
Incremental Software Management	Yes	Yes
Integrated Messaging System Link	Yes	Yes
Integrated Services Digital Network	Yes	Yes
Integrated Services Digital Network/Application Protocol	Yes	Yes
Integrated Voice and Data	Yes	Yes
Intercept Treatment	Yes	Yes
Last Number Redial	Yes	Yes
Limited Access to Overlays	Yes	Yes
Line Load Control	No	-
Line Lockout	Yes	Yes

Table 68
Standard features (Continued)

Feature	UK-applicable	Market released
Make Set Busy	Yes	Yes
Malicious Call Trace	Yes	Yes
Manual Line Service	Yes	Yes
Manual Signaling (Buzz)	Yes	Yes
Manual Trunk Service **(See Note 4)**	Yes	Yes
Meridian Hospitality Voice Services	Yes	No
Meridian Manager	Yes	No
Message Center	Yes	Yes
Message Registration	Yes	Yes
Message Waiting Lamp Maintenance	Yes	Yes
Multiple-Console Operation	Yes	Yes
Multiple-Customer Operation	Yes	Yes
Multiple-Tenant Service	Yes	Yes
Music	Yes	Yes
Music, Enhanced	Yes	Yes
Network Message Services - Message Center - Meridian Mail	 Yes Yes	 No Yes
New Flexible Code Restriction **(See Note 5)**	Yes	Yes
Night Key for DID Digit Manipulation	Yes	Yes
Night Service	Yes	Yes

Table 68
Standard features (Continued)

Feature	UK-applicable	Market released
No Hold Conference	Yes	Yes
Off-Premise Extension	No	-
Office Data Administration System	Yes	Yes
On-Hook Dialing	Yes	Yes
Optional Outpulsing Delay	No	-
Override	Yes	Yes
Paging	Yes	Yes
Pretranslation	Yes	Yes
Privacy	Yes	Yes
Privacy Override	No	-
Privacy Release	Yes	Yes
Private Line Service	Yes	Yes
Property Management System Interface	Yes	Yes
Public Switched Data Service	No	-
Recorded Announcement	Yes	Yes
Recorded Overflow Announcement	Yes	Yes
Recorded Telephone Dictation	No	-
Remote Call Forward	Yes	Yes

Table 68
Standard features (Continued)

Feature	UK-applicable	Market released
Remote Peripheral Equipment	No	-
Ring Again	Yes	Yes
Room Status	Yes	Yes
Secretarial Filtering	Yes	Yes
Short Buzz for digital sets	Yes	Yes
Speed Call	Yes	Yes
Speed Call/Autodial with Authorization Codes	Yes	Yes
Speed Call, System	Yes	Yes
Station Category Indication	Yes	Yes
Station Loop Preemption	No	-
Station to Station Calling	Yes	Yes
Stored Number Redial	Yes	Yes
Telephone Sets	Yes	Yes
Time and Date	Yes	Yes
Tones and Cadences	Yes	Yes
Tones, Flexible Incoming	Yes	Yes
Trunk Verification from a Station	Yes	Yes
Uninterrupted Line Connections	Yes	Yes

Table 68
Standard features (Continued)

Feature	UK-applicable	Market released
Voice Call	Yes	Yes
2500 Set Features	Yes	Yes
500 Set Features	Yes	Yes

Table 69
Supplementary features

Feature	UK-applicable	Market released
APNSS	Yes	Yes
Attendant Forward No Answer	Yes	Yes
Attendant Recall With Splitting	Yes	Yes
Automatic Call Distribution Call Priority	Yes	Yes
Automatic Call Distribution Call Waiting Thresholds	Yes	Yes
Automatic Call Distribution Calls on Hold	Yes	Yes
Automatic Call Distribution Enhancements	Yes	Yes
Automatic Call Distribution Least Call Queuing	Yes	Yes
Automatic Gain Control Inhibit and Handset Volume Reset	No	-
Automatic Guard Detection	No	-

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
Automatic Hold	Yes	Yes
Break-In	Yes	Yes
Break-In Indication/Prevention	Yes	Yes
Break-in to Inquiry Calls	Yes	Yes
Break-in to Lockout Set Denied	Yes	Yes
Break-in with Secrecy	Yes	Yes
Call Connection Restriction	Yes	Yes
Call Detail Recording with Optional Digit Suppression	Yes	Yes
Call Forward and Busy Status	Yes	Yes
Call Forward Save on	Yes	Yes
Call Forward to Trunk Restriction	Yes	Yes
Call Park on Unsupervised Trunks	No	-
Calling Party Name Display Denied (Network Wide)	Yes	Yes
Camp-on to Multiple-Appearance DN and Group Hunt Queuing Limitation: - Camp-on to Multiple Appearance - Group Hunt Queuing Limitation	 Yes Yes	 Yes No
Card LED Status	No	-
Centralized Multiple Line Emulation	Yes	Yes
Charge Display at End of Call	Yes	Yes

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
China No.1 Signaling	No	-
China No.1 Signaling Enhancements	No	-
Console Operations	Yes	Yes
D-Channel Expansion	Yes	Yes
Dial Access to Group Calls	Yes	Yes
Dial Tone Detection	Yes	Yes
DPNSS/DASS2 to ISDN PRA (Q.931) Gateway	Yes	Yes
Digital Trunk Interface and Primary Rate Interface Timeslot Reuse	Yes	Yes
Digitone Receiver Enhancements:		
- Digitone Receiver Timeout Enhancement	Yes	Yes
- Quad Density Digitone Receiver Card	No	-
Direct Inward Dialing Call Forward No Answer Timer	Yes	No
Direct Inward Dialing-to-Network Calling	Yes	Yes
Direct Inward Dialing-to-TIE Connection	Yes	Yes
Direct Inward System Access on Unsupervised Trunks	No	-
Display Calling Party Denied	Yes	Yes

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
End of Dialing on Direct Outward Dialing	No	-
End of Selection	No	-
End of Selection Busy	No	-
Enhanced Maintenance	Yes	Yes
Enhanced Night Service	Yes	Yes
First-Second Degree Busy Indication	Yes	Yes
First-Second Degree Busy Indication, ISDN	Yes	Yes
Flexible Attendant Call Waiting Thresholds	Yes	Yes
Flexible Busy Tone Timer	Yes	Yes
Flexible Dial Tone Detection	Yes	Yes
Flexible Feature Codes	Yes	Yes
Flexible Key Assignment	Yes	Yes
Flexible Numbering Plan	Yes	Yes
Flexible Tone and Digit Switch Control	No	-
Forced Camp-on/Priority Override	Yes	Yes
Forward No Answer Call Waiting Direct Inward Dialing	No	-
Group Hunting	Yes	Yes

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
Handsfree Download	No	-
Held Call Clearing	Yes	Yes
Hospital Management	Yes	No
Hunting By Call Type	Yes	Yes
Incoming Call Indicator Enhancement	Yes	Yes
Incoming Digit Conversion Enhancement	Yes	Yes
Integrated Services Digital Network Primary Rate Access	Yes	Yes
Integrated Services Digital Network Primary Rate Access Meridian 1 to AXE-10 Australia Connectivity	No	-
Integrated Services Digital Network Primary Rate Access Meridian 1 to AXE-10 Sweden Connectivity	No	-
Integrated Services Digital Network Primary Rate Access Meridian 1 to SYS-12 Connectivity	No	-
Intercept Computer Interface	No	-
Intercept Computer Enhancements	No	-
Intercept Treatment Enhancements	No	-
International 1.5/2 Mb/s Integrated Services Digital Network Gateway	No	-
International Meridian 1	Yes	Yes

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
Limited Access to Overlays	Yes	Yes
LOGIVOX Telephone	No	-
Loop Start Supervisory Trunks	No	-
Loop Start Supervisory Trunks (Incoming Calls)	No	-
Make Set Busy/Voice Call Override	Yes	Yes
Malicious Call Trace Idle	No	-
Malicious Call Trace on Direct Inward Dialling	No	-
Manual Service Recall to Attendant	No	-
Meridian 1 Primary Rate Access to 1TR6 Connectivity	No	-
Message Intercept	Yes	Yes
Multifrequency Signaling for Socotel	No	-
Multifrequency Signaling for Socotel Direct Outward Dialling	No	-
Multiple-Party Operation	Yes	Yes
Multiple-Party Operation Enhancements	Yes	Yes
M2312 Digit Display	No	-

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
Network and Executive Distinctive Ringing:		
- Network Distinctive Ringing	Yes	Yes
- Executive Distinctive Ringing	Yes	No
Network Application Protocol Link Enhancement, ISDN	Yes	Yes
Network Attendant Service	Yes	Yes
Network Drop Back Busy and Off-Hook Queuing	Yes	Yes
Network Ring Again	Yes	Yes
Network Tenant Services	Yes	No
Network Time Synchronization	Yes	Yes
Night Class Of Service	Yes	No
Night Service Enhancements	Yes	Yes
On Hold on Loudspeaker	No	-
Overlap Signaling	Yes	No
Partial Dial Timing	No	-
Periodic Camp-on Tone	Yes	Yes
Periodic Clearing	No	-
Periodic Clearing Enhancement	No	-
Periodic Pulse Metering	Yes	Yes
Position Busy with Call On Hold	Yes	No

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
Preventing Reciprocal Call Forward	Yes	Yes
Quad Density Voice Only Digital Line Card Enhancement	No	-
Radio Paging	Yes	No
Real Time Periodic Pulse Metering	Yes	No
Recall to Same Attendant	Yes	Yes
Recall to Same Attendant Network Wide	Yes	Yes
Recall With Priority During Night Service	Yes	Yes
Recall With Priority During Night Service Network Wide	Yes	Yes
Recovery of Misoperation on the Attendant Console	Yes	Yes
Remote Radio Paging	Yes	No
Remote Peripheral Equipment (Two-Mbit) Alarm Handling	No	-
Restricted Call Transfer	Yes	Yes
Restricted DID Class of Service	Yes	Yes
Reverse Dial on Routes and Telephones	No	-
Ring Again on No Answer	Yes	Yes
Ring/Hold Lamp Status	Yes	Yes

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
Ringback Tone from SL-1 Enhancement	No	-
Ringing Change Key	Yes	Yes
R2 Multifrequency Compelled Signaling Selective Route To Attendant	No	-
R2 Multifrequency Compelled Signaling	No	-
Scheduled Access Restrictions	Yes	Yes
Secrecy Enhancement	Yes	Yes
Seizure Acknowledgment	No	-
Selectable DN Size	Yes	Yes
Semi-Automatic Camp-On	Yes	Yes
Series Call	Yes	Yes
Set Modification	No	-
Single Digit Access to Hotel Services	Yes	Yes
Slow Answer Recall Modification	Yes	Yes
Special Signaling Protocols	No	-
Special Trunk Support	No	-
Speed Call Directory Number Access	Yes	Yes
Speed Call on Private Lines	Yes	Yes
System Option 11C System Introduction	Yes	Yes

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
Telset Call Timer Enhancement	Yes	Yes
Tone to Last Party	Yes	Yes
Traffic Monitoring	No	-
Trunk Barring	Yes	Yes
Trunk Direct Inward Dialling Digitone Receiver Acknowledgment	No	-
Trunk Failure Monitor	No	-
Trunk Failure Monitor Enhancement	No	-
UK Analog Hardware Support	Yes	Yes
Variable Flash Timing and Earth Button Operation	Yes	Yes
Variable Guard Timer	Yes	Yes
Virtual Network Services	Yes	No
X08 to X11 Gateway	No	-
16-button 2500 (DTMF) Telephone Set Operation	Yes	Yes
2-Mb/s Digital Trunk Interface	Yes	Yes

Table 69
Supplementary features (Continued)

Feature	UK-applicable	Market released
2-Mb/s Digital Trunk Interface Enhancements:		
- Alarm Handling on DID Channels	Yes	Yes
- Alarm Handling on Incoming COT/DID Calls	Yes	Yes
- Call Clearance	Yes	Yes
- Clock Synchronization	Yes	Yes
- DID Call Offering	No	-
- Disable Out-of-Service Alarm State	Yes	Yes
- Fault Signal	No	-
- Incoming Seizure	Yes	Yes
- Outpulsing Delay	Yes	Yes
- Release Control	No	-
- Signal Recognition	Yes	Yes
- 64 Kbit Alarm Indication Signal (AIS) Handling	Yes	Yes
2 Mb/s Meridian 1 Hardware Support	Yes	Yes
2-Mb/s Remote Peripheral Equipment	No	-

Note 1: The Automatic Call Distribution feature has the ability to define an emergency key on agent telephones. When the agent presses this key, a supervisor is conferenced in and the call can be recorded with external recording equipment. Please note that unless site specific approval is given, a recorded warning tone must be provided to each party in the call. This tone is not available on the Meridian 1 system. Acceptable recording equipment must supply this tone.

Note 2: UK regulatory requirements do not permit Call Waiting for an incoming DDI call terminating on a busy extension. The Call Waiting feature is denied from DDI trunks for all Meridian 1 systems supplied in the UK.

Note 3: The approval of the Conference feature is limited. A conference can include no more than six parties at one time. Although there is currently no limit set by software, conferences of more than six parties are not supported and not approved.

Note 4: When incoming Manual Trunk Service is configured so that a number of trunks auto-terminate on the same Directory Number, one of the following restrictions must be programmed:

- Hunting or Call Waiting must be enabled
- the number of Multiple Call, Multiple Appearances of a Directory Number must be equal to or greater than the number of Manual Trunks terminating on the Directory Number.

Note 5: The New Flexible Code Restriction feature allows a user to create a list of numbers that are “allowed” and “not allowed” in LD 49. During an outgoing call, digits are outpulsed as they are dialed. If a dialed number is identified as “not allowed”, the call is cleared and call barring treatment is applied to the originator. UK approval regulations prevent the system from applying call barring to a call when more than four digits have been sent. Entries in New Flexible Code Restriction tables cannot be greater than 5 digits where they apply to PSTN, ChASS, or DASS2 trunk routes.

Note 6: Emergency calls must not be blocked as a result of digit restriction. All systems have "999" programmed in advance into the "allowed" list. This entry must not be removed. When service changes are made, print out and check the configuration. Make sure that the "999" entry was not accidentally removed by "forcing" a conflicting number.

UK approved hardware

Table 70 below shows hardware used with Option 11C Mini systems in the UK.

Table 70
Hardware used in the UK

Part code	Equipment
	Modules
NTDK91	Option 11C Mini Main Chassis
NTDK92	Option 11C Mini Chassis Expander
	Peripheral Equipment
NTDK16	48-port Digital Line Card
NT8D02	Digital Line Card
NTDK97	Mini System Controller (MSC) card
NT5K02	Flexible Analog Line Card
NT5K17	DDI Trunk Card
NT5K18	Exchange Line Trunk Card
NT5K19	AC15/DC5/RAN/PAG TIE Trunk card
NT5K20/ NT5K48	Tone Detector/DTR
NT7D16	Data Access Line card
NTAK02	SDI/DCH
NTAK03	TDS/DTR

Table 70
Hardware used in the UK (Continued)

Part code	Equipment
NTAK10	2.0 Mbit Digital Trunk Interface (DTI)
NTAK79	2.0 Mbit Primary Rate Interface (PRI)
NTBK50	2.0 Mbit PRI
NTBK51	**Downloadable D-channel daughterboard (DDCH)**
NTAK20	**Clock Controller**
NTAK93	**DCHI D-channel daughterboard**
	Power Equipment
QUA6	Power Fail Transfer Unit (5 ports)
	Miscellaneous Equipment (See note)
510A	Krone box connection (TJF)
515A	Krone box connection (TJF)
520A	Krone box connection (TJF)
525A	Krone box connection (TJF)
530A	Krone box connection (TJF)
535A	Krone box connection (TJF)
105A	Frame distribution
111A	Frame distribution

Table 70
Hardware used in the UK (Continued)

Part code	Equipment
	Meridian Telephone Equipment
NT6G48AA-35	M2250 Digital Console (Chameleon Ash), with Handset
NT6G48AA-93	M2250 Digital Console (Dolphin Grey), with Handset
PO768143	M2250 Console Overlay (Chameleon Ash)
PO768193	M2250 Console Overlay (Dolphin Grey)
NT3G30AA-35	Height-Adjustable Stand (Chameleon Ash)
NT3G30AA-93	Height-Adjustable Stand (Dolphin Grey)
NT3G42AA-35	Busy Lamp Field/Console Graphics Adapter (Chameleon Ash.)
NT3G42AA-93	Busy Lamp Field/Console Graphics Adapter (Dolphin Grey).
NT2K05CH-03	M2006 Single Line Digital Set (Black)
NT2K05CH-35	M2006 Single Line Digital Set (Chameleon Ash)
NT2K05CH-93	M2006 Single Line Digital Set (Dolphin Grey)
NT2K08CH-03	M2008 Standard Business Set (Black)
NT2K08CH-35	M2008 Standard Business Set (Chameleon Ash)
NT2K08CH-93	M2008 Standard Business Set (Dolphin Grey)
NT2K08CJ-03	M2008 Display Business Set (Black)
NT2K08CJ-35	M2008 Display Business Set (Chameleon Ash)
NT2K08CJ-93	M2008 Display Business Set (Dolphin Grey)
NT2K16CH-03	M2616 Performance Plus Set (Black)
NT2K16CH-35	M2616 Performance Plus Set (Chameleon Ash)

Table 70
Hardware used in the UK (Continued)

Part code	Equipment
NT2K16CH-93	M2616 Performance Plus Set (Dolphin Grey)
NT2K16CJ-03	M2616 Performance Plus Display Set (Black)
NT2K16CJ-35	M2616 Performance Plus Display Set (Chameleon Ash)
NT2K16CJ-93	M2616 Performance Plus Display Set (Dolphin Grey)
NT2K18CH-03	M2216 ACD Telephone Set with display (Black)
NT2K18CH-35	M2216 ACD Telephone Set with display (Chameleon Ash)
NT2K18CH-93	M2216 ACD Telephone Set with display (Dolphin Grey)
NTDL03BE-35	M3820 Meridian Digital Telephone (Chameleon Ash)
NTDL03BE-70	M3820 Meridian Digital Telephone
NTDL03BE-93	M3820 Meridian Digital Telephone (Dolphin Grey)
SYS-UK013/03	ACD Supervisors Set Package (Black)
SYS-UK013/35	ACD Supervisors Set Package (Chameleon Ash)
SYS-UK013/93	ACD Supervisors Set Package (Dolphin Grey)
NT2K25YJ-03	Meridian Display Option (Black)
NT2K25YJ-35	Meridian Display Option (Chameleon Ash)
NT2K25YJ-93	Meridian Display Option (Dolphin Grey)
NT2K22XH-03	Meridian Key Expansion Module (Black)
NT2K22XH-35	Meridian Key Expansion Module (Chameleon Ash)

Table 70
Hardware used in the UK (Continued)

Part code	Equipment
NT2K22XH-93	Meridian Key Expansion Module (Dolphin Grey)
P0771803	Single Key Module Base (Black)
P0771835	Single Key Module Base (Chameleon Ash)
P0771893	Single Key Module Base (Dolphin Grey)
P0771903	Double Key Module Base (Black)
P0771935	Double Key Module Base (Chameleon Ash)
P0771993	Double Key Module Base (Dolphin Grey)
NT2K40WA	External Alerter Interface
P0778303	Top Cover Filler Plate (Black)
P0778335	Top Cover Filler Plate (Chameleon Ash)
P0778393	Top Cover Filler Plate (Dolphin Grey)
AO352117	220V Transformer (with mains lead and plug)
NT2K10	Power Supply Board
NT0C21BG-67	Rapport Message Waiting Telset (Almond)
NT0C21BG-93	Rapport Message Waiting Telset (Dolphin Grey)
NT0C21BG-96	Rapport Message Waiting Telset (Taupe)
1869-00-20	Liberation Headset (M2250 binaural)
AO384366	Liberation Headset (ACD 3-in-1)
AO384263	Liberation Headset (ACD binaural)
AO384264	Liberation Headset (M2250 3-in-1)
X9950704	Liberation Headset (ACD earhook)
X9950705	Liberation Headset (ACD earloop)

Table 70
Hardware used in the UK (Continued)

Part code	Equipment
X9950706	Liberation Headset (ACD headband)
X9950707	Liberation Headset (M2250 earhook)
X9950708	Liberation Headset (M2250 earloop)
X9950709	Liberation Headset (M2250 headband)
IX 320	Polaris Headset (ACD headband)
IX 319	Polaris Headset (M2250 headband)
NT2K64	Meridian Programmable Data Adapter (MPDA)

Note: You cannot order Krone cross-connect equipment from Nortel Networks

UK loss plan

Table 71 provides an overview of the loss plan.

Table 71
Loss plan overview

		E/L Long	E/L Sht	Ext	2-w PC	4w PC	4w link	2M E/L	2Mb PC	Ran	Pag	Dig Ext RLR	Rap RLR
	Loss O/P I/P	-3	-1	4	0	4	0	0	0	X	4	-1	-3
EL/DDI long (0-8dB)	-4	X	X	0	X	0	-4	X	-4	X	0	-5	-7
EL/DDI short (0-6dB)	-2	X	X	2	X	2	-2	X	-2	X	2	-3	-5
Extension	3	0	2	7	3	7	3	3	3	X	7	2	0
2w PC (DC5)	-3	X	X	1	-3	1	-3	X	-3	X	1	-4	-6
4w PC (DC5/AC15)	0	-3	-1	4	0	4	0	0	0	X	4	-1	-3
4-w link (DC5/AC15	0	-3	-1	4	0	4	0	0	0	X	4	-1	-3
2Mb E/L (DASS2/ChAS)	4	X	X	8	X	8	4	X	4	X	8	3	1
2Mb tie/link (ChAS/DPNSS/ Q.931)	0	-3	-1	4	0	4	0	0	0	X	4	-1	-3
RAN/Music	3	0	2	7	3	7	3	3	3	X	7	2	0
Paging	X	X	X	X	X	X	X	X	X	X	X	X	X
Digital extensions (SLR)	5	2	4	9	5	9	5	5	5	X	9	4	2
Rapport telephone (SLR)	5	2	4	9	5	9	5	5	5	X	9	4	2

Note 1: Calculate the port-to-port call path loss by finding the intersection of the input port (row) and the outport port (column) for that direction of transmission. In some cases, the loss is different for the two directions of transmission.

Note 2: One of the "ports" listed above is a digital or Rapport telephone. The value found by the referencing process described above is a loudness rating instead of a loss.

Note 3: In Table 71, a positive figure indicates a loss, and a negative figure indicates a gain.

Note 4: Connections between exchange lines are permitted if both lines are digital. If not, PSTN to PSTN connections are blocked. In Table 71, an "X" indicates blocked connections. For more information, refer to Oftel General Variations NS/V/123/L/100010 and NS/V/1235/P/100020.

Trunks and signaling schemes

Table 72 describes trunk types and the signaling used in the UK.

Table 72
Trunks and signaling schemes in the UK

Trunk circuit	Signaling allowed
Exchange line	Trunk signaling: • Earth calling • Loop calling disconnect clearing (500 ms disconnect clear signal required) • Loop calling guarded clearing Address signaling: • LD or MF
Analog DDI	LD or MF signaling
Digital PSTN	2.0 Mbit DASS2 or ChAS circuits
4-wire analog private circuits	Trunk signaling: • DC-5 • AC-15A Address signaling: • LD or MF
2-wire analog private circuits	Trunk signaling: • DC-5 • Loop calling unguarded clearing Address signaling: • LD or MF
Digital private circuits	2 Mb digital private circuits

Ports available on the Option 11C Mini

Table 73 lists the ports available on the Option 11C Mini system.

Table 73
Option 11C Mini ports

Port type	Card or telephone	No. of ports or channels
Trunk lines:		
Exchange line	NT5K18 Exchange line trunk card	8
DDI line	NT5K17 DDI trunk card	8
TIE line (AC15/DC5)	NT5K19 DC5/AC15 RAN/PAG card	4
RAN	NT5K19 DC5/AC15 RAN/PAG card	4
Paging	NT5K19 DC5/AC15 RAN/PAG card	4
Music	NT5K19 DC5/AC15 RAN/PAG card	4
DASS2 line	NTAK79 2.0 Mb PRI card	30
DPNSS TIE line	NTAK79 2.0 Mb PRI card	30
Q.931 line	NTAK79 2.0 Mb PRI card	30
ChAS TIE	NTAK10 2.0 Mb DTI card	30
ChAS TIE	NTAK10 2.0 Mb DTI card	30
ChAS DDI	NTAK10 2.0 Mb DTI card	30
DTD/MFC	NT5K20/NT5K48 XTD card	8

Table 73
Option 11C Mini ports (Continued)

Data ports:		
Data port	NTAK02 SDI/DCH card	1, 2, 3 or 4
Data port	NTAK03 TDS/DTR card	2
Data port	NTAK18 RSM	4
Data port	NT7D16 XDAC	4
Data ports on telephones:		
Data port	M2250 console	1
Data port	M2006 telephone	1
Data port	M2008 telephone	1
Data port	M2216 telephone	1
Data port	M2616 telephone	1

PSTN to PSTN connections

IMPORTANT

The Meridian PXML (PBX.0081) lists some PSTN to PSTN connections as blocked, when they are permitted. These connections are permitted under Oftel General Variations NS/V/123/L/100010 and NS/V/1235/P/100020.

Analog PSTN to Analog PSTN, and Analog PSTN to Digital PSTN connections remain blocked. For more information, refer to Guidelines on Network Code of Practice.

You may want to prevent some routes from accessing each other. For example, to avoid permitting call paths in a branch network that would not meet the NCOP guidelines on transmission quality.

Block all PSTN to PSTN connections, unless there is a specific customer requirement for the facility. This blocking protects the customer from possible effects of toll fraud, through use of the facility that is not authorized.

When implementing the feature, produce a restriction plan first. The plan must address the following questions:

- When a call is incoming on a route, on which other routes can the call terminate?
- Which routes share the same barring restrictions?

From this information, an access restriction number (ART) can be assigned to each route on a system. Routes with identical restrictions share the same number.

Use Overlay 56 to generate a table, which you can view as a 64-by-64 matrix.

When an incoming call arrives over a route, the ART number of the route is obtained from the Route Data Block (Incoming ART). When the processor determines that the call is to be extended to another trunk route, the Route Data Block of the destination route is accessed. The route's ART number is obtained (Outgoing ART).

The incoming and outgoing ART values are used as references into the ART matrix. The identified element of the matrix indicates if barring applies for ART-Incoming --> ART-Outgoing.

Table 74
ART matrix

Incoming ART	Outgoing ART 0	1	2	3		63
0	1	0	0	1		1
1						
2			0			
3		1				
63		0		1		

0 = allowed

1 = blocked

Trunk Barring: Example

The easiest use of the trunk barring feature to prevent PSTN to PSTN connections requires the following steps:

1 Assign an ART to PSTN trunks

The selected ART must be associated with all PSTN routes on the system.

Assume that 1 is to be used as the PSTN ART. If route number 9, on customer 0, is a PSTN route, the following sequence is required in Overlay 56 to associate the route with the ART 1:

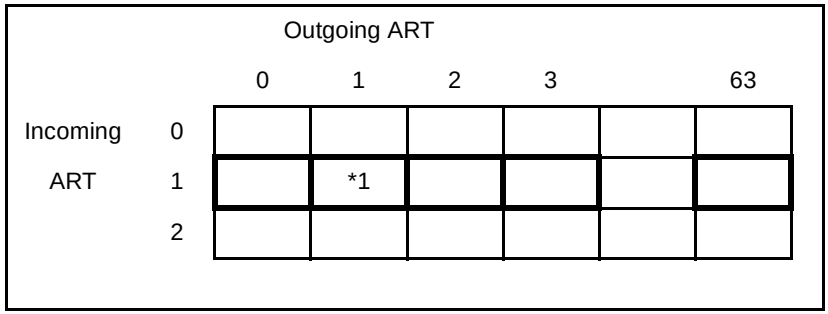
```
REQ   CHG
TYPE  ART
CUST  0
ROUT  9
ART   1
```

2 Program Incoming ART

The row of the matrix associated with ART = 1, must be defined. Programming implies entering a list of outgoing ARTs to which connections are to be denied.

In this case, to bar PSTN to PSTN connections, the ART 1 must be included in the list of denied outgoing ARTs. The following table reflects the desired result.

Figure 72
ART matrix



The following sequence is required in Overlay 56:

REQ CHG
TYPE TBAR
ART 1
DENY xx ***1*** yy zz..<CR> (ARTs blocked outgoing)

Note: If different barring restrictions are required for different types of PSTN routes, for example CO and DID, then a more complex use of the feature would be needed.

Overlay administration

In order to meet the regulatory requirements of the UK, certain configuration data must always be set to predefined values.

Responses to the following system administration prompts are mandatory. Where a prompt occurs in the overlay that is not listed in the following tables, then the response required will either vary according to the precise configuration, or the default setting is acceptable, as appropriate. For more information about overlays, refer to the *X11 Software Guides.*

System

Overlay 17

Prompt	Response	Description
LAPW	0 (Maintainer 1 access)	Limited access to overlays password number
PWnn	X....X (6-16 character alphanumeric)	Password
OVLY	02 10 11 12 17 20 21 22 31 32 36 41 43 44 45 81 82 83 84 85 95	Overlay
CUST	ALL	Customer number
TEN	ALL	Tenant to be accessible by way of PWnn
OPT	PSCA RDBD CFPD LLCD PROD	Options for password PWnn
LAPW	1 (Maintainer 2 access)	Limited access to overlays password number
PW00	X....X (6-16 character alphanumeric)	Password

Prompt	Response	Description
OVLY	02 10 11 12 13 14 15 16 17 18 20 21 22 23 24 25 26 29 30 31 32 34 35 36 37 38 39 40 41 42 43 44 45 48 49 50 57 58 60 61 73 74 75 80 81 82 83 84 85 86 87 88 90 93 95 96 97	Overlay
CUST	ALL	Customer number
TEN	ALL	Tenant to be accessible by way of PWnn
OPT	PSCA RDBD CFPA LLCD PROD	Options for password PWnn
LAPW	nn (Customer C access)	Limited access to overlays password number
PWnn	X....X (4-14 character alphanumeric)	Password
OVLY	02 10 11 12 15 17 18 20 21 22 23 24 26 31 37 40 42 43 45 48 49 50 57 61 80 81 82 83 84 85 86 87 88 90 95	Overlay
CUST	C	Customer number

Prompt	Response	Description
TEN	ALL (unless individual tenant access required)	Tenant to be accessible by way of PWnn
OPT	PSCA RDBD CFPD LLCD PROD	Options for password PWnn
PCML	A	Pulse code modulation companding Law for the system
DTRB	100	Digitone burst time in ms
TMRK	128	Length of cadence increments in ms
CODE	2	Code, prompted when DTD = TDS
SOLR	0	Sidetone Objective Loudness Rating
ROLR	6	Receive Objective Loudness Rating
TOLR	63	Transmit Objective Loudness Rating
AGCD	YES	Automatic Gain Control Disabled
VOLR	NO	Handset Volume Reset
HRLR	0	Handsfree receive objective loudness rating
HTLR	0	Handsfree transmit objective loudness rating

Overlay 15

Prompt	Response	Description
.		
DNDL	NO	Do not disturb lamp

Overlay 49

Prompt	Response	Description
TYPE	FCR	Type of data block
CRNO	n (must be entered for all tables referenced for COT, DID and DASS2)	Code restriction tree number
INIT	DENY	Initial
ALOW	999	Allow
ALOW	112	Allow

WARNING

The Option 11C Mini system must not block access to public emergency services (emergency numbers 999 and 112), unless you have made other arrangements for emergency services access. The arrangements that you make must allow access to public emergency services by meeting the requirements of the Health and Safety at Work Act and other relevant legislation. Do not delete the entries "ALOW 999 and ALOW 112", until you have made other arrangements.

Overlay 56

Software Cadences

Prompt	Response	Description
TYPE	MCAD (Distinctive ringing Cadence) Recommended not obligatory	Type of data block
WCAD	15	Cadence number
CDNC	0080 0040 0080 0400	On-off phases for cadence
TYPE	MCAD (Normal Ring - Internal) Recommended, not obligatory	Type of data block
WCAD	1	Cadence number
CDNC	0410 0800	On-off phases for cadence
TYPE	MCAD (Camp-on Tone Cadence) Recommended, not obligatory	Type of data block
WCAD	35	Cadence number
CDNC	0020 0040 0020 1000	On-off phases for cadence
TYPE	MCAD (Intrusion Tone Cadence)	Type of data block
WCAD	36	Cadence number
CDNC	0020 0400	On-off phases for cadence

Hardware Cadences

Prompt	Response	Description
TYPE	FCAD (Busy Tone Cadence)	Type of data block
WCAD	30	Cadence number
CDNC	0075 0075	On-off phases for cadence
END	REPT	End treatment for cadence
CYCS	1	On-off cycles
SPCL	NO	Special dial tone
TYPE	FCAD (Ringback Tone Cadence)	Type of data block
WCAD	32	Cadence number
CDNC	0080 0040 0080 0400	On-off phases for cadence
END	REPT	End treatment for cadence
CYCS	1 2	On-off cycles
SPCL	NO	Special dial tone
TYPE	FCAD (Call Forward Dial Tone) Recommended, not obligatory	Type of data block
WCAD	35	Cadence number

Prompt	Response	Description
CDNC	0100 0100	On-off phases for cadence
END	REPT	End treatment for cadence
CYCS	1	On-off cycles
SPCL	NO	Special dial tone
TYPE	FCAD (Special Dial Tone) Recommended, not obligatory	Type of data block
WCAD	37	Cadence number
CDNC	0066 0006 0066 0006 9999 0000 9999	On-off phases for cadence
END	REPT	End treatment for cadence
CYCS	1	On-off cycles
SPCL	NO	Special dial tone

Ring Cadences

Prompt	Response	Description
TYPE	FCT Recommended, not obligatory	Type of data block
RING		Change the ringing feature definitions
NCAD	1	Normal cadence
DCAD	15	Distinctive cadence

Hardware Controlled Cadences

Prompt	Response	Description
HCCT	YES	Hardware controlled cadences and tones
DIAL Recommended, not obligatory		Dial tone
XTON	129	XCT tone code
XCAD	0	XCT cadence number
SPCL Recommended, not obligatory		Special dial tone
XTON	129	XCT tone code
XCAD	0 (FCAD)	XCT cadence number
CFDT Recommended, not obligatory		Call forward dial tone
XTON	129	XCT tone code
XCAD	35(FCAD)	XCT cadence number

Prompt	Response	Description
BUSY		Busy tone
XTON	130	XCT tone code
XCAD	30 (FCAD)	XCT cadence number
RGBK		Ringback tone
XTON	132	XCT tone code
XCAD	32 (FCAD)	XCT cadence number
FFCT Recommended, not obligatory		Flexible feature code confirmation tone
XTON	135	XCT tone code
XCAD	0	XCT cadence number
OVFL		Overflow tone
XTON	130	XCT tone code
XCAD	0	XCT cadence number

Software Controlled Cadences

Prompt	Response	Description
CAMP Recommended not obligatory		Camp-on tone
XTON	137	XCT tone code
XCAD	0	XCT cadence number
CDNC	35	On-off phases for cadences
INTU		Intrusion tone
XTON	133	XCT tone code
XCAD	0	XCT cadence number
CDNC	36	On-off phases for cadences
OVRD		Override tone
XTON	133	XCT tone code
XCAD	0	XCT cadence number
CDNC	36	On-off phases for cadences

Overlay 73

Use Overlay 73 to configure signaling codes for channel associated digital trunks. You must enter the values in the following overlay tables to make a SICA table. The SICA table will, in turn, be used for digital trunks to access Mercury 2100 service. Set any values not listed in the following overlay tables to “N” (not required).

Mercury DDI Connections

In/out calls

Prompt	Response	Description
IDLE (S)	1101	Idle
IDLE (R)	1101	Idle
FALT (S)	1111	Fault
FALT (R)	1111	Fault

Incoming calls

Prompt	Response	Description
SEZ (R)	0101	Seize for voice or data calls from a non-SL-1
SEZA (S)	1101	Seize acknowledgment
PDIGT (R)	PXXX (“N” if using DTMF signaling)	Decadic pulses
CONN (S)	0101	Connect
CONN (R)	0101	Connect
CLRF (R)	0001 or 1101 (depends on location, whether a disconnect clear signal is offered by the public exchange)	Clear forward
CLRB (S)	1101	Clear back

Outgoing calls

Prompt	Response	Description
SEZ (S)	0101	Seize for voice or data calls to a non-SL-1
SEZA (R)	1101	Seize acknowledgment
CONN (S)	0101	Connect
CONN (R)	0101	Connect
CLRF (S)	1101	Clear forward
CLRB (R)	1101	Clear back

Mercury Non-DDI connections

In/out calls

Prompt	Response	Description
IDLE (S)	1101	Idle
IDLE (R)	1101	Idle
FALT (S)	1111	Fault
FALT (R)	1111	Fault

Incoming calls

Prompt	Response	Description
SEZ (R)	1011	Seize for voice or data calls from a non-SL-1
SEZA (S)	1101	Seize acknowledgment
P CALL (R)	XXPX	Signal sent during seize by an incoming CO trunk
CONN (S)	0101	Connect
CONN (R)	0101	Connect
CLRB (S)	1101	Clear back
CLRF (R)	0001or 1101 (depends on location, whether a disconnect clear signal is offered by the public exchange)	Clear forward

Outgoing calls

Prompt	Response	Description
SEZ (S)	0101	Seize for voice or data calls to a non-SL-1
SEZA (R)	1101	Seize acknowledgment
CONN (S)	0101	Connect
CONN (R)	0101	Connect
CLRB (R)	0001 or 1101 (depends on location, whether a disconnect clear signal is offered by the public exchange)	Clear back
CLRF (S)	1101	Clear forward

Pulse sending

Configure pulse sending as follows:

Prompt	Response	Description
FEAT	LPTI	Feature
DDIGT (S)	PXXX (or “N” if using DTMF signaling)	

Pad tables

To implement the UK loss plan described earlier in this chapter, define the following pad tables for all digital trunks that use CAS or Q.931 signaling. DASS-2 and DPNSS trunks are automatically set to the correct values. As a result, you do not need to configure them here.

Option 11C Mini to 81, All Mercury ChAS Trunks

Prompt	Response		Description
ONP	4	0	On premises extension initial values
DSET	4	0	Meridian digital set initial values
OPX	4	0	Off premises extension initial values
DTT	4	0	Digital TIE trunks initial values
SDTT	4	0	Satellite Digital TIE trunks initial values
DCO	4	0	Digital COT, FEX, WAT and DID trunks initial values
DTO	4	0	1.5 Mb/s DTI/PRI Digital TOLL office trunks initial values
NTC	4	0	Non-transmission compensated (Analog TIE) initial values
TRC	4	0	Transmission compensated (Analog TIE) initial values
DTR	4	0	Pad value while DTR is connected
VNL	4	0	Via net loss (Analog TIE) initial values
SATT	4	0	Satellite Analog TIE trunks initial values
ACO	4	0	Analog COT and WATS trunks initial values
ATO	4	0	Analog Toll office trunks initial values
PRI	4	0	1.5 Mb/s DTI/PRI trunk initial values
PRI2	4	0	2.0 Mb/s DTI/PRI trunk initial values
XUT	4	0	Extended peripheral equipment universal trunk (Analog TIE) initial values
XEM	4	0	Extended peripheral equipment universal trunk (Analog CO) initial values

Option 11C Mini to 81, All ChAS and Q.931 TIE Trunks

Prompt	Response		Description
ONP	0	0	On premises extension initial values
DSET	0	0	Meridian digital set initial values
OPX	0	0	Off premises extension initial values
DTT	0	0	digital TIE trunks initial values
SDTT	0	0	Satellite Digital TIE trunks initial values
DCO	0	0	Digital COT, FEX, WAT and DID trunks initial values
DTO	0	0	1.5 Mb/s DTI/PRI Digital TOLL office trunks initial values
NTC	0	0	Non-transmission compensated (Analog TIE) initial values
TRC	0	0	Transmission compensated (Analog TIE) initial values
DTR	0	0	Pad value while DTR is connected
VNL	0	0	Via net loss (Analog TIE) initial values
SATT	0	0	Satellite Analog TIE trunks initial values
ACO	0	0	Analog COT and WATS trunks initial values
ATO	0	0	Analog Toll office trunks initial values
PRI	0	0	1.5 Mb/s DTI/PRI trunk initial values
PRI2	0	0	2.0 Mb/s DTI/PRI trunk initial values
XUT	0	0	Extended peripheral equipment universal trunk (Analog TIE) initial values
XEM	0	0	Extended peripheral equipment universal trunk (Analog Conciliate values

Overlay 97

Prompt	Response	Description
TYPE	SYSP	Type of data block
INTN	YES	A-international companding law
FLSH	30 130	Flash timing
P10R	68	Pulse 10 ratio
TYPE	XCTP	Type of data block
CPAD	1	Conference PAD
DTMF	138	Dual tone multifrequency

Exchange Line

Overlay 14

Prompt	Response	Description
XTRK	XCOT	Extended CO trunk card
SIGL	GRD or LDC or LGR	Level 3 signaling
.		
CLS	LOL for long exchange line	Class of service restriction
CLS	SHL for short exchange line	Class of service restriction

Overlay 14

Prompt	Response	Description
.		
TKTP	COT	Trunk type
.		
TIMR		Trunk timers
DSI	60000	Disconnect supervision timer
GTI	2944	Incoming guard timer
GTO	2944	Outgoing guard timer
ICF	384	Incoming flash timer
OGF	384	Outgoing flash timer
RGV	256	Ring validation timer
LCT	128	Loop calling detection timer
.		
DTD	YES	Dial tone detection
.		
NEDC	ETH	Near end disconnect control
FEDC	ETH	Far end disconnect control
.		
DCTI	0	Time, in seconds, that an extension is allowed to ring or be on hold or call-park before the trunk is disconnected.

DID Trunk

Overlay 14

Prompt	Response	Description
.		
XTRK	XDID	Extended CO trunk card
.		
SIGL	LDR	Level 3 signaling
STRI	IMM	Start arrangement incoming
SUPN	YES	Answer and Disconnect supervision
.		
CLS	LOL for long DID line	Class of service restriction
CLS	CLS SHL for short DID line	Class of service restriction

Overlay 16

Prompt	Response	Description
.		
TKTP	DID	Trunk type
.		
ICOG	ICT	Incoming or outgoing trunk type
TIMR		Trunk timers
ICF	256	Incoming flash timer
GTI	0	Incoming guard timer
NEDC	ETH	Near end disconnect control
FEDC	ETH	Far end disconnect control
.		
DRNG	YES Recommended, not obligatory	North American distinctive ringing for incoming calls
.		
PRDL	YES	No partial dial timing on DID routes
.		
DCTI	0	Time, in seconds, that an extension is allowed to ring or be on hold or call-park before the trunk is disconnected.

AC15/DC5 TIE

Overlay 14

Prompt	Response	Description
XTRK	XFEM	Extended CO trunk card
.		
CLS	NTC for TIE (leased line) connections	Class of service restriction
CLS	CLS TRC for link (on-premise) connections	Class of service restriction

Overlay 16

Prompt	Response	Description
.		
TKTP	TIE	Trunk type
.		
TIMR		Trunk timers
ICF	1920	Incoming flash timer
OGF	1920	Outgoing flash timer
NEDC	ETH	Near end disconnect control
FEDC	ETH	Far end disconnect control

Automatic Call Distribution

Overlay 23

Prompt	Response	Description
OBTN	ALL	No observation tone given

Note: You must include the necessary configuration for Euro-ISDN PRI trunks.

Configuration of Meridian Mail outcalling timers

Set the timers requiring entries through the Meridian Mail admin terminal. The first step is to Logon to the system and go into 1 User Administration. From here, go into 2 View / Modify User and press F9. The next step is to enter the Mailbox number and press return. Then press F8 to review the outcalling program.

The following table is now displayed on the screen:

Busy Retry limit:	3	Retry Interval (hh:mm)	3
No Answer Retry Limit:	10	Retry Interval (hh:mm)	3
Answer Retry Limit:	1	Retry Interval (hh:mm)	3

Note: Do not set the figures on the right of the table lower than 3.

For the AMIS and Networking timers:

Return to the main screen and press 3 Voice Admin. From here 4 Outcalling Admin and 1 outcalling Options. Use the down arrow key until the following table appears:

Busy Retry limit:	3	Retry Interval (hh:mm)	3
No Answer Retry Limit:	10	Retry Interval (hh:mm)	3
Answer Retry Limit:	1	Retry Interval (hh:mm)	3

Note: Do not set the figures on the right of the table lower than 3.

Absolute maximum delay plan (ms) overview

TO Delay (ms) FROM	E/L	Ext	2-w PC	4-w PC	4-w link	2Mb E/L	2Mb PC	Dig Extn	Rapp
EL/DDI	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
Extension	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
2w PC	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
4w PC	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
4-w link	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
2Mb E/L (DASS2/CAS/ISDN)	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
2Mb TIE/link (CAS/DPNSS/Q.931)	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65
Digital extensions	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.15	1.00
Rapport	0.65	0.65	0.65	0.65	0.65	0.65	0.65	1.00	0.65

To calculate round-trip delays, add together the delay figures in the table for the two directions of transmission.

Quantization Distortion Units

From	To	QDUs
Digital Trunk	Digital TIE	0.7
Digital TIE	Digital TIE	0
Other	Digital Trunk	1.2
Other	Digital TIE	0.5
Other	Other	1.0

The figures listed above are for both directions of transmission. Other includes all ports except Digital Trunk and Digital TIE, such as Analog Trunk, Analog TIE, Analog Extension, and Digital Extension.

Digital TIE ports (both directions of transmission) and digital trunks (transmit path only) have bit integrity between the trunk interface and switching matrix.

Stability loss

The following table gives worst-case figures for receive to transmit loss (including input and output loss) under impedance mismatch conditions (200¾ and 1200¾) for all permitted connections between 2-wire and 4-wire ports. The sum of stability losses for all closed four-wire transmission loops within a private branch network must exceed 6dB.

4-wire port	2 Mb trunk	2 Mb PC/link	4-w PC	4-w link
2-wire port/ITS				
CO long	X	-2.0	+2.0	-2.0
CO short	X	+2.1	+6.1	+2.1
DDI long	X	-2.9	+1.1	-2.9
DDI short	X	+1.1	+4.1	+1.1
2-w PC	+5.2	+1.2	+5.2	+1.2
Ext	+15.0	+11.0	+15.0	+11.0
Digital Tel	+11.7	+7.7	+11.7	+7.7
Note: X represents connections that are not permitted				

Hardware switch settings

SDTI2 switch settings (NTAK10)

Switch	Down (On)	Up (Off)
S1-2	CC Enabled	CC Disabled
S2-1	120¾	75¾
S2-2	75¾	120¾
S3-1	Normal firmware	French firmware
S4-1	Rx Earthed	Rx Open
S4-2	Tx Earthed	Tx Earthed

SPRI2 switch settings (NTAK79)

Switch	Down (On)	Up (Off)
S1-1	DCH Enabled	DCH Disabled
S1-2	DASS/DPNSS	Q.931
S2-1	120¾	75¾
S2-2	75¾	120¾
S3-1	Not used	Not used
S3-2	CC Enabled	CC Disabled
S4-1	Rx Earthed	Rx Open
S4-2	Tx Earthed	Tx Open

Switch settings (NTBK50)

Switch	Down (On)	Up (Off)
S1-1	Not used	Not used
S1-2	DASS2/DPNSS1	Q.931
S2-1	75	120
S2-2	Not used	Not used
S3-1	Not used	Not used
S3-2	Not used	Not used
S4-1	Rx Earthed	Rx Open
S4-2	Tx Earthed	Tx Open

Lightning protection

If a cable that connects to any of the following circuits runs into the building through an external cable run, approved surge arresters must be installed at the Krone Test Jack Frame:

- NT5K02 Analog Line card
- NT5K19 Analog TIE trunk card
- NT8D02 Digital Line card

Using Option 11C/ Option 11C Mini documents in the UK

Option 11C/ Option 11C Mini documents contain some hardware descriptions and terminology that do not apply to the UK.

Non-applicable hardware

When using Option 11C/ Option 11C Mini documents, ignore sections describing the following equipment:

- the DC-powered version of Option 11C
- the following Intelligent Peripheral Equipment cards:
  - NT5K21 Multi Frequency Compelled Sender/Receiver card
  - NT5K36 4-port German DID/DOD Trunk card
  - NT8D03 Analog Line card
  - NT8D09 Analog Message Waiting Line card
  - NT8D14 Universal Trunk card
  - NT8D15 E&M Trunk card
  - NT8D16 Digitone Receiver card
- 1.5 Mbit Digital trunks and Primary Rate Interfaces (PRI), which include the following circuit cards:
  - NTAK09 DTI/PRI card
  - NTAK20 Clock Controller daughterboard
  - NTAK93 DCHI daughterboard
- the following telephone sets:
  - M2009
  - M2018
  - M2112
  - M2317
  - M3000

Non-applicable NTPs

The Option 11C *1.5 Mb Administration and Maintenance Guide,* 553-3011-315 is not used in the UK.

Appendix B – Additional information for installations in Germany

Regulatory notices

On September 7, 1992, the Meridian 1 Option 11 system received general approval from “Bundesamt für Zulassungen in der Telekommunikation (BZT)”. The approval certificate from BZT is shown in Figure 73. Figure 74 shows the approval labels that attach to system equipment.

Approval certificate

Figure 73 shows the approval certificate for the Meridian 1 system.

Approval label

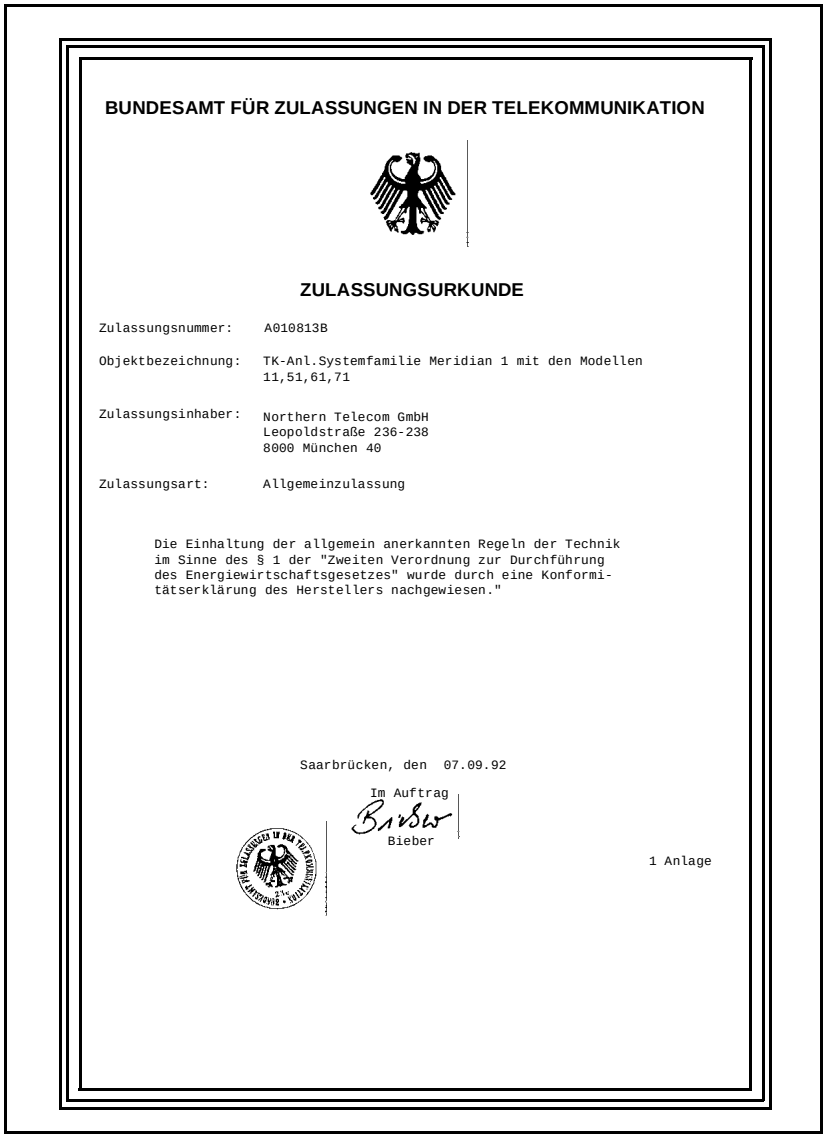
The approval label shown in Figure 74 must attach to the following equipment:

— The Main Chassis, in a visible location. Do not attach the label to the front cover of the Main chassis. (The covers on the Main Chassis and Chassis Expander are interchangeable.)

— At the bottom of each installed Attendant Console.

— At the bottom of each installed Meridian 1 telephone set.

Figure 73
Meridian 1 approval certificate



BUNDESAMT FÜR ZULASSUNGEN IN DER TELEKOMMUNIKATION

ZULASSUNGSURKUNDE

Zulassungsnummer: A010813B

Objektbezeichnung: TK-Anl.Systemfamilie Meridian 1 mit den Modellen 11,51,61,71

Zulassungsinhaber: Northern Telecom GmbH
Leopoldstraße 236-238
8000 München 40

Zulassungsart: Allgemeinzulassung

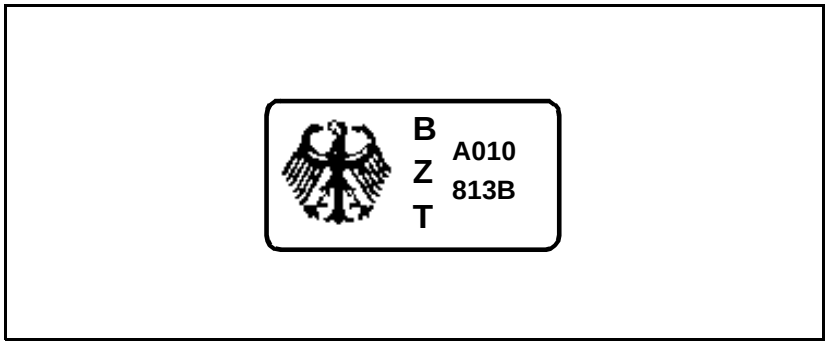
Die Einhaltung der allgemein anerkannten Regeln der Technik im Sinne des § 1 der "Zweiten Verordnung zur Durchführung des Energiewirtschaftsgesetzes" wurde durch eine Konformitätserklärung des Herstellers nachgewiesen."

Saarbrücken, den 07.09.92

Im Auftrag
Bieber

1 Anlage

Figure 74
Approval label Meridian 1



Compliance information

The Option 11C Mini system complies with the "Zulassungsbedingungen für Telekommunikationsanlagen und-systeme (Ausgabe: Januar 1990)". Other specifications met by the Option 11C Mini are discussed below.

Interfaces supported

The Option 11 system provides interfaces to the public telecommunications network of the Bundespost Telekom in Germany, according to the following regulations:

— Analog interfaces: FTZ 123 R 1, FTZ 12 TR 4-3, FTZ 1 TR 2

— Digital interfaces: ETS 300 011, ETS 300 012, FTZ 1 TR 6

Safety specifications

The Option 11C Mini system complies with the following safety specifications:

— EN 60950 (VDE 0805)

— EN 41003 (VDE 0804 Part 100)

The compliance with the "Gerätesicherheitsgesetz" has been tested by VDE Canada and TÜV Rhineland. The Meridian 1 Option 11C Mini can be marked with the GS label for "Geprüfte Sicherheit" to show compliance with this specification.

Electromagnetic compatibility (EMC)

Table 75 shows EMC specifications for the Meridian 1 Option 11C Mini.

Table 75
Option 11C Mini EMC specifications

Emission:	EN 55022 Class B	(VDE 0878 Part 3)
Immunity:	EN 61000-4-2	Electrostatic discharge
	EN 61000-4-3	Electromagnetic field
	EN 61000 4-4	Fast transient burst

Lightning protection

If a cable that connects to any of the circuits in Table 76 runs into a building through an external cable run, approved surge arresters must be installed at the cross-connect terminal.

Table 76
Circuits

NT5K02	XFALC	Flexible analog Line card
NT5K96	XFALC	Flexible analog Line card, non-message waiting
NT5K36	XDID	Direct Inward Dial (DID) trunk card
NT5K70	XCOT/8	8-unit Central office trunk card
NT5K71	XCOT/4	4-unit Central office trunk card
NT5K72	XFEM	E&M trunk card; RAN, MUS, PAG, TIE EM4
NT8D02	XDLC	Digital Line card

The system planner must make sure that all connections are protected from the risk of lightning.

Default DN assignments

Default DN assignments for the Main Chassis and Chassis Expander

	Cable	Unit	Default Directory Number (DN)							
Main Chassis	L1	0 - 7	100	101	102	103	104	105	106	107
	L1	8 - 15	108	109	110	111	112	113	114	115
	L2	0 - 7	116	117	118	119	120	121	122	123
	L2	8 - 15	124	125	126	127	128	129	130	131
	L3	0 - 7	132	133	134	135	136	137	138	139
	L3	8 - 15	140	141	142	143	144	145	146	147
	L4	0 - 7	148	149	150	151	152	153	154	155
	L4	8 - 15	156	157	158	159	160	161	162	163
	L5	0 - 7	164	165	166	167	168	169	170	171
	L5	8 - 15	172	173	174	175	176	177	178	179
	L6	0 - 7	180	181	182	183	184	185	186	187
	L6	8 - 15	188	189	190	191	192	193	194	195
Chassis Expander	L1	0 - 7	196	197	198	199	200	201	202	203
	L1	8 - 15	204	205	206	207	208	209	210	211
	L2	0 - 7	212	213	214	215	216	217	218	219
	L2	8 - 15	220	221	222	223	224	225	226	227
	L3	0 - 7	228	229	230	231	232	233	234	235
	L3	8 - 15	236	237	238	239	240	241	242	243
	L4	0 - 7	244	245	246	247	248	249	250	251
	L4	8 - 15	252	253	254	255	256	257	258	259

Activating telephones

To activate a telephone, you must first decide which default model to assign to that telephone.

This section describes how to activate the following telephones:

- a default model with default extension number
- a customized model with a customized extension number

Telephone tones

There are a number of different telephone tones. The list of tones in Table 77 includes tones that you hear during telephone activation

Table 77
Telephone tones

Tone	Description	Specification
Dial tone	Sequences of three short beeps with a pause between cycles	Beep: 420 Hz tone for 200 ms Pause between beeps: 275 ms Pause between cycles: 875 ms
Special dial tone	Six short beeps followed by continuous tone	Beep: 420 Hz tone for 125 ms Pause between beeps: 125 ms
Overflow tone	Continuous beeping, like a busy tone	Beep: 420 Hz tone for 200 ms Pause: 600 ms
Relocation tone	Short, high pitched beep followed by silence	Beep: 1400 Hz tone for 1.4 seconds

Note: Before you activate a telephone, make sure you decide on its final location. Also, make sure you know the model number assigned to the telephone and if it must be customized.

Activating a default model on a telephone with a character display

Note: If you replace the handset before you complete the prompt sequence below, the installation fails. If you make an error and want to restart the procedure, you can replace the handset.

1 **Change display language to German.**

2 **Plug the telephone set into the jack and wait 20 seconds before you lift the handset. If you do not receive dial tone, replace the handset and wait another 10 seconds before lifting the handset again. Repeat this procedure until you receive dial tone.**

If successful, the character display shows either "MODEL?(XX)" (if the telephone relocation feature is **not** in use) or "ZUG O.NEUES TELEFON?(XX)" (if the telephone relocation feature **is** in use). "XX" represents the default model for the telephone that you are activating.

Note: If you do not see the prompt "MODEL?(XX)" after lifting the handset, disconnect the telephone from the wall jack, wait five seconds, and insert the telephone into the jack again. The telephone now shows "MODEL?(XX)" when you lift the handset.

Note: The system uses the 20 second time interval to determine if the set is new or if it is being relocated using the Modular Telephone Relocation feature.

3 Press the pound key "#" to select the default model.

The character display shows "OK RUFNUMMER?XXXX". "XXXX" represents the default extension number for this telephone type.

4 Press the pound key again to select the default extension number.

You hear relocation tone. The character display shows "OK".

OR

If the extension number is already in use by another telephone, you hear special dial tone again. The character display shows "TEAM-LTG., RUFNUMMER?".

To accept the default extension number press the pound key.

To select a new extension number, manually enter an extension number and press the pound key.

OR

If the extension number is not available for use, you hear overflow one. The character display shows "FEHLER, RUFNUMMER?" and you must repeat this step.

This occurs when you select an extension number manually or when extension numbers are entered for additional keys. A default extension number is not offered if it is not available. Repeat Step 3 and enter a new extension number manually.

Note: If other keys require secondary extension numbers, you are prompted until you enter all of the required extension numbers for the model. These extension numbers cannot be defaulted. The text display that prompts for more extension numbers is "KEY kk RUFNUMMER?" where "kk" represents the key number requiring the extension number. Each prompt for another extension number comes with special dial tone. When you are programming an extension number, the lamp associated with that number on the telephone is lit.

5 Hang up the telephone receiver.

After approximately 10 seconds, the telephone is configured.

Activating a default model on a telephone without a character display

1 **Plug the telephone set into the jack and wait 20 seconds before you lift the handset. If you do not receive dial tone, replace the handset and wait another 10 seconds before lifting the handset again. Repeat this procedure until you receive dial tone.**

Note: The system uses the 20 second time interval to determine if the set is new or if it is being relocated using the Modular Telephone Relocation feature.

2 **Press the pound key "#" to select the default model.**

3 **Press the pound key again to select the default extension number.**

You hear relocation tone.

OR

If the extension number is already in use by another telephone, you hear special dial tone.

To accept the default extension number press the pound key.

To select a new extension number, manually enter an extension number and press the pound key.

If the extension number is not available for use, you hear overflow tone.

This occurs when you select an extension number manually or when extension numbers are entered for additional keys. A default extension number will not be offered if it is not available. Repeat step 3 and enter a new extension number manually.

Note: If other keys require secondary extension numbers, you are prompted until you enter all of the required extension numbers for the model. These extension numbers cannot be defaulted. You are prompted for each additional extension number special dial tone. When you are programming an extension number, the lamp associated with that number on the telephone is lit.

Activating a customized model on a telephone with a character display

Note: If you replace the handset before you complete the prompt sequence below, the installation fails. If you make an error and want to restart the procedure, you can replace the handset.

1 **Change display language to German.**

2 **Plug the telephone set into the jack and wait 20 seconds before you lift the handset. If you do not receive dial tone, replace the handset and wait another 10 seconds before lifting the handset again. Repeat this procedure until you receive dial tone.**

If successful, the character display shows either "MODEL?(XX)" (if the telephone relocation feature is **not** in use), or "ZUG O.NEUES TELEFON?(XX)" (if the telephone relocation feature **is** in use). "XX" represents the default model for the telephone that you are activating.

Note: If you do not see the prompt "MODEL?(XX)" after lifting the handset, disconnect the telephone from the wall jack, wait five seconds, and connect the telephone to the jack again. The telephone now shows "MODEL?(XX)" when you lift the handset.

Note: The system uses the 20 second time interval for the system to determine if the set is new or if it is being relocated using the Modular Telephone Relocation feature.

3 **Press the digits associated with the customized model and press the pound key (#).**

Dial tone disappears after the first digit is pressed and you hear special dial tone after you press the pound key. If you enter a valid model number the character display reads "OK RUFNUMMER?XXXX". If you enter an invalid model, the previous prompt is reissued and you hear overflow tone.

4 **Enter the customized extension number and press the pound key.**

You hear relocation tone. The character display shows “OK”.

OR

If the extension number is already in use by another telephone, you hear special dial tone again. The character display shows “TEAM-LTG., RUFNUMMER?”.

OR

If the extension number is not available for use, you hear overflow tone. The character display shows “FEHLER, RUFNUMMER?” and you must repeat this step.

Note: If other keys require secondary extension numbers, you are prompted until you enter all of the required extension numbers for the model. These extension numbers cannot be defaulted. The text display prompting for further extension numbers is “KEY kk RUFNUMMER?” where “kk” represents the key number requiring the extension number. Each prompt for another extension number is accompanied by special dial tone. When you are programming an extension number, the lamp associated with that number on the telephone is lit.

5 **Hang up the telephone receiver.**

After approximately 10 seconds, the telephone is configured.

Activating a customized model on a telephone without a character display

1 **Plug the telephone set into the jack and wait 20 seconds before lifting the handset. If you do not receive dial tone, replace the handset and wait another 10 seconds before lifting the handset again. Repeat this procedure until you receive dial tone.**

2 **Press the digits associated with the customized model and press the pound key (#).**

Dial tone disappears after the first digit is pressed, and you hear special dial tone after you press the pound key. If you enter an invalid model, you hear overflow tone.

3 **Enter the customized extension number and press the pound key.**

You hear relocation tone.

OR

If the extension number is already in use by another telephone, you hear special dial tone again.

OR

If the extension number is not available for use, you hear overflow tone and you must repeat this step.

Note: If other keys require secondary extension numbers, you are prompted until you enter all of the required extension numbers for the model. These extension numbers cannot be defaulted. You are prompted for each additional extension number by special dial tone. When you are programming an extension number, the lamp associated with that number on the telephone is lit.

4 **Hang up the telephone receiver.**

After approximately 10 seconds, the telephone is configured.

Activating trunks

As with telephones, you activate trunks by selecting models which determine their default features. Trunk models are selected by using the administration telephone menu and are designed to handle variations in trunk types and signaling arrangements.

Note: Due to the automatic thirty second time-out on the administration menu, prepare the data that you want to input before you begin. To determine corresponding TNs and trunks, check the location of trunk cards in the chassis or use LD 32.

Activating a default model trunk

1 **Lift the handset of the administration telephone.**

2 **Enter the Option 11 administration Flexible Feature Code "*41" to access the administration menu.**

The prompt "PASSWORT?" appears.

3 Enter the default password “6891”.

You hear special dial tone and the prompt
“EINGABE?”
appears in the top line of the character display.

The second line of the display reads “1 LEITUNG ANMELDEN”.

4 Select “1 LEITUNG ANMELDEN” by entering the number “1”.

The prompt “BÜNDEL-KENNZAHL” appears on the character display.

5 Enter the access code of the route to which you want to add a trunk and press the pound key (#).

The prompt
“TERMINAL-NR?”
asks you to enter a TN (Terminal Number) from one of the installed trunk cards.

If you do not enter a valid route number, “TERMINAL-NR?” does not appear and the screen remains the same. If the type of trunk card does not match the route, the prompt “BÜNDEL KENNZAHL” appears again, and you hear overflow tone.

6 Enter the TN in Option 11 format (CCUU - Card, Unit) and press the pound key.

The prompt
“TELEFON-TYP(X)”
appears. If you enter an invalid TN, the display shows “NICHT ERLAUBT, TERM.-NR?” and you must enter a new TN using the Option 11 format.

7 Press the digits to select a trunk model (as assigned in LD 16).

The character display shows
“OK”.
After a delay of approximately 4 seconds you hear special dial tone.
The sequence is repeated when the prompt
“TERMINAL-NR?”
appears on the character display.
The next valid trunk TN is automatically incremented after each trunk is activated.

8 Terminate the sequence by hanging up the telephone receiver.

OR

Repeat the sequence by going through the steps again.

By entering "#" when the procedure repeats, you accept the next TN and are prompted for the model type.

By entering "#" again, you accept the previously accepted model.

Note: The model used for the first trunk activated in the sequence will be the default for all subsequent trunks until the telephone is hung up unless you manually enter a new trunk model number.

Activating a selected model trunk

1 Lift the handset of the administration telephone.

2 Enter the administration Flexible Feature Code "*41" to access the administration menu.

The prompt "PASSWORT?" appears.

3 Enter the default password "6891".

You hear special dial tone and the prompt
"EINGABE?"
appears on the top line of the character display.

The second line of the character display reads "1 LEITUNG ANMELDEN".

4 Select "1 LEITUNG ANMELDEN" by entering the number "1".

The prompt "BÜNDEL-KENNZAHL" appears.

5 Enter the access code of the configured trunk route to which you want to add the trunk and press the pound key (#).

The prompt
"TERMINAL-NR?"
asks you to enter a TN from one of the installed trunk cards.

If you do not enter a valid route number, "TERMINAL-NR?" does not appear and the screen remains the same. If the type of trunk card does not match the route, the prompt "BÜNDEL-KENNZAHL" appears again, and you hear overflow tone.

6 Enter the TN in Option 11 format (CCUU - Card, Unit) and press the pound key.

The prompt
"TELEFON-TYP(X)"
appears. If you enter an invalid TN, the display shows "NICHT ERLAUBT, TERM.-NR?" and you must enter a new TN using the Option 11 format.

7 Enter a trunk model number for the specified TN and route and press the pound key.

The character display shows
"OK".
After a delay of approximately 4 seconds you hear special dial tone. The sequence is repeated when the prompt
"TERMINAL-NR?"
appears on the character display.

8 Terminate the sequence by hanging up the telephone receiver
OR
Repeat the sequence by going through the steps again.

The sequence ends when the last unit in the card is used and the program is complete, or when you hang up the telephone receiver.

Note: The model used for the first trunk activated in the sequence will be the default for all subsequent trunks until the telephone is hung up unless you manually enter a new trunk model number.

Cross-connect terminal labels

Figure 75
Label for XFALC.

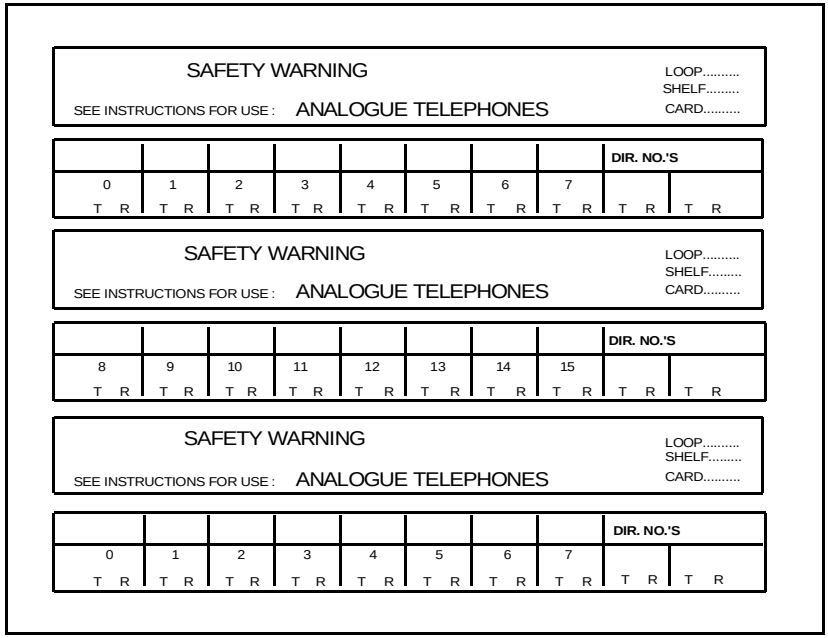


Figure 76
Label for XFEM

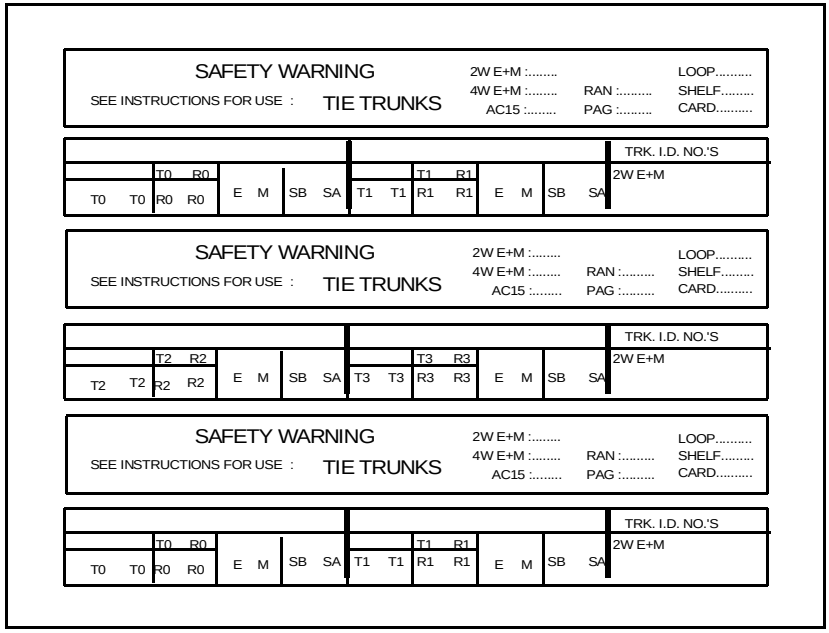


Figure 77
Label for Data Access line card (NT7D16)

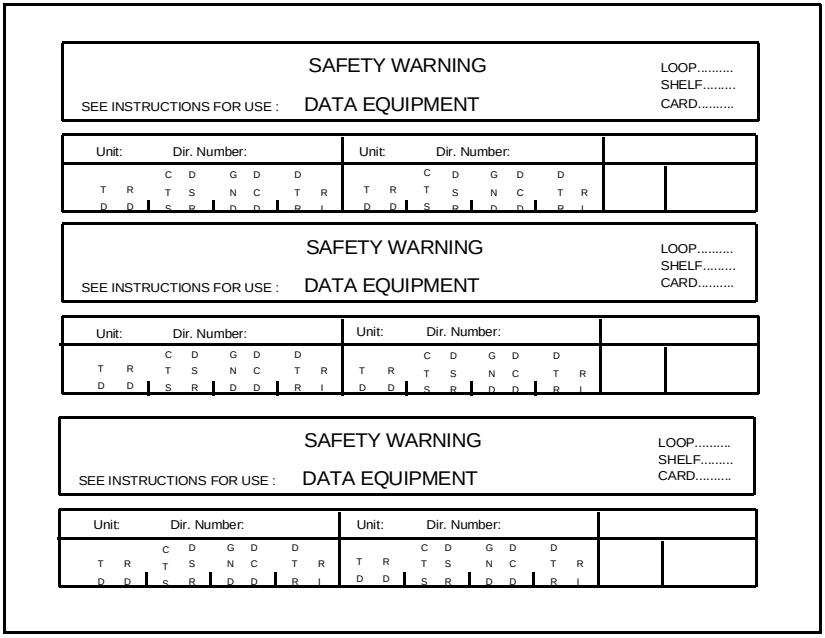


Figure 78
Label for Power Fail Transfer Unit

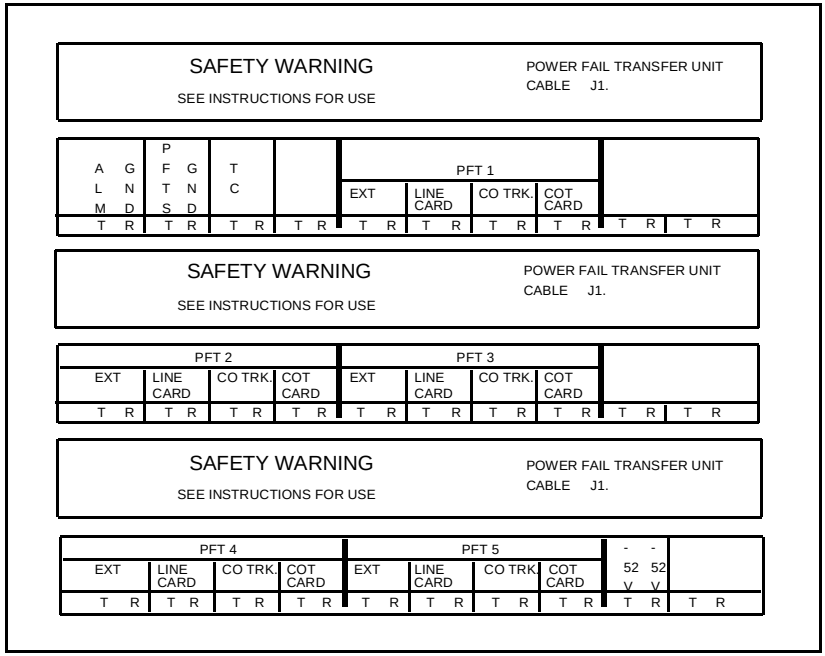


Figure 79
Label for XDLC (NT8D02)

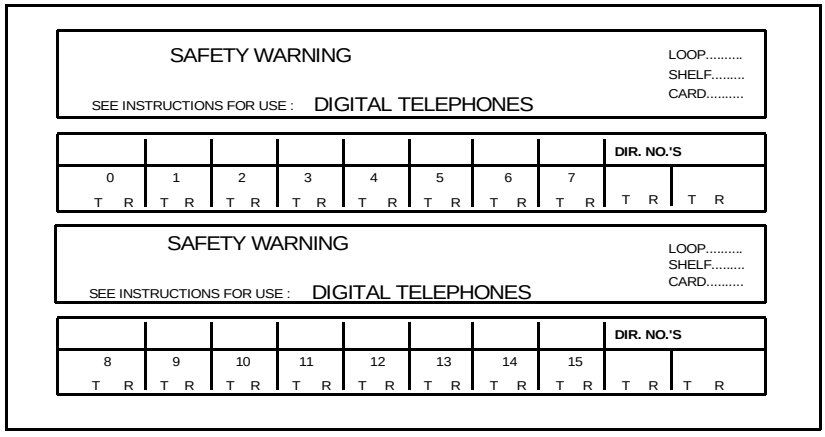


Figure 80
Label for XCOT (NT5K18)

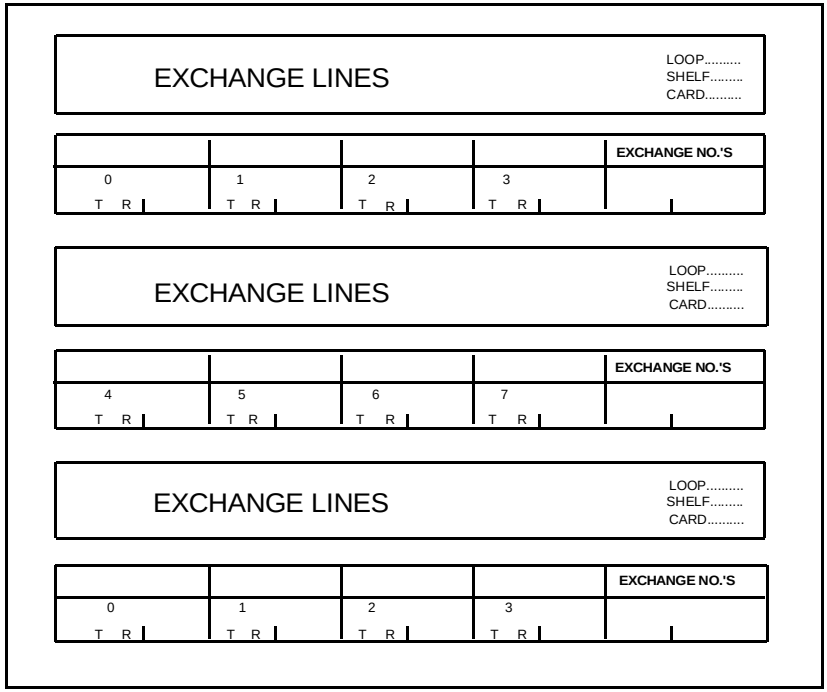
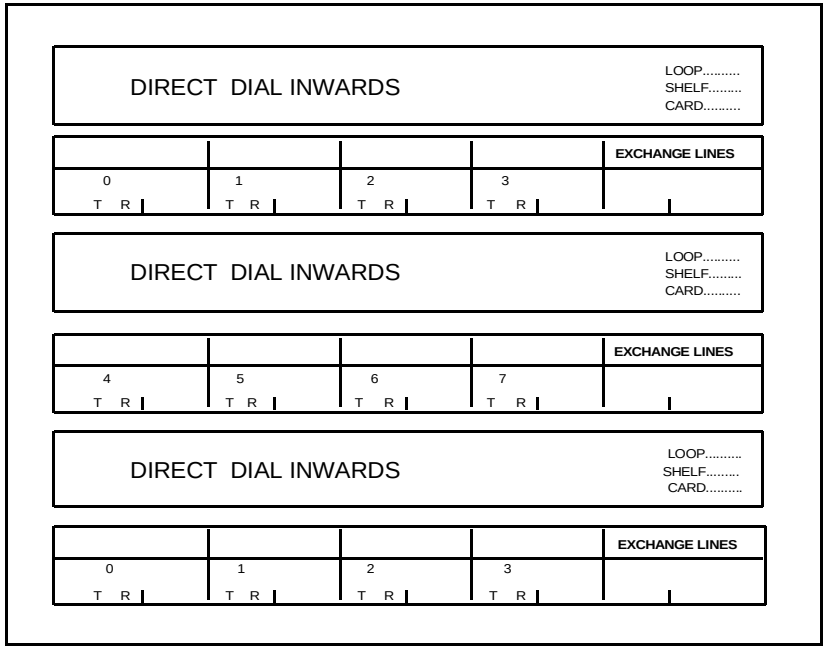


Figure 81
Label for XDDI (NT5K17)



Appendix C – Preprogrammed data

When an Option 11C Mini system is initially installed, customer data must be entered into the overlay programs. Telephones, for example, must be assigned features on their keys to allow them to function properly.

The Mini System Controller (MSC) card can be programmed with customer data before it is sent to the customer site. If you load preprogrammed data into the system during the installation process, some overlay entries are automatically configured on the telephones. For example, you can choose a telephone model that has predetermined feature and key assignments and a preassigned Class of Service. This can be a significant time-saver if you have to program numerous types of telephone models.

Preprogrammed data is not mandatory for software installation. In fact, the MSC card can be programmed with the minimum number of files to allow the Option 11C Mini to operate.

This chapter contains information on the following:

- Passwords and codes
- the Default numbering plan
- Flexible Feature Codes
- SDI ports
- Trunk routes and models
- and Model telephones

Note: For UK-specific information on pre-programmed data, see "Appendix D – Preprogrammed data for the United Kingdom" on page 485.

Passwords and codes

The following table shows each function in the left column and a corresponding password or code on the right.

Table 78
Passwords and codes

Function	Code or extension(s)
TTY password (For access to TTY Option 11C Mini overlays)	0000
Meridian Mail administration password	adminpwd
Administration telephone password Administration telephone FFC	1234 *41
SPRE code	1
Telephone relocation Flexible Feature Code	*40
Telephone Removal Flexible Feature Code	*42
Telephone relocation password (SCRD)	1234

Default numbering plan

The default numbering plan for Option 11C Mini is based on the following guidelines:

- The default numbering plan uses four digits and starts at 2200.
- The prime extension number (DN) for each telephone is in the range 2200-2XXX. The value of “XXX” varies depending on the number of telephones that you have in the system. Any secondary extension numbers use numbers outside this range. This arrangement allows Option 11 and Meridian Mail to automatically configure telephones and corresponding mailboxes without manual intervention.
- Meridian Mail uses extension 7000 for access, 7001 for Auto Attendant, 7002 for Express Messaging, and 7003 for Prompt Maintenance.

- Meridian Mail Virtual Agents are pre-configured for Card 10 in Unit 0, 1, 2, 8, 9, and 10 of the Main Chassis.
- The Central Answering Position has an extension of 7700. This extension can be changed in LD 15.

First digits

The following table shows the default numbering plan for Option 11C:

Table 79
Default numbering plan—First digit

First digit	Pre-programmed use for digit
1	SPRE code
2	Not used
3	Not used
4	Not used
5	Not used
6	Not used
7	COT/TIE/DID/WATS/FEX/RAN/MUS/AWR/Paging Trunk access codes, Meridian Mail queues and attendant DN, Call park DNs
8	Not used
9	Not used
0	Attendant extension

Note: The first number of the default numbering plan is pre-programmed as 2200. The remaining numbers in the default numbering plan are designated in software, but do not become active until they are selected during the telephone activation procedure.

The digit "7" in the default numbering plan is programmed with many system features to assist you in configuring the Option 11C system. If you have the Meridian Mail card option software, it automatically configures user mail boxes to correspond with the 2200 numbering plan. In addition, the pre-programmed Meridian Mail queues in the Meridian Mail software match the default data on the Option 11C system.

Important extension numbers

Table 80
Default numbering plan—important extension numbers

Extension	Use
Attendant extension	0
First number in numbering plan	2200
Night number	7700*
Queue for Central Answering Position	7700 *
General ACD queue	7750 *
Meridian Mail miscellaneous ACD queues:	7000-7009
Meridian Mail extension Auto attendant extension Express messaging Prompt maintenance Miscellaneous queues	7000 7001 7002 7003 7004-7009
Meridian Mail position I.D.	7800-7811
Meridian Mail agent extensions	7830-7841
Call park extensions	7900-7919

***** The thresholds which control the agent AWC keys have been set as follows:

CWTH 1
CWLF 2
CWLW 4.

Extensions assigned to card slots

Table 81
Main Chassis and Chassis Expander

Slot number	Extension numbers
Main Chassis	
01	2200 through 2215
02	2216 through 2231
03	2232 through 2247
04	2248 through 2263
05	2264 through 2279
06	2280 through 2295
Chassis Expander	
01	2296 through 2311
02	2312 through 2327
03	2328 through 2343
04	2344 through 2359

Flexible Feature Codes

Flexible Feature Code (FFC) data is used in many administrative procedures. The table below lists the FFCs for the Option 11C Mini system.

Table 82
Flexible Feature Codes

FFC Prompt	FFC	Definition
ASRC	*40	Automatic Set Relocation
AREM	*42	Automatic Set Removal Code
ADMN	*41	Administration Set Access Code
CFWA	#1	Call Forward All Calls Activate
CFWD	#1	Call Forward All Calls Deactivate
C6DS	*70	6 Party Conference Code
HOLD	#4	Permanent Call Hold
MNTC	*43	Maintenance Access Code
PUGR	*71	Pick-up Group Code
RDLN	*72	Last Number Re-dial
RDST	*73	Store Last Number Re-dial
RGAA	*74	Ring Again Activate
RGAD	*75	Ring Again Deactivate
RGAV	*77	Ring Again Verify
SPCC	#2/*80	Speed Call Controller Code
SPCU	#3/*81	Speed Call User Code
SSPU	*89	System Speed Call User Code

SDI ports

The minimum system port configuration for Option 11C Mini is 3 SDI ports, all of which can be found on the NTDK97 MSC card.

You can obtain additional ports by installing an NTAK02 SDI/DCH circuit card. The SDI/DCH card has 4 serial I/O ports with three possible configurations:

- 2 asynchronous ESDI ports with 2 DCHI ports
- 2 synchronous ESDI ports, or
- 2 SDI ports.

The default SDI port configuration is shown below. The value for "XX" is set on the faceplate of the MSC circuit card.

Table 83
Pre-configured SDI ports

TTY Number	Card	Port	Use	Configuration
0	0	0	MTC/SCH/BUG	XX/8/1/NONE
1	0	0	MTC/SCH/BUG	1200/8/1/NONE
2	0	1	MTC/SCH/BUG	1200/8/1/NONE
8	10	0	LSL	1200/8/1/NONE
9	10	1	CMS	4800

Modem port

The pre-configured modem port allows the remote maintenance modem to be connected with further system programming. This port is pre-configured as TTY 0 (port 0 on the MSC card) and is programmed for Maintenance (MTC), Service Change (SCH) and BUG messages.

Enhanced Serial Data Interface (ESDI) port

Port 9 is pre-programmed as an ESDI port and supports Meridian Mail. It functions as a Command Status Link with the following settings:

ESDI settings

Table 84
ESDI settings

Setting	Code
BPS	4800
CLOK	EXT
IADR	003
RADR	001
T1	10
T2	002
T3	040
N1	128
N2	08
K	7
RXMT	05
CRC	10
ORUR	005
ABOR	005
USER	CMS
ENL	NO

Telephone tones

The telephone tones in North America are as follows:

Dial tone A continuous tone.

Special dial tone Three beeps followed by continuous dial tone.

Overflow tone Like a busy tone, except faster and higher.

Relocation tone A short high-pitched beep lasting for 4 seconds, followed by silence.

Trunk routes

The following table shows pre-programmed trunk route information that you need on hand to activate and modify trunks.

Table 85
Pre-programmed trunk route information

Route	Type	Access Code	Mode	Interface
00 *	COT	7100	IAO	-
01 *	COT	7101	ICT	-
02 *	COT	7102	OGT	-
03	TIE	7103	IAO	-
04	TIE	7104	ICT	-
05	TIE	7105	OGT	-
06	DID	7106	ICT	-
07	WAT	7107	IAO	-
08	WAT	7108	ICT	-
09	WAT	7109	OGT	-
40	MUS	7140	OGT	-
41	AWR	7141	-	AUD
42	RAN	7142	-	DGT
43	RAN	7143	-	AUD
44	PAG	7144	OGT	-
50	FEX	7150	IAO	-
51	FEX	7151	ICT	-
52	FEX	7152	OGT	-

Note: Trunk routes marked with an asterisk (*) are configured support Call Detail Recording (CDR) output. The CDR is pre-configured as follows:

CDR YES

INC YES

OAL YES

AIA YES

Trunk models

Note: All trunks are programmed as immediate start / supervision = yes, with the exception of trunks with an asterisk beside them (*). Trunks marked with an asterisk (*) are set for wink start / supervision = yes.

Table 86
Trunk model information

Mode	Pack	Model	Signaling	DIP or DTN	BIMP and TIMP
COT	XUT	1	GRD	DIP	3COM/600
		2	LOP	DIP	3COM/600
		3	GRD	DTN	3COM/600
		4	LOP	DTN	3COM/600
		5	GRD	DIP	3COM/900
		6	LOP	DIP	3COM/900
		7	GRD	DTN	3COM/900
		8	LOP	DTN	3COM/900
TIE	XUT	1	OAD	DIP	3COM/600
		2	LDR	DIP	3COM/600
		3	OAD	DTN	3COM/600
		4	LDR	DTN	3COM/600
		5	OAD	DIP	3COM/900
		6	LDR	DIP	3COM/900
		7	OAD	DTN	3COM/900
		8	LDR	DIP	3COM/900

Table 87
Trunk model information (continued)

Mode	Pack	Model	Signaling	DIP or DTN	BIMP and TIMP
	XEM	16	EAM	DIP	- /600
		17	EM4	DIP	-
		18	EAM	DTN	- / 600
		19	EM4	DIP	-
DID	XUT	1	LDR (Wink Start Supv = Yes	DIP	3COM/600
		2	LDR (Wink Start Supv = Yes	DTN	3COM/600
		3	LDR (Wink Start Supv = Yes	DIP	3COM/900
		4	LDR (Wink Start Supv = Yes	DTN	3COM/900
		5*	LDR (Wink Start Supv = Yes	DIP	3COM/600
		6*	LDR (Wink Start Supv = Yes	DTN	3COM/600
		7*	LDR (Wink Start Supv = Yes	DIP	3COM/900
		8*	LDR (Wink Start Supv = Yes	DTN	3COM/900
WAT	XUT	1	GRD	DIP	3COM/600
		2	LOP	DIP	3COM/600
		3	GRD	DTN	3COM/600
		4	LOP	DTN	3COM/600
		5	GRD	DIP	3COM/900
		6	LOP	DIP	3COM/900

Table 88
Trunk model information (continued)

Mode	Pack	Model	Signaling	DIP or DTN	BIMP and TIMP
		7	GRD	DTN	3COM/900
		8	LOP	DTN	3COM/900
MUS	XUT	1			3COM/600
AWR	XUT	1			600/1200
RAN	XUT	1			600/1200
PAG	XUT	1	LDR	DIP	3COM/600
		2	OAD	DIP	3COM/600
		3	LDR	DTN	3COM/600
		4	OAD	DTN	3COM/600
		5	LDR	DIP	3COM/900
		6	OAD	DIP	3COM/900
		7	LDR	DTN	3COM/900
		8	OAD	DTN	3COM/900
	XEM	16	EAM	DIP	-/600
		17	EM4	DIP	-
		18	EAM	DTN	- /600
		19	EM4	DTN	-
FEX	XUT	1	GRD	DIP	3COM/600
		2	LOP	DIP	3COM/600
		3	GRD	DTN	3COM/600
		4	LOP	DTN	3COM/600
		5	GRD	DIP	3COM/900
		6	LOP	DIP	3COM/900
		7	GRD	DTN	3COM/900
		8	LOP	DTN	3COM/900

* These trunks are set for Wink start.

Model telephones

Note: OPS telephones do not have their own telephone models. You can, however, create OPS models by entering DD in response to the CDEN prompt in LD 10.

With the exception of the administration and CAP model telephones, the models are organized according to software packages, as follows:

Administration telephones

- M2008 - one model
- M2616 - one model

CAP telephones

- M2616 - one model
- M2216 - one model

General Business telephones

- M2000 telephones
  - M2317 - two models
  - M2009 - two models
  - M2112 - two models
  - M3006 - two models
  - M2018 - two models
- Analog (500/2500 type) telephones - seven models
- M2006 - five models
- M2008 - fifteen models
- M2616 - twelve models
- M2216 - two models.

Hotel and Motel telephones

- 500- and 2500-type telephones - one model
- M2006 - two models
- M2008 - two models
- M2616 - one model

Health Care telephones

- M2006 - one model
- M2008 - four models
- M2616 - two models.

This section provides model numbers for each telephone type, and tables showing the numbering and placement of the keys, and the feature assigned to each key.

Acronyms for Class of Service options are shown in Tables 89 through 91 for each telephone model in this section.

Table 89
Class of Service options - analog telephones

Prompt	Meaning
TLD	Toll Denied
HTA	Hunting Allowed
LNA	Last Number Redial Allowed
FNA	Call Forward No Answer Allowed
PUA	Pickup Allowed
XRA	Ring Again Allowed
MWA	Message Waiting Allowed

Table 90
Class of Service options - digital telephones

Prompt	Meaning
TLD	Toll Denied
AAD	Automatic Answerback Denied
ADD	Automatic Digit Display
HTA	Hunting Allowed
LNA	Last Number Redial Allowed
FNA	Call Forward No Answer Allowed
PUA	Pickup Allowed
XRA	Ring Again Allowed
MWA	Message Waiting Allowed

Table 91
Class of Service Options - ACD telephones

Prompt	Meaning
UNR	Unrestricted
AAD	Automatic Answerback Denied
ADD	Automatic Digit Display
HTA	Hunting Allowed
LNA	Last Number Redial Allowed
FND	Call Forward No Answer Allowed
PUD	Pickup Denied
MWA	Message Waiting Allowed

Administration telephones

M2008 model 99

Intended use: Administration (maintenance) telephone

Assigned Class of Service options:
MTA/ADD/LNA/FNA/GPUA/MWA/FBD

Key number position	Feature
7	Blank
6	Message
5	Transfer
4	Speed Call (personnel: 99)
3	Forward
2	Conference
1	DN
0	DN

M2616 model 99

Intended use: Administration (maintenance) telephone

Assigned Class of Service options:
MTA/LNA/FNA/GPUA/MWA/ADD//HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	-
Auto Dial	14	6	Message
Auto Dial	13	5	Transfer
Auto Dial	12	4	Ring Again
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Auto Dial	9	1	DN
Speed Call (personnel: 99)	8	0	DN

Central Answering Position (CAP) model telephones

M2616 and 2216 CAP telephone model 60

Intended use: Central Answering Position telephone

Assigned Class of Service options:
LNA/FND/GPUA/MWA/ADD/HFD/AGN/FBD/SPV

Feature	Key number position	Key number position	Feature
Hot *	15	7	-
Make Set Busy	14	6	DN
Display Waiting Calls	13	5	Park
Auto Dial	12	4	Override
Auto Dial	11	3	Add
Auto Dial	10	2	Consult/Join
Auto Dial	9	1	Extend
Auto Dial	8	0	ACD Queue (7700)

* This key is used as a Hotline to connect to the office paging system. Assign it with the paging route access code and define it when you activate the telephone.

Note: With the M2616 CAP you must use an ACD character display. In the system software, the Extend key is actually called a Transfer key, the Consult/Join key is called a Conference key, and the Add key is called a No Hold Conference key.

General business models

M2000 series telephones

The M2000 series telephones - M2112, M2018, M2317, M2009, and M3000 - are limited to a **combined total** of 128 model telephones. (In other words, there can be no more than a combined total of 128 different models for all the M2000 series telephones.)

It is up to you to make sure that the model associated with the telephone you are activating is pre-defined. You must select the model associated with the telephone or the telephone will not work.

M2317 model 20

Intended use: Two-line general business telephone with display

Assigned Class of Service options: FND/GPUA/LND/MWD/ADD/FBD

Feature	Key number position	Key number position	Feature
-	-	5	Auto Dial
Auto Dial	10	4	Auto Dial
Auto Dial	9	3	Auto Dial
Auto Dial	8	2	Auto Dial
Auto Dial	7	1	DN
Auto Dial	6	0	DN

Default features available using M2317 model 20 softkeys

Key number position	Feature
29	Language
28	Privacy Release
27	Ring Again
26	Transfer
25	Charge Account
24	Calling Party Number
23	Conference
17	Call Park

M2317 model 25

Intended use: Two-line general business telephone with message indication and display

Assigned Class of Service options: FNA/GPUA/LND/MWA/ADD/FBD

Feature	Key number position	Key number position	Feature
-	-	5	Auto Dial
AutoDial	10	4	Auto Dial
Auto Dial	9	3	Auto Dial
Auto Dial	8	2	Auto Dial
Auto Dial	7	1	DN
Auto Dial	6	0	DN

Default features available using M2317 model 25 softkeys

Key number position	Feature
29	Language
28	Privacy Release
27	Ring Again
26	Transfer
25	Charge Account
24	Calling Party Number
23	Conference
20	Message
17	Call Park

M2009 model 21

Intended use: Two-line general business telephone

Assigned Class of Service options: FND/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
8	Auto Dial
7	Auto Dial
6	Transfer
5	Ring Again
4	Pick Up
3	Call Forward
2	Conference
1	DN
0	DN

M2009 model 26

Intended use: Two-line general business telephones with message indication

Assigned Class of Service options: FNA/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
8	Auto Dial
7	Message
6	Transfer
5	Ring Again
4	Pick Up
3	Call Forward
2	Conference
1	DN
0	DN

M2112 model 22

Intended use: Two-line general business telephone

Assigned Class of Service options: FND/GPUA/LNA/MWA/NDD/FBD

Feature	Key number position	Key number position	Feature
-	-	5	Ring Again
Auto Dial	10	4	Pick Up
Auto Dial	9	3	Call Forward
Auto Dial	8	2	Conference
Transfer	7	1	DN
Speed Call	6	0	DN

M2112 model 27

Intended use: Two-line general business telephone with message indication

Assigned Class of Service options: FNA/GPUA/LNA/MWA/NDD/FBD

Feature	Key number position	Key number position	Feature
-	-	5	Ring Again
Auto Dial	10	4	Pick Up
Auto Dial	9	3	Call Forward
Message	8	2	Conference
Transfer	7	1	DN
Speed Call	6	0	DN

M2018 model 24

Intended use: Two-line general business telephone

Assigned Class of Service options: FND/GPUA/LNA/MWA/NDD/FBD

Feature	Key number position	Key number position	Feature
Auto Dial	17	8	Auto Dial
Auto Dial	16	7	Auto Dial
Auto Dial	15	6	Transfer
Auto Dial	14	5	Ring Again
Auto Dial	13	4	Pick Up
Auto Dial	12	3	Call Forward
Auto Dial	11	2	Conference
Auto Dial	10	1	DN
Auto Dial	9	0	DN

M2018 model 29

Intended use: Two-line general business telephone with message indication

Assigned Class of Service options: FNA/GPUA/LNA/MWA/NDD/FBD

Feature	Key number position	Key number position	Feature
Auto Dial	17	8	Auto Dial
Auto Dial	16	7	Message
Auto Dial	15	6	Transfer
Auto Dial	14	5	Ring Again
Auto Dial	13	4	Pick Up
Auto Dial	12	3	Call Forward
Auto Dial	11	2	Conference
Auto Dial	10	1	DN
Auto Dial	9	0	DN

500- and 2500-type telephones

Note: When you are activating a 500-type telephone, you must use a 2500-type telephone to define the features. When you have done this, unplug the 2500-type telephone and replace it with the 500-type telephone that you are activating.

500- and 2500-type telephones model 20

Type of telephone: Support staff telephone with toll denied

Intended use: Business telephone

Assigned Class of Service options:
TLD/C6A/CFXD/DTN/FND/GPUA/LNA/XFA/XRA/FBD

500- and 2500-type telephones model 21

Type of telephone: Support staff telephone

Intended use: Business telephone

Assigned Class of Service options:
UNR/C6A/CFXD/DTN/FND/GPUA/LNA/XFA/XRA/FBD

500- and 2500-type telephones model 22

Type of telephone: Support staff telephone with message indication lamp

Intended use: Business telephone

Assigned Class of Service options:
MWA/TLD/C6A/CFXD/DTN/FNA/GPUA/LNA/XFA/XRA/FBD/LPA

500- and 2500-type telephones model 23

Type of telephone: Support staff telephone with message indication lamp

Intended use: Business telephone

Assigned Class of Service options:
MWA/UNR/C6A/CFXD/DTN/FNA/GPUA/LNA/XFA/XRA/FBD/LPA

500- and 2500-type telephones model 24

Type of telephone: Support staff telephone with message indication and no lamp

Intended use: Business telephone

Assigned Class of Service options:
MWA/TLD/C6A/CFXD/DTN/FNA/GPUA/LNA/XFA/XRA/FBD/LPD

500- and 2500-type telephones model 25

Type of telephone: Support staff with message indication and no lamp

Intended use: Business telephone

Assigned Class of Service options:
MWA/UNR/C6A/CFXD/DTN/FNA/GPUA/LNA/XFA/XRA/FBD/LPD

500- and 2500-type telephones model 26

Type of telephone: Courtesy telephone

Intended use: House telephone

Assigned Class of Service options: MNL/TLD

Hotel and Motel telephone models

500- and 2500-type telephones

Note: When you are activating a 500-type telephone, you must use a 2500-type telephone to define the features. When you have done this, unplug the 2500-type telephone and replace it with the 500-type telephone that you are activating.

500- and 2500-type telephone model 40

Type of telephone: Guest room telephone
Intended use: Guest calls
Assigned Class of Service options: CCSA/MWA/DTN

Health care telephone models

500- and 2500-type telephones

Note: When you are activating a 500-type telephone, you must use a 2500-type telephone to define the features. When you have done this, unplug the 2500-type telephone and replace it with the 500-type telephone that you are activating.

500- and 2500-type telephone model 50

Type of telephone: Nurses station telephone with speed call
Intended use: Health care telephone
Assigned Class of Service options: FND/LNA/GPUA/MWA/FBD

500- and 2500-type telephone model 51

Type of telephone: Nurses station telephone with message and speed call
Intended use: Health care telephone
Assigned Class of Service options: FNA/LNA/GPUA/MWA/NDD/FBD

500- and 2500-type telephone model 52

Type of telephone: Nurses station telephone with speed call and display
Intended use: Health care telephone
Assigned Class of Service options: FND/LNA/GPUA/MWA/ADD/FBD

500- and 2500-type telephone model 53

Type of telephone: Nurses station set with message, speed call and display
Intended use: Health care telephone
Assigned Class of Service options: FNA/LNA/GPUA/MWA/ADD/FBD

M2006 model 20

Intended use: General business telephone
Assigned Class of Service options: FND/GPUA/LNA/MWA/FBD/UNR

Key number position	Feature
5	Transfer
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2006 model 21

Intended use: General business telephone with message indicator
Assigned Class of Service options: FNA/GPUA/LNA/MWA/FBD/UNR

Key number position	Feature
5	Message
4	Transfer
3	Pick-Up
2	Forward
1	Conference
0	DN

M2006 model 22

Intended use: General business telephone with message indication and speed call

Assigned Class of Service options: FNA/GPUA/LNA/MWA/FBD/UNR

Key number position	Feature
5	Message
4	Speed Call
3	Pick-Up
2	Forward
1	Conference
0	DN

M2006 model 23

Intended use: General business telephone

Assigned Class of Service options: FND/GPUA/LNA/MWA/FBD/TLD

Key number position	Feature
5	Transfer
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2006 model 24

Intended use: General business telephone with message indicator
Assigned Class of Service options: FNA/GPUA/LNA/MWA/FBD/TLD

Key number position	Feature
5	Message
4	Transfer
3	Pick-Up
2	Forward
1	Conference
0	DN

M2006 model 25

Intended use: General business telephone with message indication and speed call
Assigned Class of Service options: FNA/GPUA/LNA/MWA/FBD/TLD

Key number position	Feature
5	Message
4	Speed Call
3	Pick-Up
2	Forward
1	Conference
0	DN

M2006 model 40

Intended use: Hotel guest room telephone without message indication
Assigned Class of Service options: CCSA/MWA/FBD/CNDD/TLD/FND

Key number position	Feature
5	Hot *
4	Hot *
3	Hot *
2	Hot *
1	Hot *
0	DN

* These keys are Hotlines to various Hotel and Motel services, such as Room service, and the front desk. You define them when you activate the telephone.

M2006 model 41

Intended use: Hotel guest room telephone with message indication
Assigned Class of Service options: CCSA/MWA/FBD/FNA/CNDD/TLD

Key number position	Feature
5	Message
4	Hot *
3	Hot *
2	Hot *
1	Hot *
0	DN

* These keys are Hotlines to various Hotel and Motel services, such as Room service, and the front desk. You define them when you activate the telephone.

M2006 model 50

Intended use: Nurses station telephone with speed call
Assigned Class of Service options: FND/LNA/GPUA/MWA/FBD

Key number position	Feature
5	Speed Call (personnel: 20)
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 20

Intended use: General business telephone
Assigned Class of Service options: FND/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
7	Auto Dial
6	Auto Dial
5	Transfer
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 21

Intended use: General business telephone with message indication
Assigned Class of Service options: FNA/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
7	Auto Dial
6	Message
5	Transfer
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 22

Intended use: General business telephone with display
Assigned Class of Service options: FND/GPUA/LNA/MWA/ADD/FBD

Key number position	Feature
7	-
6	Auto Dial
5	Transfer
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 23

Intended use: General business set with message indication and display
Assigned Class of Service options: FNA/GPUA/LNA/MWA/ADD/FBD

Key number position	Feature
7	-
6	Message
5	Transfer
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 24

Intended use: Two-line general business telephone
Assigned Class of Service options: FND/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
7	Auto Dial
6	Transfer
5	Ring Again
4	Pick-Up
3	Forward
2	Conference
1	DN
0	DN

M2008 model 25

Intended use: Two-line general business telephone with message indication
Assigned Class of Service options: FNA/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
7	Auto Dial
6	Message
5	Transfer
4	Pick-Up
3	Forward
2	Conference
1	DN
0	DN

M2008 model 26

Intended use: Two-line general business telephone with display
Assigned Class of Service options: FND/GPUA/LNA/MWA/ADD/FBD

Key number position	Feature
7	-
6	Transfer
5	Ring Again
4	Pick-Up
3	Forward
2	Conference
1	DN
0	DN

M2008 model 27

Intended use: 2-line gen. business set with message indication and display
Assigned Class of Service options: FNA/GPUA/LNA/MWA/ADD/FBD

Key number position	Feature
7	-
6	Message
5	Transfer
4	Pick-Up
3	Forward
2	Conference
1	DN
0	DN

M2008 model 28

Intended use: Two-line general business telephone
Assigned Class of Service options: FND/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
7	Auto Dial
6	Auto Dial
5	Auto Dial
4	Auto Dial
3	Forward
2	Conference
1	DN
0	DN

M2008 model 30

Intended use: Manager telephone
Assigned Class of Service options: FND/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
7	Transfer
6	Voice Call
5	Speed Call (personnel: 20)
4	Ring Again
3	Forward
2	Conference
1	DN
0	DN

M2008 model 31

Intended use: Manager telephone with message indication
Assigned Class of Service options: FNA/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
7	Voice Call
6	Message
5	Speed Call (personnel: 20)
4	Ring Again
3	Forward
2	Conference
1	DN
0	DN

M2008 model 32

Intended use: Manager telephone with display
Assigned Class of Service options: FND/GPUA/LNA/MWA/ADD/FBD

Key num.ber position	Feature
7	-
6	Voice Call
5	Speed Call (personnel: 20)
4	Ring Again
3	Forward
2	Conference
1	DN
0	DN

M2008 model 33

Intended use: Manager telephone with display and message indication
Assigned Class of Service options: FNA/GPUA/LNA/MWA/ADD/FBD

Key number position	Feature
7	-
6	Message
5	Voice Call
4	Speed Call (personnel: 20)
3	Forward
2	Conference
1	DN
0	DN

M2008 model 40

Intended use: Two-line guest room telephone
Assigned Class of Service options: CCSA/MWA/FBD/CNDD/FND/TLD

Key number position	Feature
7	Hot *
6	Hot *
5	Hot *
4	Hot *
3	Hot *
2	Hot *
1	DN
0	DN

* These keys are Hotlines to various Hotel and Motel services, such as Room service, and the front desk. You define them when you activate the telephone.

M2008 model 41

Intended use: Two-line guest room telephone with message indication
Assigned Class of Service options: CCSA/MWA/FBD/FNA/CNDD/TLD

Key number position	Feature
7	Message
6	Hot *
5	Hot *
4	Hot *
3	Hot *
2	Hot *
1	DN
0	DN

* These keys are Hotlines to various Hotel and Motel services, such as Room service, and the front desk. You define them when you activate the telephone.

M2008 model 50

Intended use: Nurses station telephone with speed call
Assigned Class of Service options: FND/LNA/GPUA/MWA/NDD/FBD

Key number position	Feature
7	Auto Dial
6	Transfer
5	Speed Call
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 51

Intended use: Nurses station telephone with message and speed call
Assigned Class of Service options: FNA/LNA/GPUA/MWA/NDD/FBD

Key number position	Feature
7	Auto Dial
6	Message
5	Speed Call
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 52

Intended use: Nurses station telephone with speed call and display
Assigned Class of Service options: FND/LNA/GPUA/MWA/ADD/FBD

Key number position	Feature
7	-
6	Auto Dial
5	Speed Call
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 53

Intended use: Nurses station set with message, speed call and display
Assigned Class of Service options: FNA/LNA/GPUA/MWA/ADD/FBD

Key number position	Feature
7	-
6	Message
5	Speed Call
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 60

Intended use: Message center telephone
Assigned Class of Service options: FND/GPUA/LNA/MWA/NDD/FBD

Key number position	Feature
7	Message Cancellation
6	Message Indication
5	Speed Call (personnel: 20)
4	Ring Again
3	Forward
2	Conference
1	DN
0	DN

M2008 model 61

Intended use: Message center telephone with display
Assigned Class of Service options: FND/GPUA/LNA/MWA/ADD/FBD

Key number position	Feature
7	-
6	Message Cancellation
5	Message Indication
4	Speed Call (personnel: 20)
3	Forward
2	Conference
1	DN
0	DN

M2216 model 20

Intended use: ACD agent with display
Assigned Class of Service options: LNA/FND/GPUA/MWA/ADD/FBD

Feature	Key number position	Key number position	Feature
Auto Dial	15	7	-
Auto Dial	14	6	Transfer
Auto Dial	13	5	Speed Call
Auto Dial	12	4	Forward
Auto Dial	11	3	Conference
Auto Dial	10	2	Make Set Busy
ACD calls waiting	9	1	Not Ready
DN	8	0	ACD DN (7750)

M2216 model 30

Intended use: ACD supervisor with display
Assigned Class of Service options: LNA/FND/GPUA/MWA/ADD/FBD

Feature	Key number position	Key number position	Feature
Auto Dial	15	7	-
Auto Dial	14	6	Transfer
Auto Dial	13	5	Speed Call
Auto Dial	12	4	Forward
Auto Dial	11	3	Conference
Display Agents	10	2	Make Set Busy
Display Queue	9	1	Not Ready
DN	8	0	ACD DN (7750)

M2616 model 20

Intended use: Secretary telephone with display

Assigned Class of Service options:
LNA/FND/GPUA/MWA/ADD/HFA/FBD

Feature	Key number position	Key number position	Feature
Auto Dial	15	7	-
Auto Dial	14	6	Speed Call (personnel: 20)
Auto Dial	13	5	Transfer
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Auto Dial	9	1	DN
Auto Dial	8	0	DN

M2616 model 21

Intended use: Secretary telephone with display and message indication
Assigned Class of Service options:
LNA/FNA/GPUA/MWA/ADD/HFD/FBD

Feature	Key number position	Key number position	Feature
Auto Dial	15	7	-
Auto Dial	14	6	Message
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Speed Call (personnel: 20)
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Auto Dial	9	1	DN
Transfer	8	0	DN

M2616 model 22

Intended use: Advanced business telephone
Assigned Class of Service options:
LNA/FND/GPUA/MWA/NDD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	Transfer
Auto Dial	14	6	Speed Call
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Auto Dial	9	1	DN
Auto Dial	8	0	DN

M2616 model 23

Intended use: Advanced business telephone with message indication
Assigned Class of Service options:
LNA/FNA/GPUA/MWA/NDD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	Speed Call
Auto Dial	14	6	Message
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Auto Dial	9	1	DN
Transfer	8	0	DN

M2616 model 24

Intended use: Advanced business telephone with display
Assigned Class of Service options:
LNA/FND/GPUA/MWA/ADD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	-
Auto Dial	14	6	Speed Call
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Auto Dial	9	1	DN
Transfer	8	0	DN

M2616 model 25

Intended use: Advanced business telephone with message indication and display
Assigned Class of Service options:
LNA/FNA/GPUA/MWA/ADD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	-
Auto Dial	14	6	Message
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Transfer	9	1	DN
Speed Call	8	0	DN

M2616 model 30

Intended use: Manager telephone
Assigned Class of Service options:
LNA/FND/GPUA/MWA/NDD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	Transfer
Auto Dial	14	6	Speed Call (personnel: 20)
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Auto Dial	9	1	DN
Voice Call	8	0	DN

M2616 model 31

Intended use: Manager telephone with message indication
Assigned Class of Service options:
LNA/FNA/GPUA/MWA/NDD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	Speed Call (personnel: 20)
Auto Dial	14	6	Message
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Voice Call	9	1	DN
Transfer	8	0	DN

M2616 model 32

Intended use: Manager telephone with display
Assigned Class of Service options:
LNA/FND/GPUA/MWA/ADD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	-
Auto Dial	14	6	Speed Call (personnel: 20)
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Voice Call	9	1	DN
Transfer	8	0	DN

M2616 model 33

Intended use: Manager telephone with message indication and display
Assigned Class of Service options:
LNA/FNA/GPUA/MWA/ADD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	-
Auto Dial	14	6	Message
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Voice Call	10	2	Conference
Transfer	9	1	DN
Speed Call (personnel: 20)	8	0	DN

M2616 model 40

Intended use: Front desk console with display
Assigned Class of Service options:
LNA/FND/GPUA/MWA/ADD/CNDA/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	-
Hot *	14	6	Speed Call (personnel: 20)
Control Class of Service	13	5	Ring Again
Message Registration	12	4	Pick-Up
Room Status	11	3	Forward
Message Cancellation	10	2	Conference
Message Indication	9	1	DN
Transfer	8	0	DN

* These keys are Hotlines to various Hotel and Motel services, such as Room service, and the front desk. You define them when you activate the telephone.

M2616 model 50

Intended use: Nurses station telephone
Assigned Class of Service options:
LNA/FND/GPUA/MWA/NDD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	Transfer
Auto Dial	14	6	Speed Call (personnel: 20)
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Hot *	9	1	DN
Group Call - Group 0 **	8	0	DN

* These keys are Hotlines to various Hotel and Motel services, such as Room service, and the front desk. Define them when you activate the set.

** Although group 0 is pre-defined in LD 18, you must assign extensions for this group when the telephones have been installed.

M2616 model 51

Intended use: Nurses station telephone with display
Assigned Class of Service options:
LNA/FND/GPUA/MWA/ADD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	Speed Call (personnel: 20)
Auto Dial	14	6	-
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Hot *	10	2	Conference
Group Call - Group 0 **	9	1	DN
Transfer	8	0	DN

* These keys are Hotlines to various Hotel and Motel services, such as Room service, and the front desk. You define them when you activate the telephone.

** Although group 0 is pre-defined in LD 18, you must assign extensions for this group when the telephones have been installed.

M2616 model 61

Intended use: Message center telephone
Assigned Class of Service options:
LNA/FND/GPUA/MWA/NDD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	Transfer
Auto Dial	14	6	Speed Call (personnel: 20)
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Message Cancellation	9	1	DN
Message Indication	8	0	DN

M2616 model 62

Intended use: Message center telephone with display
Assigned Class of Service options:
LNA/FND/GPUA/MWA/ADD/HFA/FBD

Feature	Key number position	Key number position	Feature
-	15	7	-
Auto Dial	14	6	Speed Call (personnel: 20)
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Message Cancellation	10	2	Conference
Message Indication	9	1	DN
Transfer	8	0	DN

Appendix D – Preprogrammed data for the United Kingdom

General information

When an Option 11C Mini system is initially installed, customer data must be entered into the overlay programs. Telephones, for example, must be assigned features on their keys to allow them to function correctly.

The NTDK97 Mini System Controller (MSC) card can be preprogrammed with customer data. If you load preprogrammed data into the system during the Installation programs, some overlay entries are automatically configured on the telephones. For example, you can select a telephone model that has predetermined feature and key assignments and a preassigned Class of Service. Preprogrammed data can save you time if you have to program several types of telephone models.

Preprogrammed data is not mandatory for software installation. The MSC card can be programmed with the minimum number of files to allow the Option 11C Mini to operate.

Default numbering plan

There are two default numbering plans for the Option 11C Mini system: one for the business software package and one for the hotel software package.

Business package numbering plan

The table below shows the default numbering plan used with the Option 11C Mini business software packages.

Function	Code or extension(s)	Comments
Special prefix code	12	Used instead of FFCs by rotary dial telephones to access system features
Engineering route access codes	1500-1599	—
Call pack extensions	1800-1849	—
Pilot extension numbers	2000, 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090	—
Internal extension numbers	2200-2998	Extension number range must be 4-digit. Default extensions can be changed using the spare numbers (3000-5999).
Night bell	2999	Night calls are answered with “*8”
Spare extension numbers	3000-5999	—
CAP queue	6700	—
Meridian Mail numbering range	7000-7099	—
TIE line access	710-723	A 2-digit range (71, 72, 73, 74, 76, 77, 79) can be configured in the default package.
Future use	8000-8999	Reserved for network access extensions
Public exchange access	9	—

Operator access	0	—

Hotel package numbering plan

The Table below shows the default numbering plan used with the Option 11C Mini hotel software package.

Function	Code or extension(s)	Comments
Special prefix code	19	Used instead of FFCs by rotary dial telephones to access system features
Engineering route access codes	1500-1598	—
Call pack extensions	1800-1849	—
Numbering range for Guests	100 to 149, 200 to 699	Extension numbers for guest rooms
Single digit access	1 to 8 (to dial 871 to 878)	Guests can dial one number to access a predetermined extension. Example: dialing “1” accesses the extension “871”
Meridian Mail numbering range	7000-7099	—
TIE line access	710-723	A 2-digit range (71, 72, 73, 74, 76, 77, 79) can be configured in the default package
Numbering range for Administration	800 to 870, (871 to 878)	Numbers in brackets can be accessed by dialing a single digit (1 to 8)
Pilot extension numbers	851 to 850	—
Night bell	899	—
Operator overflow position	898	—
Message centre	897	—
Public exchange access	9	—

Operator access	0	—

Trunk routes

The following trunk route types are preprogrammed in the system data for the UK: Exchange lines (COT), TIE lines (TIE), Music trunks (MUS), and Paging trunks (PAG).

RAN routes

Recorded Announcement (RAN) routes are not programmed into the default packages, but can be manually programmed on systems using business software packages. RAN capability is not available to systems using the hotel software package.

Preprogrammed trunk route summary

The Table below shows the preprogrammed trunk route information that you need on hand to activate and modify trunks. When a trunk route is selected, a number of valuesin LD 16 default..

UK preprogrammed trunk routes summary

Route	Type	Access code (see note)	Mode
Exchange lines:			
00	COT	1500	IAO (Bothway)
01	COT	1501	IAO (Bothway)
02	COT	1502	ICT (Incoming)
03	COT	1503	ICT (Incoming)
04	COT	1504	OGT (Outgoing)
05	COT	1505	OGT (Outgoing)
10	DID	1510	
11	DID	1511	
12	DID	1512	

UK preprogrammed trunk routes summary

Route	Type	Access code (see note)	Mode
TIE lines:			
20	TIE (AC15)	710	
21	TIE (AC15)	711	
22	TIE (AC15)	712	
23	TIE (AC15)	713	
24	TIE (AC15)	714	
25	TIE (AC15)	715	
26	TIE (AC15)	716	
27	TIE (AC15)	717	
28	TIE (AC15)	718	
29	TIE (AC15)	719	
30	TIE (4-W	720	
31	E&M) TIE (4-W E&M)	721	
32	TIE (2-W	722	
33	E&M) TIE (2-W E&M)	723	
Music trunk:			
50	MUS	1550	
Paging trunk:			
60	PAG	1560	

Note: Exchange line, Music and Paging access codes are Engineering access codes. Tie line access codes are customer access codes.

Trunk models

A trunk model is selected when a trunk is activated. Trunk characteristics, such as signaling, dial tone, and dial pulse, are programmed into a trunk model. Each defined trunk route has at least one default trunk model associated with it.

UK trunk models summary

The following table shows the trunk models that are available with the Option 11C Mini system. When a trunk model is selected, a number of values are automatically default in LD 14.

UK trunk model summary

Mode	Model	Signaling	Description
COT	1	DTN	Earth calling exchange line with DTMF dialing
	2	DIP	Earth calling exchange line with loop disconnect dialing
	3	DTN	Direct Inward System Access (DISA)
DID	11	DIP	Direct Dialling In (DDI) with loop disconnect dialing
	12	DTN	Direct Dialling In (DDI) with DTMF dialing
TIE	21	DTN	AC-15A TIE line with DTMF dialing
	22	DIP	AC-15A TIE line with loop disconnect dialing
	23	E&M	4-Wire E&M TIE trunk
	24	E&M	2-Wire E&M trunk
MUS	31	DIP	Music Interface trunk
PAG	32	DIP	Paging interface trunk

UK telephone model sets

A distinct feature of the Option 11C Mini system is telephone model sets, which are also known as feature templates.

Telephone model sets are preprogrammed telephone configurations. When a model is selected for a telephone, a complete set of features and key assignments are automatically downloaded to the telephone.

Each telephone type (for example, M2006, M2008) has a number of models sets associated with it. Model sets are identified by a model set number.

How to use telephone model sets

For each telephone extension at a customer site, select the model number that best meets the requirements of the user. Include the model number in the CRF forms on the Customer Extension Information Sheet.

Assign the model to the telephone during the telephone activation procedure. See “Chapter 17 — Connecting the telephones” on page 289.

Telephone model set customization

If you are not satisfied with the telephone models available in the default database, you can create telephone models using one of the existing model sets as a base. Assign a new model set number to each of the telephone model sets you create. See “Appendix E – Changing preprogrammed data” on page 551.

Digital telephone model sets

Models are available for M2006, M2008, M2616, and M2216 digital telephones. Unless otherwise indicated, all digital telephones have the following features:

- Automatic hold
- Automatic Digit Display (telephones with displays only)
- Call Party Name Display (telephones with displays only)
- Ringing Number Pick-up
- Directory Number Pick-up
- Group Pick-up
- Last Number Redial

Note: Any features not referred to in this chapter are assigned default values.

In addition, each telephone model set:

- can receive Direct Dialing Inward (DDI) calls
- has at least one DN —the primary DN. Some models have a second or even a third DN.
- is allocated to Pick-up Group 1 (unless specified otherwise)

M2006 telephone model set matrix

The following matrix shows the model sets and features available for the M2006 telephone. Each model set is described on the pages that follow.

A check mark (Ð) indicates that a model is equipped with a certain feature.

Table 92
Matrix for the M2008 telephone model

	M2006 Model sets											
Feature	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
Autodial												
Buzz												
Call Forward	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
Call Park												
Call Pick-up	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
Call Transfer												
Conference	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
Display												
Display Waiting Calls												
Handsfree												
In Calls												
Ind. Speed Call												
Ind. Speed Call User												
Make Set Busy												
Message Waiting										Ð	Ð	Ð
Override												
Prime DN	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð

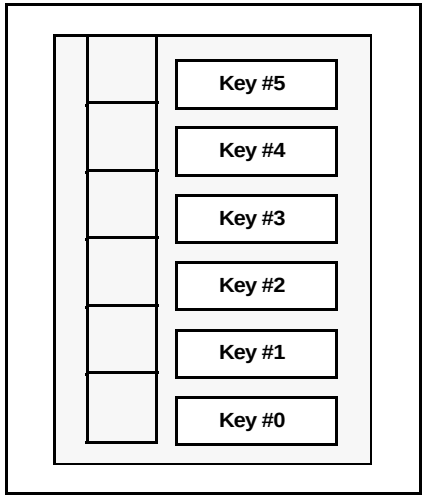
Table 92
Matrix for the M2008 telephone model (Continued)

	M2006 Model sets											
Feature	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
Program												
Ring Again	Đ	Đ	Đ				Đ	Đ	Đ			
Save				Đ	Đ	Đ	Đ	Đ	Đ			
Secondary DN												
Sys. Speed Call Cont												
Sys. Speed Call User	Đ	Đ	Đ	Đ	Đ	Đ				Đ	Đ	Đ
Third DN												
NCOS 2			Đ			Đ			Đ			Đ
NCOS 3		Đ			Đ			Đ			Đ	
NCOS 7	Đ			Đ			Đ			Đ		
CFNA										Đ	Đ	Đ
FDN 7000										Đ	Đ	Đ
HFA										Đ	Đ	Đ

Descriptions of the M2006 telephone model

In the model set descriptions below, M2006 key numbering is as follows:

Figure 82
M2006 key numbering



M2006 model 20

Intended use: General business telephone
Class of Service: NCOS 7—Unrestricted

Model 20 is a general purpose telephone that allows unrestricted access to the public exchange. The user has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
5	Conference (A06)
4	Ring Again (RGA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2006 model 21

Intended use: General business telephone
Class of service: NCOS 3—Code restricted (TLD)

Model 21 is a general purpose business telephone which allows access to the public exchange but is restricted to dialing national numbers only. The user also has access to the system speed call list which, if configured, will contain frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
5	Conference (A06)
4	Ring Again (RGA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2006 model 22

Intended use: General business telephone
Class of service: NCOS 2—Code restricted (TLD)

M2006 model 22 is a general purpose business telephone which allows access to the public exchange but is restricted to dialing local 0800 and 0345 numbers. The user also has access to the system speed call list which, if configured, will contain frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
5	Conference (A06)
4	Ring Again (RGA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2006 model 23

Intended use: General business telephone
Class of service: NCOS 7—Unrestricted (UNR)

M2006 model 23 is a general purpose business telephone which allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, will contain frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
5	Conference (A06)
4	Save (RDL 16)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2006 model 24

Intended use: General business telephone
Class of service: NCOS 3—Code restricted (TLD)

M2006 model 24 is a general purpose business telephone which allows access the to the exchange but is restricted to dialing national numbers only. The user also has access to the system speed call list which, if configured, will contain frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
5	Conference (A06)
4	Save (RDL 16)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2006 model 25

Intended use: General business telephone
Class of service: NCOS 2—Code restricted (TLD)

M2006 model 25 is a general purpose business set which allows access to the public exchange but is restricted to dialing local 0800 and 0345 numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
5	Conference (A06)
4	Save (RDL 16)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2006 model 26

Intended use: General business telephone
Class of service: NCOS 7—Unrestricted (UNR)

M2006 model 26 is a general purpose business telephone that allows unrestricted access to the public exchange.

Key number	Feature
5	Conference (A06)
4	Ring Again (RGA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	Save (RDL 16)
0	Prime DN (SCR)

M2006 model 27

Intended use: General business telephone
Class of service: NCOS 3—Code restricted (TLD)

M2006 model 27 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers only.

Key number	Feature
5	Conference (A06)
4	Ring Again (RGA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	Save (RDL 16)
0	Prime DN (SCR)

M2006 model 28

Intended use: General business telephone
Class of service: NCOS 2—Code restricted (TLD)

M2006 model 28 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing local 0800 and 0345 numbers.

Key number	Feature
5	Conference (A06)
4	Ring Again (RGA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	Save (RDL 16)
0	Prime DN (SCR)

M2006 model 29

Intended use: General business telephone with Meridian Mail
Class of service: NCOS 7—Unrestricted (UNR), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2006 model 29 is a general purpose business telephone that allows unrestricted access to the public exchange. The user has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature
5	Conference (A06)
4	Message Waiting (MWK 7000)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2006 model 30

Intended use: General business telephone with Meridian Mail
Class of service: NCOS 3—Code restricted (TLD), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2006 model 30 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature
5	Conference (A06)
4	Message Waiting (MWK 7000)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2006 model 31

Intended use: General business telephone with Meridian Mail
Class of service: NCOS 2—Code restricted (TLD), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2006 model 31 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing local 0800 and 0345 numbers. The user also has access to the system speed call list, which, if configured, will contain frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature
5	Conference (A06)
4	Message Waiting (MWK 7000)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2008 telephone model set matrix

The matrix on the next page shows the model sets and features available for the M2008 telephone. Each model set is described on the pages following the matrix.

A check mark (Đ) indicates that a model is equipped with a certain feature.

Table 93
M2616 telephone model set matrix

	M2008 Model sets											
Feature	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
Autodial	Đ	Đ			Đ	Đ						
Buzz												
Call Forward	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ
Call Park												
Call Pick-up	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ				
Call Transfer												
Conference	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ
Display												
Display Waiting Calls												
Handsfree												
In Calls												
Ind. Speed Call Cont									Đ	Đ	Đ	Đ
Ind. Speed Call User												
Make Set Busy												
Message Waiting									Đ	Đ		
Override												
Prime DN	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ

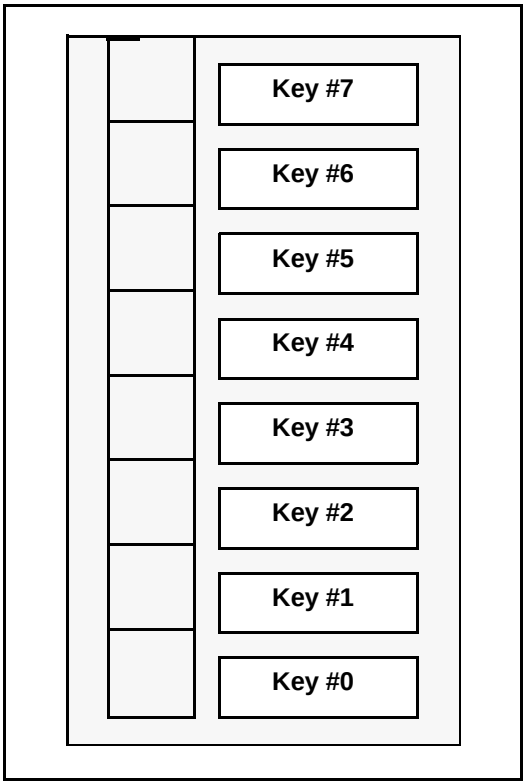
Table 93
M2616 telephone model set matrix (Continued)

	M2008 Model sets											
Feature	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
Program	Đ	Đ	Đ	Đ					Đ	Đ	Đ	Đ
Ring Again	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ
Save					Đ	Đ	Đ	Đ				
Secondary DN			Đ	Đ			Đ	Đ	Đ	Đ	Đ	Đ
Sys. Speed Call Cont												
Sys. Speed Call User	Đ	Đ	Đ	Đ	Đ	Đ	Đ			Đ	Đ	Đ
Third DN												
NCOS 2												
NCOS 3		Đ		Đ		Đ		Đ		Đ		Đ
NCOS 7	Đ		Đ		Đ		Đ		Đ		Đ	
CFNA									Đ	Đ		
FDN 7000									Đ	Đ		
HFA												

M2008 telephone model set descriptions

In the model set descriptions that follow, M2008 key numbering is as shown below:

Figure 83
M2008 key numbering



M2008 model 20

Intended use: General business telephone with display
Class of service: NCOS 7—Unrestricted (UNR)

M2008 model 20 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently called numbers in the form of abbreviated code.

Key number	Feature
7	Program
6	Autodial
5	Conference (A06)
4	Ring Again (GRA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2008 model 21

Intended use: General business telephone with display
Class of service: NCOS 3—Code restricted

M2008 model 21 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
7	Program
6	Autodial
5	Conference (A06)
4	Ring Again (GRA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2008 model 22

Intended use: General business telephone with display and 2 DNs
Class of service: NCOS 7—Unrestricted

M2008 model 22 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
7	Program
6	System Speed Call (SSU 10)
5	Conference (A06)
4	Ring Again (GRA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	Secondary DN (SCR)
0	Prime DN (SCR)

M2008 model 23

Intended use: General business telephone with display and 2 DNs
Class of service: NCOS 3—Code restricted

M2008 model 23 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
7	Program
6	System Speed Call (SSU 10)
5	Conference (A06)
4	Ring Again (GRA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	Secondary DN (SCR)
0	Prime DN (SCR)

M2008 model 24

Intended use: General business telephone
Class of service: NCOS 7—Unrestricted

M2008 model 24 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
7	Conference (A06)
6	Autodial (ADL 16)
5	Save (RDL 16)
4	Ring Again (GRA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2008 model 25

Intended use: General business telephone
Class of service: NCOS 3—Code restricted

M2008 model 25 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
7	Conference (A06)
6	Autodial (ADL 16)
5	Save (RDL 16)
4	Ring Again (GRA)
3	Call Pick-up (RNP)
2	Call Forward (CFW 4)
1	System Speed Call (SSU 10)
0	Prime DN (SCR)

M2008 model 26

Intended use: General business telephone with 2 DNs
Class of service: NCOS 7—Unrestricted

M2008 model 26 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
7	Conference (A06)
6	Save (RDL 16)
5	Ring Again (GRA)
4	Call Pick-up (RNP)
3	Call Forward (CFW 4)
2	System Speed Call (SSU 10)
1	Secondary DN (SCR)
0	Prime DN (SCR)

M2008 model 27

Intended use: General business telephone with 2 DNs
Class of service: NCOS 3—Code restricted (TLD)

M2008 model 27 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
7	Conference (A06)
6	Save (RDL 16)
5	Ring Again (GRA)
4	Call Pick-up (RNP)
3	Call Forward (CFW 4)
2	System Speed Call (SSU 10)
1	Secondary DN (SCR)
0	Prime DN (SCR)

M2008 model 28

Intended use: Manager's telephone used with Meridian Mail, has a display and 2 DNs
Class of service: NCOS 7—Unrestricted, Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2008 model 28 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature
7	Program
6	Message Waiting (MWK 7000)
5	Ring Again (GRA)
4	Individual Speed Call (SCC)
3	Call Forward (CFW 4)
2	Conference (A06)
1	Secondary DN (SCR)
0	Prime DN (SCR)

M2008 model 29

Intended use: Manager's telephone used with Meridian Mail, has a display and 2 DNs
Class of service: NCOS 3—Code restricted, Call Forward No Answer Allowed (FNA) to Flexible Directory Number (FDN) 7000

M2008 model 29 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature
7	Program
6	Message Waiting (MWK 7000)
5	Ring Again (GRA)
4	Individual Speed Call (SCC)
3	Call Forward (CFW 4)
2	Conference (A06)
1	Secondary DN (SCR)
0	Prime DN (SCR)

M2008 model 30

Intended use: Managers telephone with display and 2 DNs
Class of service: NCOS 7—Unrestricted (UNR)

M2008 model 30 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature
7	Program
6	System Speed Call (SSU 10)
5	Ring Again (GRA)
4	Call Forward (CFW 4)
3	Individual Speed Call (SCC)
2	Conference (A06)
1	Secondary DN (SCR)
0	Prime DN (SCR)

M2008 model 31

Intended use: Manager's telephone with display and 2 DNs
Class of service: NCOS 3—Code restricted (TLD)

M2008 model 31 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

M2008 model 31 has the following key layout:

Key number	Feature
7	Program
6	System Speed Call (SSU 10)
5	Ring Again (GRA)
4	Call Forward (CFW 4)
3	Individual Speed Call (SCC)
2	Conference (A06)
1	Secondary DN (SCR)
0	Prime DN (SCR)

M2616 telephone model set matrix

The matrix on the next page shows the model sets and features available for the M2616 telephone. A check mark (Ð) indicates that a model is equipped with a certain feature.

Models 40 and 60 do not appear in the matrix. Model 40 is a special model designed for use in hotels, model 60 is designed to act as the Central Answering Position. Both models are described later in this section.

Table 94
M2616 telephone model set matrix

	M2616 Model sets															
Feature	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Autodial	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
Buzz									Ð	Ð	Ð	Ð				
Call Forward	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
Call Park																
Call Pick-up	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð					Ð	Ð	Ð	Ð
Call Transfer	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
Conference	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
Display					Ð	Ð			Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
Display Waiting Calls																
Handsfree					Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
In Calls																
Ind. Speed Call Cont	Ð	Ð	Ð	Ð	Ð	Ð										
Ind. Speed Call User									Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð
Make Set Busy																
Message Waiting			Ð	Ð			Ð	Ð			Ð	Ð			Ð	Ð

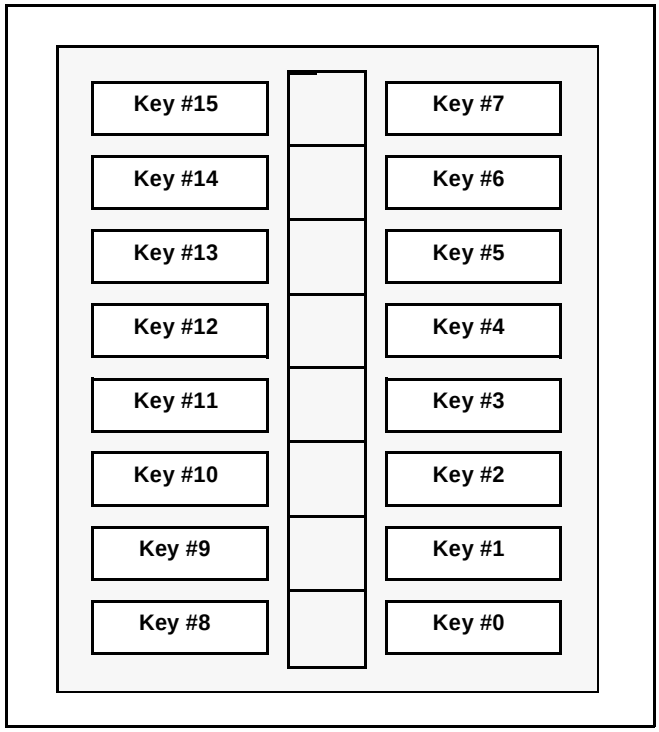
Table 94
M2616 telephone model set matrix (Continued)

	M2616 Model sets															
Feature	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Override																
Prime DN	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ
Program	Đ	Đ	Đ	Đ	Đ	Đ			Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ
Ring Again	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ
Save	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ			Đ	Đ	Đ	Đ
Secondary DN	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ
Sys. Speed Call Cont																
Sys. Speed Call User	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ
Third DN																
NCOS 2																
NCOS 3		Đ		Đ		Đ		Đ		Đ		Đ		Đ		Đ
NCOS 7	Đ		Đ		Đ		Đ		Đ		Đ		Đ		Đ	
CFNA			Đ	Đ			Đ	Đ			Đ	Đ			Đ	
FDN 7000			Đ	Đ			Đ	Đ			Đ	Đ			Đ	Đ
HFA					Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ	Đ

M2616 telephone model set descriptions

In the model set descriptions that follow, M2616 key numbering is as shown below:

Figure 84
M2616 key numbering



M2616 model 20

Intended use: Secretary telephone with display
Class of service: NCOS 7—Unrestricted

M2616 model 20 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature	Key number	Feature
15	Autodial (ADL 16)	7	Program
14	Autodial (ADL 16)	6	Individual Speed Call (SCC)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Call Pick-up (RNP)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	System Speed Call (SSU 10)	2	Conference (A06)
9	Save (RDL 16)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

M2616 model 21

Intended use: Secretary telephone with display
Class of service: NCOS 3—Code restricted (TDL)

M2616 model 21 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature	Key number	Feature
15	Autodial (ADL 16)	7	Program
14	Autodial (ADL 16)	6	Individual Speed Call (SCC)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Call Pick-up (RNP)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	System Speed Call (SSU 10)	2	Conference (A06)
9	Save (RDL 16)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

M2616 model 22

Intended use: Secretary telephone with display used with Meridian Mail
Class of service: NCOS 7—Unrestricted (UNR), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2616 model 22 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature	Key number	Feature
15	Autodial (ADL 16)	7	Program
14	Autodial (ADL 16)	6	Message Waiting (MWK 7000)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Call Pick-up (RNP)
11	Individual Speed Call (SCC)	3	Call Forward (CFW 4)
10	System Speed Call (SSU 10)	2	Conference (A06)
9	Save (RDL 16)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

M2616 model 23

Intended use: Secretary telephone with display used with Meridian Mail
Class of service: NCOS 3—Code restricted (TLD), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2616 model 23 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature	Key number	Feature
15	Autodial (ADL 16)	7	Program
14	Autodial (ADL 16)	6	Message Waiting (MWK 7000)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Call Pick-up (RNP)
11	Individual Speed Call (SCC)	3	Call Forward (CFW 4)
10	System Speed Call (SSU 10)	2	Conference (A06)
9	Save (RDL 16)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

M2616 model 24

Intended use: Advanced business telephone with handsfree and display
Class of service: NCOS 7—Unrestricted (UNR), Handsfree Allowed (HFA)

M2616 model 24 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Call Transfer (TRN)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Call Pick-up (RNP)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	System Speed Call (SSU 10)	2	Conference (A06)
9	Individual Speed Call (SCC)	1	Secondary DN (SCR)
8	Save (RDL 16)	0	Prime DN (SCR)

M2616 model 25

Intended use: Advanced business telephone with Handsfree and display
Class of service: NCOS 3—Code restricted (TLD), Handsfree Allowed (HFA)

M2616 model 25 is a general purpose telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Call Transfer (TRN)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Call Pick-up (RNP)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	System Speed Call (SSU 10)	2	Conference (A06)
9	Individual Speed Call (SCC)	1	Secondary DN (SCR)
8	Save (RDL 16)	0	Prime DN (SCR)

M2616 model 26

Intended use: Advanced business telephone with Handsfree, used with Meridian Mail
Class of service: NCOS 7—Unrestricted, Handsfree Allowed (HFA), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2616 model 26 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature	Key number	Feature
15	Handsfree	7	System Speed Call (SSU 10)
14	Autodial (ADL 16)	6	Message Waiting (MWK 7000)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Call Pick-up (RNP)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	Autodial (ADL 16)	2	Conference (A06)
9	Save (RDL 16)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

M2616 model 27

Intended use: Advanced business telephone with handsfree used with Meridian Mail
Class of service: NCOS 3—Code restricted (TLD), Handsfree Allowed (HFA), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2616 model 27 is a general purpose telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature	Key number	Feature
15	Handsfree	7	System Speed Call (SSU 10)
14	Autodial (ADL 16)	6	Message Waiting (MWK 7000)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Call Pick-up (RNP)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	Autodial (ADL 16)	2	Conference (A06)
9	Save (RDL 16)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

M2616 model 28

Intended use: Manager's telephone with handsfree and display
Class of service: NCOS 7—Unrestricted (UNR), Handsfree Allowed (HFA)

M2616 model 28 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Save (RDL 16)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Buzz (SIG)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	Call Transfer (TRN)	2	Conference (A06)
9	Individual Speed Call (SCU)	1	Secondary DN (SCR)
8	System Speed Call (SSU 10)	0	Prime DN (SCR)

M2616 model 29

Intended use: Manager's telephone with handsfree and display
Class of service: NCOS 3—Code restricted (TLD), Handsfree Allowed (HFA)

M2616 model 29 is a general purpose telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Save (RDL 16)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Buzz (SIG)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	Call Transfer (TRN)	2	Conference (A06)
9	Individual Speed Call (SCU)	1	Secondary DN (SCR)
8	System Speed Call (SSU 10)	0	Prime DN (SCR)

M2616 model 30

Intended use: Manager's telephone used with Meridian Mail, has a display and handsfree
Class of service: NCOS 7—Unrestricted (UNR), Handsfree Allowed (HFA), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2616 model 30 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Message Waiting (MWK 7000)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Buzz (SIG)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	Call Transfer (TRN)	2	Conference (A06)
9	Individual Speed Call (SCU)	1	Secondary DN (SCR)
8	System Speed Call (SSU 10)	0	Prime DN (SCR)

M2616 model 31

Intended use: Manager's telephone used with Meridian Mail, has a display and handsfree
Class of service: NCOS 3—Code restricted (TLD), Handsfree Allowed (HFA), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2616 model 31 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Message Waiting (MWK 7000)
13	Autodial (ADL 16)	5	Ring Again (GRA)
12	Autodial (ADL 16)	4	Buzz (SIG)
11	Autodial (ADL 16)	3	Call Forward (CFW 4)
10	Call Transfer (TRN)	2	Conference (A06)
9	Individual Speed Call (SCU)	1	Secondary DN (SCR)
8	System Speed Call (SSU 10)	0	Prime DN (SCR)

M2616 model 32

Intended use: Advanced business telephone with handsfree, display, and 3 DNs

Class of service: NCOS 7—Unrestricted (UNR), Handsfree Allowed (HFA)

M2616 model 32 is a general purpose business telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Ring Again (GRA)
13	Autodial (ADL 16)	5	Pick-up (RNP)
12	Autodial (ADL 16)	4	Call Forward (CFW 4)
11	Save (RDL 16)	3	Conference (A06)
10	System Speed Call (SSU 10)	2	Third DN (SCR)
9	Individual Speed Call (SCU)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

M2616 model 33

Intended use: Advanced business telephone with handsfree, display, and 3 DNs
Class of service: NCOS 3—Code restricted (TLD), Handsfree Allowed (HFA)

M2616 model 33 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Ring Again (GRA)
13	Autodial (ADL 16)	5	Pick-up (RNP)
12	Autodial (ADL 16)	4	Call Forward (CFW 4)
11	Save (RDL 16)	3	Conference (A06)
10	System Speed Call (SSU 10)	2	Third DN (SCR)
9	Individual Speed Call (SCU)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

M2616 model 34

Intended use: Advanced business telephone used with Meridian Mail, has handsfree, display, and 3 DNs
Class of service: NCOS 7—Unrestricted (UNR), Handsfree Allowed (HFA), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2616 model 34 is a general purpose telephone that allows unrestricted access to the public exchange. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Message Waiting (MWK 7000)
13	Autodial (ADL 16)	5	Call Pick-up (RNP)
12	Ring Again (GRA)	4	Call Forward (CFW 4)
11	Save (RDL 16)	3	Conference (A06)
10	System Speed Call (SSU 10)	2	Third DN (SCR)
9	Individual Speed Call (SCU)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

M2616 model 35

Intended use: Advanced business telephone used with Meridian Mail, has handsfree, display, and 3 DNs
Class of service: NCOS 3—Code restricted (TLD), Handsfree Allowed (HFA), Call Forward No Answer (FNA) to Flexible Directory Number (FDN) 7000

M2616 model 35 is a general purpose business telephone that allows access to the public exchange but is restricted to dialing national numbers. The user also has access to the system speed call list which, if configured, contains frequently dialed numbers in the form of an abbreviated code.

The message waiting key allows this model to be used on systems that have Meridian Mail. Unanswered incoming calls to the telephone can be diverted to the Mail system.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	Display (DSP)	6	Message Waiting (MWK 7000)
13	Autodial (ADL 16)	5	Call Pick-up (RNP)
12	Ring Again (GRA)	4	Call Forward (CFW 4)
11	Save (RDL 16)	3	Conference (A06)
10	System Speed Call (SSU 10)	2	Third DN (SCR)
9	Individual Speed Call (SCU)	1	Secondary DN (SCR)
8	Call Transfer (TRN)	0	Prime DN (SCR)

Hotel telephone model set

There is one digital telephone model set: M2616 model 40.

Intended use: Hotel telephone: administration, control, message center, attendant overflow
Class of Service: NCOS 7—Unrestricted, Handsfree allowed (HFA)

M2616 model 40 is a 16 key digital telephone with a display and handsfree. It is used in hotels for administration and can transfer calls, set up conference calls, and control the status of guest rooms. It acts as the message center, the operator overflow answer point, and the Night Answer point.

Key number	Feature	Key number	Feature
15	Handsfree	7	Program
14	AOP Busy (OVB)	6	Night (SCR 899)
13	Meter (MRK)	5	AOP (SCR 898)
12	Message Indicator (MIK)	4	Message Centre (SCR 897)
11	Message Cancel (MCK)	3	SPARE
10	SPARE	2	Conference (AO6)
9	Room status (RMK)	1	SPARE
8	Change class of service (COS)	0	Prime DN (SCR)

CAP telephone model sets

There are two digital model sets for the Central Answering Position: M2616 model 60 and M2216 model 60. Model 60 is the same for both telephone types.

Intended use: Central Answering Position
Class of Service: NCOS 7—Unrestricted

M2616 model 60 and M2216 model 60 are configured as the Central Answering Position—the main answering and redistribution point for incoming exchange line calls. The telephones that use these models have unrestricted access to the public exchange and must be equipped with a display.

Key number	Feature	Key number	Feature
15	Make Set Busy (MSB)	7	Program
14	SPARE	6	Secondary DN (SCR)
13	Autodial (ADL 16)	5	Call Park (PRK)
12	Autodial (ADL 16)	4	Override (OVR)
11	Autodial (ADL 16)	3	Save (RDL 16)
10	Autodial (ADL 16)	2	Conference (A06)
9	Display Waiting Calls	1	Call Transfer (TRN)
8	System Speed Call (SSU 10)	0	In Calls (ACD 6700 ID)

Analog telephone model sets

Analog telephone model sets are assigned to 500 and 2500 type telephones.

Name labels

All analog models can have name labels assigned to them. This name then appears on the display of a Meridian 1 digital phone or attendant console when calls to or from an analog phone are made.

Matrix of features

The matrix on the next page shows the features available with each analog telephone model. A check mark (Ð) indicates that the model is equipped with that feature. Models with an asterisk (*) are used with Meridian Mail.

Models 34 and 35 are special models designed for use in hotels. Models 34 and 35 do not appear in the matrix but are described in the text that follows.

Table 95
Analog model sets

	Analog model sets													
Feature:	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**
Make Calls	Ð	Ð	Ð	Ð	Ð	Ð		Ð	Ð	Ð	Ð	Ð	Ð	Ð
Receive Calls	Ð	Ð	Ð	Ð	Ð	Ð		Ð	Ð	Ð	Ð	Ð	Ð	Ð
Hold	Ð	Ð	Ð	Ð	v	Ð		Ð	Ð	Ð	Ð	Ð	Ð	
Transfer	Ð	Ð	Ð	Ð	Ð	Ð		Ð	Ð	Ð	Ð	Ð	Ð	Ð
Conference (6-way)	Ð	Ð	Ð	Ð	Ð	Ð		Ð	Ð	Ð	Ð	Ð	Ð	
Group Pick-up	Ð	Ð	Ð	Ð	Ð	Ð				Ð	Ð	Ð	Ð	
Directed Group Pick-up	Ð	Ð	Ð	Ð	Ð	Ð				Ð	Ð	Ð	Ð	
Directed Number Pick-up					Ð	Ð					Ð	Ð	Ð	
Ring Back	Ð	Ð	Ð	Ð	Ð	Ð		Ð		Ð	Ð	Ð	Ð	
Call Forward	Ð	Ð	Ð	Ð	Ð	Ð			Ð	Ð	Ð	Ð	Ð	
Last Number Redial	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	Ð	

Table 95
Analog model sets (Continued)

	Analog model sets													
Feature:	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**
System Speed Dial	Đ	Đ	Đ	Đ	Đ	Đ		Đ		Đ	Đ	Đ	Đ	
Can Receive DDI calls			Đ	Đ	Đ	Đ	Đ			Đ	Đ	Đ	Đ	Đ
Message Waiting								Đ		Đ	Đ	Đ	Đ	
Autocall Operator							Đ							
Brokers Call								Đ						
Ring-Back When Free	Đ	Đ	Đ	Đ	Đ	Đ		Đ		Đ	Đ	Đ	Đ	
Flexible Directory Number										Đ	Đ	Đ	Đ	
External Call Waiting			Đ	Đ	Đ	Đ				Đ	Đ	Đ	Đ	
Internal Call Waiting					Đ	Đ						Đ	Đ	
High Priority							Đ							Đ
Call Restriction Tables:														
Table 1							Đ							Đ
Table 2	Đ													
Table 3		Đ	Đ		Đ				Đ	Đ		Đ		
Unrestricted				Đ		Đ		Đ			Đ		Đ	

Note: Models 26, 27, and 28 do not have access to the System Speed call list, but all other analog telephones do.

Model descriptions

A description of each analog telephone model set is provided below.

Analog telephone model set 20

Model 20 is a general purpose business telephone that provides call restriction (Table 2). It can also do the following:

- put a call on hold
- retrieve a call from on hold
- transfer calls
- set up conference calls
- pick-up calls from within its own pick-up group
- pick-up calls from other pick-up groups
- place ring-backs on busy or no-answer extensions
- call forward all calls to internal numbers
- store dialed numbers and redial them.

Table 2 call restriction allows access to local numbers but is barred from numbers beginning with 1 (except 112) or 0 (except 0800 and 0345 numbers).

Analog telephone model set 21

Model 21 is the same as analog model 20, but has less restrictions on the numbers dialed.

Table 3 call restriction allows access to all numbers but is barred from numbers beginning with 1 (except 112), and 010 or 0898 numbers.

Analog telephone model set 22

Model 22 is the same as analog model 20, but has less restrictions on the numbers dialed. It also has message waiting capability and can receive DDI calls.

Table 3 call restriction allows access to all numbers but is barred from numbers beginning with 1 (except 112), and 010 or 0898 numbers.

Analog telephone model set 23
Model 23 is the same as analog model 20, but has unrestricted access to exchange lines (no trunk barring). It also has message waiting capability and can receive DDI calls.

Analog telephone model set 24
Model 24 is the same as analog model 20, but has less restrictions on the numbers dialed. It also has message waiting capability, Directory Number Pick-up, and can receive DDI calls.

Table 3 call restriction allows access to all numbers but is barred from numbers beginning with 1 (except 112), and 010 or 0898 numbers.

Analog telephone model set 25
Model 25 is the same as analog model 20, but has unrestricted access to exchange lines. It also has message waiting capability, Directory Number Pick-up, and can receive DDI calls.

Analog telephone model set 26
Model 26 is used primarily as a lift, emergency, or door entry telephone. When the handset is lifted, the call is automatically connected to the attendant.

Table 1 call restriction only allows access to emergency services (999 or 112).

Analog telephone model set 27
Model 27 is used primarily as a Brokers telephone. It allows the user to receive an incoming call and then make an inquiry call. With the “toggle” key, the user can switch back and forth between two parties in secrecy. By using the conference key, the user can hold a three-party conference.

This telephone model set provides unrestricted access to public exchange lines.

Analog telephone model set 28
Model 28 is used in conference rooms or courtesy telephone situations where some external numbers may need to be barred. This model allows users to transfer, conference, and forward calls internally.

Table 3 call restriction allows access to all numbers but is barred from numbers beginning with 1 (except 112), and 010 or 0898 numbers.

Analog telephone model set 29
Model 29 is the same as analog model 20, but has less restrictions on the numbers dialed. It has message waiting, so that it can be used with Meridian Mail, and it can receive DDI calls.

Table 3 call restriction allows access to all numbers but is barred from numbers beginning with 1 (except 112), and 010 or 0898 numbers.

Analog telephone model set 30
Model 30 is the same as analog model 20, but has unrestricted access to public exchange lines. It has message waiting, so that it can be used with Meridian Mail, and it can receive DDI calls.

Analog telephone model set 31
Model 31 is the same as analog model 20, but has less restrictions on the numbers dialed. It also has message waiting used with Meridian Mail, Directory Number Pick-up, and it can receive DDI calls.

Table 3 call restriction allows access to all numbers but is barred from numbers beginning with 1 (except 112), and 010 or 0898 numbers.

Analog telephone model set 32
Model 32 is the same as analog model 20, but has unrestricted access to public exchange lines. It also has message waiting used with Meridian Mail, Directory Number Pick-up, and it can receive DDI calls.

Analog telephone model set 33
Model 33 is used in a lift or in emergency situations.

Table 1 call restriction only allows access to emergency services (999 or 112).

Analog telephone model set 34 (Hotel only)
Model 34 is a guest room telephone (M1008 Message Waiting telephone) with unrestricted outgoing access. It can receive incoming calls from standard exchange lines and DDI lines.

The telephone receives message waiting indication through interrupted dial tone and a visual indicator on the telephone. The telephone's outgoing access can be controlled when the room is not occupied or is being cleaned. Cost details can be added to to the telephone with the appropriate equipment.

Analog telephone model set 35 (Hotel only)
Model 35 is a guest room telephone with unrestricted outgoing access. It can receive incoming calls from standard exchange lines and DDI lines.

The telephone receives message waiting indication through interrupted dial tone and a visual indicator on the telephone. The telephone's outgoing access can be controlled when the room is not occupied or is being cleaned. Cost details can be added to to the telephone with the appropriate equipment.

Appendix E – Changing preprogrammed data

General information

The preprogrammed data on the Option 11C Mini system can provide a starting point for programming the system's telephone and trunking information.

This chapter shows how to change the default Option 11C Mini numbering plan. You can change the numbering plan for one or more of the following reasons:

- to change the first number in the numbering plan
- to shift the start of the numbering plan to another card slot
- the default numbering plan interferes with the system data

This section describes how to make changes to the default numbering plan. This section also provides information about modifying model telephone and trunk programming stored in the Option 11C Mini preprogrammed data.

Changing the default numbering plan

Extensions assigned are different from the default numbering plan

Compare the first digits assigned to this system with the default numbering plan.

- If the first digit is in the unused range, change the first number in the default numbering plan. To do this, follow the instructions in “Changing the first number in the numbering plan” on page 552.
- If Meridian Mail, trunk routes, or other data are using the first digit, you must remove these interferences. Follow the instructions found in “Removing numbering plan interferences” on page 556.

Changing the first number in the numbering plan

To change the first number in the numbering plan perform the following procedure:

Procedure 77
Changing the first number in the numbering plan

1 **Lift the handset of the administration telephone.**

2 **Enter the administration Flexible Feature Code.**

3 **Enter the administration telephone password.**

4 You hear special dial tone and the prompt “TASK?” appears on the top line of the character display.

5 **Press the asterisk (*) three times.**

The second line of the character display reads “4 INSTALLATION OPTIONS'”.

6 **Select “4 INSTALLATION OPTIONS” by entering the number “4”.**

The character display reads:

1 DEFAULT SETS

2 NUMBERING PLAN

7 **Select “2 NUMBERING PLAN” by entering the number “2”.**

The character display reads:

FIRST NUMBER (XXXX)?

8 **To create a new first number, enter the digits you want and press the pound key.**

The number you enter as the first number in the numbering plan is assigned to slot 01, unit zero of the Main Chassis. The default numbers assigned to the remaining card and unit combinations are consecutive in the Option 11C Mini system, assuming each slot has up to 16 units.

End of Procedure

Determining new extension numbers

Perform the following procedure to change the default numbering plan, and to determine the extension number to assign to a specific telephone:

Procedure 78
Determine the extension number

1 Identify the line card to which the telephone is connected. Take the card slot number associated with the card and subtract 1.

2 Multiply this number by 16.

3 Add the first extension number in the new numbering plan.

4 Identify the unit number the telephone is terminated on and add it to the result from step 3.

End of Procedure

Example:

Assume the new numbering plan starts at extension number 4500. You want to know the extension number of the telephone connected to card 8, unit 12:

1 Subtract 1 from the card slot number (8-1): = 7

2 Multiply by 16: x 16
=112

3 Add the first extension number:+4500

4 Add the unit number:+ 12
Number assigned to card 8, unit 12 4624

Note: If you are using a three digit numbering plan, follow the same procedure.

Example:

The new three digit numbering plan starts at extension number 300. You want to know the extension number of the telephone connected to card 8 unit 12:

1 Subtract 1 from the card slot number (8-1): = 7

2 Multiply by 16: x 16
=112

3 Add the first extension number: + 300

4 Add the unit number: + 12
Number assigned to card 8, unit 12 424

For the system to have a consecutive numbering plan, make sure that the line cards are in consecutive card slots in the Option 11C Mini chassis.

If the line cards are arranged consecutively, the preassigned telephone extensions are automatically configured during telephone activation. You do not have to manually enter the extensions.

Using the Meridian Mail auto-configure feature

The Meridian Mail auto-configure feature automatically matches Meridian Mail mail boxes with telephone extensions. If you have the Meridian Mail card option and you want to use the Meridian Mail auto-configure feature, make sure of the following:

- The numbering plan is consecutive.
- The first number in the Option 11 system and the Meridian Mail system are the same.

Shifting the numbering plan to a new card slot

The first number in the numbering plan is assigned to slot 01, unit 0. You can shift the first number in the numbering plan to a different card slot.

The following procedure describes how to shift the first number in the numbering plan to a specific card slot.

Procedure 79
Shift the first number in the numbering plan to a different card slot

1 Locate the first line card. Subtract 1 from the number of the card slot that it is in.

2 Multiply this number by 16.

3 Take the first number in the numbering plan and subtract the result from step 2.

Note: When you enter the value from step 3 in response to the prompt "FIRST NUMBER (XXXX)?" on the administration telephone menu, the number is shifted to the appropriate slot.

——————————— ***End of Procedure*** ———————————

Example:

The first number in the numbering plan is 2200. If you want the first number in the numbering plan to be 2300, and the first line card is in slot 6, perform the following calculation:

1 Locate the first line card. Subtract 1 from the number of the card slot that it is in.

6 - 1 = 5

2 Multiply the number from step 1 by 16:

5 X 16 = 80

3 Subtract this number from the first number in the numbering plan:

2300 - 80 = 2220

4 Enter this value in response to the "FIRST NUMBER (2200)?" prompt on the administration telephone:

FIRST NUMBER (2000)? 2220

Removing numbering plan interferences

This section contains methods for removing any numbering plan interferences that occur.

Interference with Meridian Mail data

The Option 11C Mini system is shipped with preprogrammed data to support Meridian Mail Enhanced Card Option. The preprogrammed Meridian Mail data can cause problems in the following situations:

- there is a numbering plan conflict with preprogrammed Meridian Mail data and the programming required for another feature
- another circuit card requires card slot 10

Obtaining the use of card slot 10

If another circuit card requires card slot 10, remove the six Meridian Mail agents programmed for this card slot. To do this, load LD 11 on the TTY and respond to the system prompts, as shown below. Repeat the procedure for each of the six units that you want to remove.

LD 11

REQ OUT <CR>

TYPE 2008 <CR>

TN 10 XX <CR> "XX" = a value of 0,1,2,8,9, or 10

Obtaining the use of Meridian Mail ACD queues

The Meridian Mail feature also uses a number of ACD queues in the Option 11 system. Refer to the section of this chapter called "Interference with ACD queues" for information about how to remove this data from the system.

Interference with ACD queues

The Option 11C Mini has preprogrammed ACD queues for Meridian Mail, the Central Answering Position, and general purpose ACD. To remove these values, use LD 23.

> ***Note:*** Before you remove this data from the system, make sure that all ACD agent information is removed from the queue.

In LD 23, respond to the prompts as follows:

LD 23

REQ OUT

TYPE ACD

CUST 0

ACDN XXXX "XXXX" = Value of ACD queue

Repeat for each ACD queue you want to remove.

Interference with Call Park extension numbers

Extension numbers for system call park are preprogrammed for the Central Answering Position. To remove this data from the system, load LD 50 and respond to the prompts as follows:

LD 50

REQ OUT

TYPE CPK

CUST 0

SPDN XXXX "XXXX" = Value of Call Park extension

Repeat for each Call Park extension you want to remove.

Interference with SDI ports

Five SDI/ESDI ports are preprogrammed on the Option 11C Mini system. Ports 8 and 9 are associated with the Meridian Mail Enhanced Card Option. Ports 0, 1 and 2 are associated with the NTDK97 MSC card. Port 0 is associated with the MSC card. You cannot remove this port. You can remove any of the remaining ports using LD 17 as follows:

LD 17

REQ CHG

TYPE CFN

ADAN OUT TTY X "X" = the TTY that you are removing.

Interference with the SPRE code

If the preprogrammed SPRE code interferes with the programming required for the Option 11 system, use LD 15 to remove it. For customer 0 enter the following in response to the SPRE prompt:

LD 15

SPRE Xy "y" = the value of the SPRE code

Note: To define a new SPRE code, type a space and enter the new number.

Interference with the attendant extension number

You cannot remove the attendant extension number completely from the Option 11C Mini system data; you can only replace it with another number.

LD 15

REQ CHG CHG = Change

TYPE CDB CDB = Customer Data Block

CUST x "x" = Customer number

.

ATDN xxxx "xxxx" = the new extension number

Changing or removing the preprogrammed night number

To change or remove the night number, use LD 15.

LD 15

REQ CHG CHG = Change

TYPE CDB CDB = Customer Data Block

CUST x "x" = Customer number

NIT1 bbbb, or X aaaa "bbbb" = the new extension number (DN)
Or
"aaaa" = the current night number
(the night number is now removed).

Interference with Flexible Feature Codes

If the preprogrammed Flexible Feature Codes interfere with the programming required for the Option 11C Mini system, use LD 57 to remove the data from the system.

LD 57

To change one or more access codes, enter the following commands:

REQ	CHG, END	Change or end
TYPE	FFC	FFC = Flexible feature codes
CUST	0-31	Customer Number
FFCT	YES,(NO)	FFC Confirmation tone
CODE	aaaa	Enter access code prompt (aaaa)
AAAA	xx	Enter the new access code prompt (AAAA)
CODE	<CR>	Return to REQ
REQ	END	End program

To remove one access code, enter the following commands:

REQ	OUT	Action request
TYPE	FFC	FFC = Flexible feature codes
CUST	0-31	Customer Number
FFCT	YES,(NO)	FFC Confirmation tone
ALL	NO	Remove specific access code
CODE	aaaa	Enter access code prompt (aaaa)
AAAA	xx	Enter the new access code prompt (AAAA)
CODE	<CR>	Return to REQ
REQ	END	End program

To remove all access codes, enter the following commands:

REQ OUT	Action request
TYPE FFC	FFC = Flexible feature codes
CUST 0-31	Customer Number
FFCT YES,(NO)	FFC Confirmation tone
ALL YES	Remove all access codes
CODE<CR>	Return to REQ
REQ END	End program

Creating, changing, and removing model telephones

If you need a model telephone different from the default models provided in Option 11C Mini software, use overlays to design the models. Use the information in Table 96.

Table 96
Design model telephones

Task	Overlay
Create model telephones:	
Analog telephones (500/2500 type telephones)	LD 10
Digital telephones	LD 11
Get information about model telephones	LD 20 (printout)

If you require additional help when creating model telephones and trunks, refer to the *Option 11C Software guides*.

Creating analog telephone models

You must enter the following information in LD 10 to create an analog (500/2500- type) telephone model:

LD 10

REQ NEW

TYPE 500 M

MODL YYY "YYY" = the model number of the telephone that you are creating

Enter responses to the remaining prompts to complete the new model. (Refer to the Option 11 *Software guide*s for a complete list of prompts and possible responses).

Modifying analog model telephones

If you want to modify an analog telephone, use LD 10 and enter the following commands on the TTY:

LD 10

REQ CHG

TYPE 500 M

MODL YYY "YYY" = the model number of the telephone that you are modifying

For more information about LD 10 and its associated prompts and commands, refer to the *Option 11C Software Guides* that are shipped with the system.

Creating digital model telephones

To create model digital telephones, you must program key 0 with a function that can act as a prime extension number or its equivalent. This includes telephones that are programmed to have Single Call Ringing (SCR), Multiple Call Ringing (MCR), Single Call Non-Ringing (SCN), Multiple Call Non-Ringing (MCN), and Automatic Call Distribution (ACD).

For ACD telephones, the model telephone defines the ACD queue. To define the extension number, you must enter the ID number of the agent or the Central Answering Position.

You must enter the following information in LD 11 to create a digital telephone model:

LD 11

REQ NEW

TYPE 2XXX M or 3000 M “XXX” = allowed telephone types

MODL YYY “YYY” = the model number of the telephone that you are creating (between 1 - 127)

Enter the responses to the remaining prompts to complete the new model. Refer to the *Option 11C Software guides* for a complete list of prompts and possible responses.

Modifying digital model telephones

If you want to modify a digital telephone, load LD 11 and enter the following commands on the TTY:

LD 11

REQ CHG

TYPE 2XXX M or 3000 M “XXX” = allowed telephone types

MODL YYY “YYY” = the model number of the telephone that you are modifying

For more information about LD 11 and its associated prompts and commands, refer to the Option 11C *Software guides* that are shipped with the system.

Printing model information

To print information about model telephones, use LD 20.

Analog telephones

LD 20

REQ PRT

TYPE 500 M

MODL YYY "YYY" = the telephone model number. If you want to print all of the models for this telephone type, leave this value blank.

Digital telephones

Note: To print M3000 telephone models, you must enter "TYPE 3000 M". If you enter "TYPE 2XXX M", you print all the Meridian Digital Telephone models except the M3000.

LD 20

REQ PRT

TYPE 2XXX M or 3000 M "XXX" = the telephone type

MODL YYY "YYY" = the telephone model number (between 1 - 127). If you want to print all of the models for this telephone type, leave this value blank.

Removing model telephones

Use LD 10 to remove analog telephone models and LD 11 to remove digital telephone models. Respond as follows to the prompts in either overlay:

LD 10 or LD 11

REQ OUT

TYPE XXXX M "XXXX" = telephone type for the model you are removing (Example: 500, 2006, 2317, 2216, 3000.)

CUST 0

MODL YYY "YYY" = the model number associated with the telephone type you are removing (Valid range is 1-127).

Creating model trunks and changing route access codes

If you need a trunk that is different from the default models provided in Option 11C Mini software, use Overlay 14 to design a model. Change route access codes using the administration telephone.

If you require additional help when creating model telephones and trunks, refer to the *Option 11C Software guides.*

Creating model trunks

To create a new model trunk, load LD 14 and enter the following commands on the TTY:

LD 14

REQ NEW

TYPE aaa M "aaa" = the type of trunk that you are creating (TIE, COT, WATS, and so on).

MODL YYY "YYY" = the model number of the trunk that you are creating (between 1 - 127)

XTRK XUT, XEM, XCOT, XDID This prompt only appears when you define the first model in a group. Each group contains 16 consecutive model definitions. (Refer to the group limits listed below.) When the first model in a group is defined, the remaining model numbers in the group(s) are assumed to be of the same type.

Group limits are as follows:

1-15, 16-31, 32-47, 48-63, 64-79. 80-95, 96-111, 112-127.

Examples:

If, for example, you define a model trunk as XUT, with a model number of 12, all models in the group 1-15 will automatically be XUT models. If you define another model trunk as an XEM, with a model number of 33, all models in the group 32-47 will automatically be XEM models.

> ***Note:*** When you create trunk models you are not prompted for the trunk route or member number. This information is defined using the administration telephone to program the XUT or XEM circuit card.

For more information about LD 14 and its associated prompts and commands, refer to the *Option 11C Software guides*.

Modifying model trunks

If you want to modify a trunk, load LD 14 and enter the following commands on the TTY:

LD 14

REQ CHG

TYPE aaa M "aaa" = the type of trunk that you are modifying

MODL YYY "YYY" = the model number of the trunk that you are modifying (between 1 - 127)

Removing model trunks

To remove a trunk model from the system, load LD 14 and respond to the prompts as follows:

LD 14

REQ OUT

TYPE XXX M "XXX" = the trunk type of the model that you are removing (Examples: COT, TIE, DID, FEX, WAT, etc.)

CUST 0

MODL YYY "YYY" = the model number associated with the trunk type you are removing (Valid range is 1-127).

Printing model information

To print information about model trunks, load LD 20 and enter the following commands on the TTY:

LD 20

REQ PRT

TYPE TTTT M "TTTT" = the trunk type

MODL YYY "YYY" = the model number. If you want to print all of the models for this trunk type, leave this value blank.

Changing a route access code

Use this procedure to change a route access code.

Procedure 80
Changing a route access code

1 **Lift the handset of the administration telephone.**

2 **Enter the administration Flexible Feature Code to access the administration menu.**

3 **Enter the default password for the administration telephone.**

You hear special dial tone and the prompt
"TASK?"
appears on the top line of the character display. If you press the asterisk, "2 CHANGE ROUTE ACCESS" appears on the second line of the character display.

4 **Select "2 CHANGE ROUTE ACCESS" by entering the number "2".**

The prompt
"ROUTE ACCESS?"
appears on the character display.

5 **Enter the access code of the route to be modified and press the pound key (#).**

The prompt
"NEW ACCESS CODE?"
asks you for a new access code for the route.

6 **Enter the new access code and press the pound key.**

The display shows
“CODE CHANGED”.
After a delay of approximately 4 seconds you hear special dial tone and the sequence is repeated when the prompt
“ROUTE ACCESS?”
appears.

OR

If the route access code is not available for use, you hear overflow tone.

The display shows
“USED, ROUTE ACCESS?”
and you must repeat this step.
You must enter a **different** access code. This sequence continues until you enter an appropriate new access code.

7 **Terminate the sequence by hanging up the telephone.**

OR

Repeat the sequence by going through the steps again.

———————— ***End of Procedure*** ————————

Appendix F — LD 16 and LD 14 preprogrammed data listing

When you select a preprogrammed trunk route or trunk mode, a number of values automatically default in Overlays 16 and 14 respectively. The tables in this Appendix show the default values associated with each trunk route and trunk model.

Preprogrammed trunk route data in Overlay 16

The following tables provide trunk route data for exchange line routes, DDI routes, and TIE line routes.

Exchange line routes

The table on the next page shows preconfigured data for exchange line routes in Overlay 16.

Preprogrammed exchange line routes—LD 16

Prompt	Route 00	Route 01	Route 02	Route 03	Route 04	Route 05
REQ	NEW	NEW	NEW	NEW	NEW	NEW
TYPE	RDB	RDB	RDB	RDB	RDB	RDB
CUST	0	0	0	0	0	0
ROUT	0	1	2	3	4	5
TKTP	COT	COT	COT	COT	COT	COT
PRIV	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
SAT	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
RCLS	(EXT)	(EXT)	(EXT)	(EXT)	(EXT)	(EXT)
DTRK	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
PTYP	(ACO)	(ACO)	(ACO)	(ACO)	(ACO)	(ACO)
AUTO	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
ACMP	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
ICOG	IAO	IAO	ICT	ICT	OGT	OGT
SRCH	(LIN)	(LIN)	(LIN)	(LIN)	(LIN)	(LIN)
STEP	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
ACOD	1500	1501	1502	1503	1504	1505
TARG	1	1	1	1	1	1
SGRP	(0)	(0)	(0)	(0)	(0)	(0)
OABS	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
CNTL	YES	YES	YES	YES	YES	YES
TIMR						
DSI	60000	60000	69000	69000	69000	69000
GTI	2944	2944	2944	2944	2944	2944

Preprogrammed exchange line routes—LD 16 (Continued)

Prompt	Route 00	Route 01	Route 02	Route 03	Route 04	Route 05
GTO	2944	2944	2944	2944	2944	2944
ICF	384	384	384	384	384	384
OGF	384	384	384	384	384	384
RGV	256	256	256	256	256	256
LCT	128	128	128	128	128	128
SST	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
DTD	YES	YES	YES	YES	YES	YES
MDTD	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
DTDF	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
SCDT	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
DFQ	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
2DT	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
NEDC	ETH	ETH	ETH	ETH	ETH	ETH
FEDC	ETH	ETH	ETH	ETH	ETH	ETH
CPDC	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
SPCT	(IMM)	(IMM)	(IMM)	(IMM)	(IMM)	(IMM)
HOLD	(2) (2) (40)	(2) (2) (40)	(2) (2) (40)	(2) (2) (40)	(2) (2) (40)	(2) (2) (40)
SEIZ	(2) (2)	(2) (2)	(2) (2)	(2) (2)	(2) (2)	(2) (2)
RGFL	(2) (2)	(2) (2)	(2) (2)	(2) (2)	(2) (2)	(2) (2)
RVSD	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
ILLR	(2) (2)	(2) (2)	(2) (2)	(2) (2)	(2) (2)	(2) (2)
DDO	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
DRNG	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>

Preprogrammed exchange line routes—LD 16 (Continued)

Prompt	Route 00	Route 01	Route 02	Route 03	Route 04	Route 05
CDR	YES	YES	YES	YES	YES	YES
INC	YES	YES	YES	YES	YES	YES
QREC	YES	YES	YES	YES	YES	YES
OAL	YES	YES	YES	YES	YES	YES
AIA	YES	YES	YES	YES	YES	YES
OAN	YES	YES	YES	YES	YES	YES
OPD	NO	NO	NO	NO	NO	NO
NDP	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
NATL	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
SSL	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
CFWR	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
IDOP	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
MUS	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
MRT						
MR	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
PANS	YES	YES	YES	YES	YES	YES
RACD	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
MANO	NO	NO	NO	NO	NO	NO
FRL						
TTBL	(0)	(0)	(0)	(0)	(0)	(0)
OHTD	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
PLEV	(2)	(2)	(2)	(2)	(2)	(2)
RCAL	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)

Preprogrammed exchange line routes—LD 16 (Continued)

Prompt	Route 00	Route 01	Route 02	Route 03	Route 04	Route 05
ALRM	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
PECL	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
DCTI	(0)	(0)	(0)	(0)	(0)	(0)
TIDY	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>

DDI routes

The table below shows preconfigured DDI route data in Overlay 16.

Preprogrammed DDI routes—LD 16

Prompt	Route 10	Route 11	Route 12
REQ	NEW	NEW	NEW
TYPE	RDB	RDB	RDB
CUST	0	0	0
ROUT	10	11	12
TKTP	DID	DID	DID
PRIV	(NO)	(NO)	(NO)
SAT	(NO)	(NO)	(NO)
RCLS	(EXT)	(EXT)	(EXT)
DTRK	(NO)	(NO)	(NO)
PTYP	(ACO)	(ACO)	(ACO)
AUTO	(NO)	(NO)	(NO)
ACMP	(NO)	(NO)	(NO)
ICOG	ICT	ICT	ICT
STEP	<CR>	<CR>	<CR>
ACOD	1510	1511	1512
TARG			
SGRP	(0)	(0)	(0)
OABS	<CR>	<CR>	<CR>
INST	22	23	2
IDC			
DCNO			

Preprogrammed DDI routes—LD 16 (Continued)

Prompt	Route 10	Route 11	Route 12
NDNO			
DEXT			
CNTL	<CR>	<CR>	<CR>
TIMR			
DSI	60000	60000	69000
ICF	256	256	256
GTI	128	128	128
SST	<CR>	<CR>	<CR>
NEDC	ETH	ETH	ETH
FEDC	ETH	ETH	ETH
CPDC	(NO)	(NO)	(NO)
DLTN	(NO)	(NO)	(NO)
HOLD	(2) (2) (40)	(2) (2) (40)	(2) (2) (40)
SEIZ	(2) (2)	(2) (2)	(2) (2)
SVFL	(2) (2)	(2) (2)	(2) (2)
OPCB	(NO)	(NO)	(NO)
DRNG	(YES)	(YES)	(YES)
PRDL	YES	YES	YES
CDR	NO	NO	NO
NATL	(YES)	(YES)	(YES)
CFWR	(NO)	(NO)	(NO)
IDOP	(NO)	(NO)	(NO)
MUS	NO	NO	NO

Preprogrammed DDI routes—LD 16 (Continued)

Prompt	Route 10	Route 11	Route 12
MRT			
MR	(NO)	(NO)	(NO)
PANS	(YES)	(YES)	(YES)
RACD	(NO)	(NO)	(NO)
FRL	<CR>	<CR>	<CR>
OHQ	(NO)	(NO)	(NO)
OHQT	(0)	(0)	(0)
TTBL	(0)	(0)	(0)
OHTD	(NO)	(NO)	(NO)
PLEV	(NO)	(NO)	(NO)
PRDL	(NO)	(NO)	(NO)
EOS	(NO)	(NO)	(NO)
DNSZ	(0)	(0)	(0)
RCAL	(NO)	(NO)	(NO)
MCTS	(NO)	(NO)	(NO)
ALRM	(NO)	(NO)	(NO)
BTT	(30)	(30)	(30)
PECL	<CR>	<CR>	<CR>
DCTI	<CR>	<CR>	<CR>
TIDY	<CR>	<CR>	<CR>

TIE line routes

AC15 TIE route data

The table below shows preconfigured AC15 TIE route data in Overlay 16.

Table 97

Prompt	20	21	22	23	24	25	26	27	28	29
REQ	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW
TYPE	RDB	RDB	RDB	RDB	RDB	RDB	RDB	RDB	RDB	RDB
CUST	0	0	0	0	0	0	0	0	0	0
ROUT	20	21	22	23	24	25	26	27	28	29
TKTP	TIE	TIE	TIE	TIE	TIE	TIE	TIE	TIE	TIE	TIE
ESN	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
CNVT	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
SAT	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
RCLS	(EXT)	(EXT)	(EXT)	(EXT)	(EXT)	(EXT)	(EXT)	(EXT)	(EXT)	(EXT)
DTRK	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
PTYP	(ATT)	(ATT)	(ATT)	(ATT)	(ATT)	(ATT)	(ATT)	(ATT)	(ATT)	(ATT)
AUTO	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
ACMP	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)	(NO)
ICOG	IAO	IAO	IAO	IAO	IAO	IAO	IAO	IAO	IAO	IAO
SRCH	LIN	LIN	LIN	LIN	LIN	LIN	LIN	LIN	LIN	LIN
STEP	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>
ACOD	710	711	712	713	714	715	716	717	718	719
TARG										
SGRP	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
OABS	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>	<CR>

Table 97

Prompt	20	21	22	23	24	25	26	27	28	29
INST										

4-Wire E&M TIE route data

The table below shows preconfigured 4-Wire E&M TIE route data in Overlay 16.

Prompt	Route 30	Route 31
REQ	NEW	NEW
TYPE	RDB	RDB
CUST	0	0
ROUT	30	31
TKTP	TIE	TIE
ESN	(NO)	(NO)
CNVT	(NO)	(NO)
SAT	(NO)	(NO)
RCLS	(EXT)	(EXT)
DTRK	(NO)	(NO)
PTYP	(ATT)	(ATT)
AUTO	(NO)	(NO)
ACMP	(NO)	(NO)
ICOG	IAO	IAO
SRCH	LIN	LIN
STEP	<CR>	<CR>
ACOD	720	721

TARG		
SGRP	(0)	(0)
OABS	<CR>	<CR>
INST		

2-Wire E&M TIE route data

The table below shows preconfigured 2-Wire E&M TIE route data in Overlay 16.

Prompt	Route 32	Route 33
REQ	NEW	NEW
TYPE	RDB	RDB
CUST	0	0
ROUT	32	33
TKTP	TIE	TIE
ESN	(NO)	(NO)
CNVT	(NO)	(NO)
SAT	(NO)	(NO)
RCLS	(EXT)	(EXT)
DTRK	(NO)	(NO)
PTYP	(ATT)	(ATT)
AUTO	(NO)	(NO)
ACMP	(NO)	(NO)
ICOG	IAO	IAO
SRCH	LIN	LIN
STEP	<CR>	<CR>

ACOD	722	723
TARG		
SGRP	(0)	(0)
OABS	<CR>	<CR>
INST		

Music route

The table below shows preconfigured Music route data in Overlay 16.

Prompt	Route 50
REQ	NEW
TYPE	RDB
CUST	0
ROUT	50
TKTP	MUS
ICOG	OGT
SRCH	(LIN)
STEP	<CR>
ACOD	(1550)
TARG	1
SGRP	(0)
OABS	<CR>
CNTL	YES
TIMER	
LCT	256
SST	3 0

NEDC	ETH
FEDC	ETH
HOLD	2 2 40
SEIZ	(2) (2)
RGFL	(2) (2)

Paging route

The table below shows preconfigured Paging route data in Overlay 16.

Prompt	Route 60
REQ	NEW
TYPE	RDB
CUST	0
ROUT	60
TKTP	PAG
ESN	NO
ICOG	OGT
SRCH	(LIN)
STEP	<CR>
ACOD	(1560)
TARG	1
SGRP	(0)
OABS	<CR>
CNTL	YES
TIMR	
ICF	384

Prompt	Route 60
OGF	384
EOD	13952
LCT	128
DSI	4992
NRD	10112
DDL	70
ODT	8192
RGV	256
GTI	2944
GTO	2944
TFD	0
SST	50
DTD	YES
SCDT	<CR>
2DT	<CR>
NEDC	ETH
FEDC	ETH
HOLD	(2) (2) (40)
SEIZ	(2) (2)
RGFL	(2) (2)
CDR	NO
NATL	<CR>
CFWR	(NO)
IDOP	(NO)

Prompt	Route 60
PANS	(YES)
OHTD	(NO)
ALRM	(NO)

Trunk model data in Overlay 14

In the Exchange, DDI and TIE line tables in this section, the route number depends on the access code entered from the administration terminal. (Example: ACOD 716 = route 26). The member number depends on the order in which the trunks are placed in the route from the administration terminal. (The first trunk entered is member 1 regardless of the terminal number).

Exchange line models

The table below shows preconfigured exchange line (COT) model data in Overlay 14.

Prompt	Model 1	Model 2	Model 3 (DISA Line)
REQ	NEW	NEW	
TYPE	COT M	COT M	
Model	1	2	
XTRK	XCOT	XCOT	
CUST	0	0	
NCOS	7	7	
RTMB			
PRDN			
NITE			
ATDN			
SIGL	GRD	GRD	

Prompt	Model 1	Model 2	Model 3 (DISA Line)
TIMP	(600)	(600)	
CDEN	4D	4D	
CLS	DTN	DIP	
	(UNR)	(UNR)	
	(WTA)	(WTA)	
	(LPR)	(LPR)	
	(APN)	(APN)	
	(P10)	(P10)	
	(NTC)	(NTC)	
TKID	<CR>	<CR>	

DDI models

The table below shows preconfigured DDI model data in Overlay 14.

Prompt	Model 11	Model 12
REQ	NEW	NEW
TYPE	DID M	DID M
MODEL	11	12
XTRK	XDID	XDID
CUST	0	0
NCOS	7	7
RTMB		
NITE	<CR>	<CR>
ATDN		
SIGL	LDR	LDR
TIMP	(600)	(600)
STRI	IMM	IMM
STRO	IMM	IMM
CDEN	4D	4D
CLS	DIP	DIP
	(UNR)	(UNR)
	(WTA)	(WTA)
	(LPR)	(LPR)
	(ADN)	(ADN)
	(P10)	(P10)
TKID	(NTC)	(NTC)

TIE line models

AC15 TIE trunk model data

The table below show preconfigured AC15 TIE trunk model data in Overlay 14.

Prompt	Model 21	Model 22
REQ	NEW	NEW
TYPE	TIE M	TIE M
MODEL	21	22
XTRK	XFEM	XFEM
CUST	0	0
NCOS	7	7
RTMB		
MNDN	<CR>	<CR>
TGAR	(0)	(0)
ATDN		
SIGL	WR4	WR4
TIMP	(600)	(600)
STRI	IMM	IMM
STRO	IMM	IMM
SUPN	YES	YES
CLS	DTN	DIP
	UNR	UNR
	(WTA)	(WTA)
	(LPR)	(LPR)
	(APN)	(APN)

Prompt	Model 21	Model 22
	(P10)	(P10)
	(MID)	MID
	(VNL)	VNL
TKID	<CR>	<CR>

E&M TIE trunk model data

The table below show preconfigured E&M TIE trunk model data.

Prompt	Model 23	Model 24
REQ	NEW	NEW
TYPE	TIE M	TIE M
MODEL	23	24
XTRK	XFEM	XFEM
CUST	0	0
NOCS	7	7
RTMB		
MNDN	<CR>	<CR>
TGAR	(0)	(0)
ATDN		
SIGL	EM4	EAM
EMTY	TY2	—
COUT	COUT	—
TIMP	(600)	(600)
STRI	IMM	IMM
STRO	IMM	IMM

Prompt	Model 23	Model 24
SUPN	YES	YES
CLS	DIP	DIP
	(UNR)	UNR
	(WTA)	(WTA)
	(LPR)	(LPR)
	(APN)	(APN)
	(P10)	(P10)
	MID	MID
	VNL	VNL
TKID	<CR>	<CR>

Music model

The table below shows the preconfigured Music model data in Overlay 14. Since there is only one preprogrammed music route, this trunk model is assigned to route 50.

Prompt	Model 31
REQ	NEW
TYPE	MUS
MODEL	31
XTRK	XFEM
CUST	0
RTMB	
CFLP	29

Paging model

The table below shows the preconfigured Paging model data in Overlay 14. Since there is only one preprogrammed paging route, this trunk model is assigned to route 60.

Prompt	Model 35
REQ	NEW
TYPE	PAG M
MODEL	35
XTRK	XFEM
CUST	0
RTMB	
SIGL	EM4
EMTY	TY2
CPAD	COUT
STRO	IMM
STRI	IMM
SUPN	YES
CLS	DIP
	(UNR)
	(WTA)
	(LPR)
	(ADN)
	(P10)
	(NTC)
TKID	<CR>

Meridian 1

Option 11C Mini

Planning and Installation Guide

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