Meridian 1

# Option 11C Compact
Planning, Installation, Fault Clearing and CCBR Guide

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# Revision history

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# About this guide

This guide contains four types of information related to the Meridian 1 Option 11C Compact systems:

- Planning

- Installation

- Fault Clearing

- Customer Configuration Backup and Restore (CCBR)

## Planning

The planning portion of this guide describes the features, limits and general design of the Meridian 1Option 11C Compact system.

## Installation

The installation portion of this guide describes how to install a new system, how to add components to an existing system and how to upgrade software if required (such as how to add TNs or change feature sets).

## Fault Clearing

The Fault Clearing portion of this guide describes how to locate and clear faults in the system.

Detailed technical information is contained in the Option 11C Compact *Technical Reference Guide.*

## Customer Configuration Backup and Restore

This guide provides information about Customer Configuration Backup and Restore, including recommendations for performing backups, and procedures for performing restores in situations where customer configuration information has been lost or corrupted.

# Chapter 1 — Overview of the Option 11C Compact

## Design and architecture

The Option 11C Compact is a small wall mounted digital PBX system which can be configured as a one, two or three cabinet system.

Expansion cabinets can be connected up to approximately 33 ft (10 m) from the main cabinet using an A0632902 10 m (33þft) multi-mode plastic fiber optic cable.

> *Note:* The A0632902 Plastic Fiber Optic Cable (multi-mode) is the only fiber optic cable supported by the Option 11C Compact system. The maximum distance between the cabinets is 33 cable feet (10 cable meters). Allow approximately 2 ft (0.5 m) of slack at each end of the cable for routing inside the cabinets.

Call processing, serial ports and network traffic are handled by an MC68040 processor located on the CPU card located in the main cabinet.

### Easy to install and program

The system is shipped with a Software Daughterboard which is pre-configured with system and a default customer data.

During the first-time installation of the Option 11C Compact system the Software Installation Program is automatically invoked. This is a menu driven program which is used to install the software in the system and make it operational.

### Model telephones

There are a wide variety of pre-programmed model telephone layouts from which to choose. Using telephone layouts or templates, technicians can perform a few simple steps at installation to activate multiple telephones.

### Administration telephone

A TTY input terminal is not required for programming the Option 11C Compact if the default models for telephones and trunk routes are suitable for the needs of the users. An administrative telephone can be used to make adjustments to such things as the numbering plan and access codes. The telephone used for the administrative function can be an M2616 or M2008 digital telephone. This phone can also double as a user's working telephone.

### Changing or removing pre-programmed data

If the pre-programmed data is not applicable to users at a particular site, the data can be revised on-site with a TTY, or remotely over a modem connection.

### Set-Based Administration

Set-Based Administration is a feature that simplifies system installation and administration by enabling a telephone set to perform several administrative and maintenance procedures. Examples such as changing data associated with specific set-related features, or changing Calling Party Name Display on a particular set, can be performed through the Set-Based Administration feature. Refer to the Set-Based Administration user guide for more information.

### Multiple-terminal access

The Option 11C Compact system allows a total of three users access to log in, load, and execute overlays simultaneously. For example, with a two- or three-cabinet system, users can access the system through the Main or Expansion cabinet at the same time. Three SDI ports are provided on the Main cabinet's Small System Controller (SSC) card, while the expansion cabinet can be accessed through one SDI port on the Expansion cabinet Fiber Receiver card. The advantage of multiple-access is that it allows for more efficient programming and maintenance of the system, especially when cabinets are located apart (such as on different floors in a building).

**Meridian Mail Option 11C Compact**

The specially designed Option 11C Compact Mail comes pre-configured with mailboxes already setup for pre-programmed extensions. If the numbering plan is being modified, then the mailboxes can be changed from any TTY used for Option 11C Compact administration.

## Fully featured

Option 11C Compact comes with software for such applications as Automatic Call Distribution, Voice Mail, Automatic Route Selection, Automatic Set Relocation, and Attendant Administration, to name a few.

The Meridian Mail Compact application comes equipped standard with features such as Voice Menus and Automated Attendant.

# Unique Option 11C Compact elements

The Option 11C Compact system is characterized by the following unique elements:

- Software Delivery card (PCMCIA) used for software up-issues

- Flash Drives (primary and backup)

- Software Daughterboard

- Security Device which validates keycodes for features assigned to this system

## Software Delivery card

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

The Software Delivery card is inserted in a specially designed socket in the faceplate of the NTMW01 Small System Controller (SSC) card. Once inserted, software and customer databases can be loaded from the card to the Flash Drive daughter board on the NTMW01 Small System Controller (SSC) card.

## Flash Drive

Option 11C Compact software operation and customer data storage is performed by two Flash Drive located on the NTMW01 SSC. The first Flash device, called the Primary Flash Drive, is located on the Software Daughterboard on the NTMW01 SSC. It contains Option 11C Compact system data and the first copy of customer data required to run and load the system.

The second Flash Drive, called the Backup Flash Drive, stores user changeable files such as configuration data and the second copy of the customer database. The Backup Flash Drive is in a physically different location on the NTMW01 SSC so that in the unlikely event of a Primary Flash Drive failure, a backup set of customer data can be retrieved and loaded into the system's active database.

## Software Daughterboard

The Software Daughterboard is used as a storage area for system and customer data. It is also used to deliver and load the system software and customer data base in a new system installation.

## Security Device

The Security Device, which is shipped with a new Option 11C Compact system, is attached to the NTMW01 SSC card when it is initially installed and is used to identify the system. It allows the activation of features assigned to the system through the validation of a series of keycodes.

# System specifications

Each cabinet can house a combination of up to six line cards and trunk cards. A common ratio of users to trunks usually falls between four and six users to each trunk in a moderate to busy work environment. Each line card can interface with up to 24 telephones and each trunk card can interface with up to 4 trunks.

## Input Voltage

The Option 11C Compact system accommodates input voltages of 100V - 240V.

## Number of Peripheral (PE) slots

There are six PE slots in the main cabinet.

Each additional cabinet adds six or ten additional PE slots, depending on the type of cabinet used.

## Software generic

X27 software.

## Conference channels

The NTMW01 SSC provides 32 channels for conferencing. The number of channels can be increased to 48 with the addition of a fiber expansion daughterboard on the NTMW01 SSC (16 channels on the fiber expansion daughterboard).

## Intercabinet connection

Cabinets are interconnected with a 10 m (33ft) multi-mode plastic fiber optic cable.

*Note:* The A0632902 Plastic Fiber Optic Cable (multi-mode) is the only fiber optic cable supported by the Option 11C Compact system. The maximum distance between the cabinets is 33 cable feet (10 cable meters). Allow approximately 2 ft (0.5 m) of slack at each end of the cable for routing inside the cabinets.

## Power Failure Transfer Unit (PFTU)

Each NTMW07 Line/Trunk card has a built-in PFTU capable of connecting one trunk on the card to one telephone set on the same card when the commercial power supply to the Option 11C Compact system is interrupted.

## Reserve power

Commercial ac power can be maintained during a power outage by using an Uninterruptable Power Supply (UPS) unit. (A UPS, if required, must be obtained from a local supplier.)

# Hospitality applications

The Option 11C Compact supports advanced Hospitality applications, tailored to the needs of small to medium size hotels. Option 11C Compact Hospitality is a cost effective, integrated system that provides Meridian Mail voicemail, call accounting software, administration telephones, MAT, and many other features.

# Data backup and restore methods

Option 11C Compact provides several methods of backing up customer configured data. These methods can be categorized as either on-site backup, or remote backup over a modem connection.

### On-site backup

There are three different types of on-site backup that can be performed using LD 43. Customer data can be backed up from the database in use to:

- the Primary Flash Drive

- the Backup Flash Drive, or

- an external Software Delivery card (PCMCIA)

### Remote backup

Remote backup can be performed with LD 143 using the Customer Configuration Backup and Restore (CCBR) feature. The CCBR feature permits the user to backup customer configured data to an external IBM-type PC or a Macintosh computer over a modem connection.

*Note:* For more information about the remote backup feature, refer to the *Customer Configuration Backup and Restore Guide*.

Both the on-site and remote methods of backup can be performed during normal system operation.

### Restoring data

In the event data becomes corrupt or inoperable, backup data can be restored to the main database and primary Flash Drives from either the External PCMCIA card, the backup Flash Drive, or from a computer over a modem connection.

# Chapter 2 — Equipment identification

This chapter identifies the major components of the Option 11C Compact system that are pertinent to installation. Identification codes are given where appropriate.

## Cabinets

### Main cabinet

The NTMW08 Cabinet is the main cabinet for both the Option 11C Compact and the Compact Hospitality.

The Main cabinet houses the NTMW01 Small System Controller (SSC) card. It can be connected to one Expansion cabinet when used with the Option 11C Compact system, or two Expansion cabinets when used with the Compact Hospitality system.

### Expansion cabinet for Option 11C Compact

One NTMW08 Cabinet can be used as an Expansion cabinet. It provides six additional Peripheral Equipment (PE) slots.

*Note:* In this case, the expansion cabinet is the same cabinet type as the main cabinet. Only one expansion cabinet can be used with this configuration.

Two NTMW35 Expansion cabinets can be added to the system for a total of three cabinets. Each NTMW35 cabinet provides ten additional Peripheral Equipment (PE) slots.

### Ten-slot Cabinet

The NTMW35 is a wall mounted metal cabinet with a plastic door. The ten-slot cabinet provides forced air cooling.

### RSM Module Assembly

The NTMW50 RSM Module Assembly houses the NTMW49 RSM circuit card. The RSM Module Assembly mounts on the wall near the Compact system.

### Cable connectors

Connectors for cables to the cross-connect terminal are located on the faceplate of each peripheral equipment card. The cables are routed down the front of the cards and exit at the bottom rear of the cabinet.

The SDI and Ethernet connectors extend out of the bottom of the card cage in each cabinet. The SDI connector in the main cabinet interfaces three SDI ports using a three-port SDI cable. In the expansion cabinet, the SDI connector interfaces with one SDI port. The Ethernet connector in the main cabinet provides a 10 Mbps Ethernet port.

### Cooling

Each cabinet is equipped with a cooling fan at the top of the cabinet.

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**CAUTION**

Make sure ventilation at the sides and top of the cabinet is not obstructed.

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# Power supplies

Each cabinet is powered by an NTMW11 ac power supply unit (see Figure 1). It is connected to a commercial ac power source, or, if an uninterrupted power supply is a requirement, to an Uninterruptible Power Supply (UPS).

**Figure 1**
**NTMW11 ac power supply**
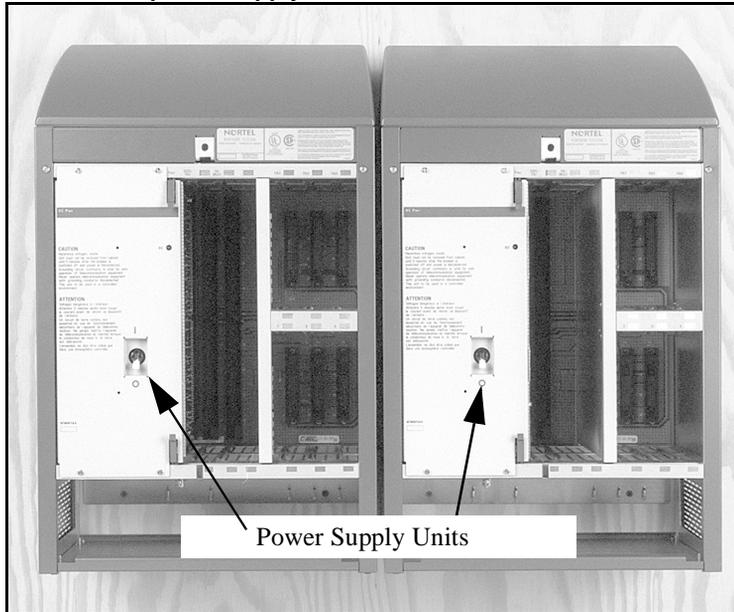


Power Supply Units

# Reserve power

Reserve power can be provided by an Uninterruptible Power Supply (UPS) obtained locally. The UPS provides a continuous AC power supply, even during commercial power outages. The UPS should be installed according to the manufacturer's instructions.

# Common equipment circuit cards

The circuit cards described in this section are used in the Option 11C
Compact Main cabinet.

## NTMW01 Small System Controller (SSC) card

The NTMW01 SSC card includes a Central Processing Unit (CPU) which
handles call processing for the system. Also included is an Ethernet
controller, storage for system and customer data and system memory.
Additionally it provides the following features and functions:

- An MC68LC040 main processor

- A Software Daughterboard interface (NTDK21 for X27 Release 1, and
  NTDK81 for X27 Release 2)

- An NTDK22 Fiber Expansion Daughterboard interface

- Two PCMCIA interface slots

- Three SDI ports

- Conferencing

- Digitone Receiver, Tone generation and tone detection functions

- Security Device socket

### Software Daughterboard

System and customer data is stored on the Software Daughterboard attached
to the SSC card. The daughterboard also serves as a software delivery card
for new Compact installations.

Additional memory on the NTMW01 SSC card temporary stores and
processes automated routines and user-programmed commands. The SSC
card also retains a copy of customer files in the event of data loss, in an area
called the Backup flash drive.

There are two types of Software Daughterboard, described below. The two
types can be used as replacements for each other, if needed.

### NTDK21AA

The NTDK21AA Software Daughterboard is compatible with Release 1 and Release 2 Compact software. It provides 24 Mbytes of program store memory.

### NTDK81AA

The NTDK81AA Software Daughterboard is compatible with Release 1.01 (or later) and Release 2 Compact software. The NTDK81AA provides 32 Mbytes of program store memory, and 8 Mbytes of file system memory.

## Security Device

The NTMW01 SSC card is equipped with a socket designed to accommodate the Security Device shipped with each new Option 11C Compact system. The Security Device is normally not attached to the SSC card when it is shipped. It must be attached to the SSC card during initial installation procedures.

## PCMCIA interface

The NTMW01 SSC card has a 2-slot PCMCIA interface socket located on its faceplate. The socket can accommodate a Software Delivery card used primarily for software upgrades. It can also be used for creating an external backup copy of the customer data base.

## NTDK22 Fiber Expansion Daughterboard

The Main cabinet can be connected to one or two expansion cabinets by mounting NTDK22 Fiber Expansion daughterboards on the NTMW01 SSC card. Each expansion daughterboard provides an additional 16 channels of conferencing capabilities.

## SDI ports

The NTMW01 SSC card contains three SDI ports used to connect on-site terminals or remote terminals through a modem.

Port 0 is ASCII, 8 bit asynchronous serial port with programmable parity. It supports 300, 600, 1200, 2400,4800, 9600 and 19200 baud rates which are set using the switches located on the front of the SSC card.

Ports 1 and 2 are set using overlay programs can be configured according to the following parameters:

• baud rate: 300, 600, 1200, 2400, 4800, 9600 and 19200

- parity: none, odd, even

- stop bits: 1, 2

- data bits: 7, 8

The default settings are as shown in Table 1

**Table 1**
**Default SDI port settings**

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

### Ethernet Interface

The NTMW01 SSC card is equipped with a 10 Mbps Ethernet port. External connections to the ethernet port is provided by a 15-pin connector located in the main cabinet. This is a standard 15-pin AUI interface for a MAU.

### Conferencing

Thirty-two conference channels are provided by the NTMW01 SSC card. Conference capability is increased by 16 channels when a Fiber Expansion daughterboard is added to the SSC card to connect to an expansion cabinet.

### Digitone Receiver, tone generation, tone detection functions

The NTMW01 SSC card provides:

- 30 channels of tone transmission

- Tone detection units configurable as:

    — 16 units of DTR/XTD

      or

    — 8 units of DTR?XTD
      and
      4 units of MFC/MFE/MFK5/MFK6/MFR

**Figure 2**
**Daughterboards and Security Device on the NTMW01 SSC card**
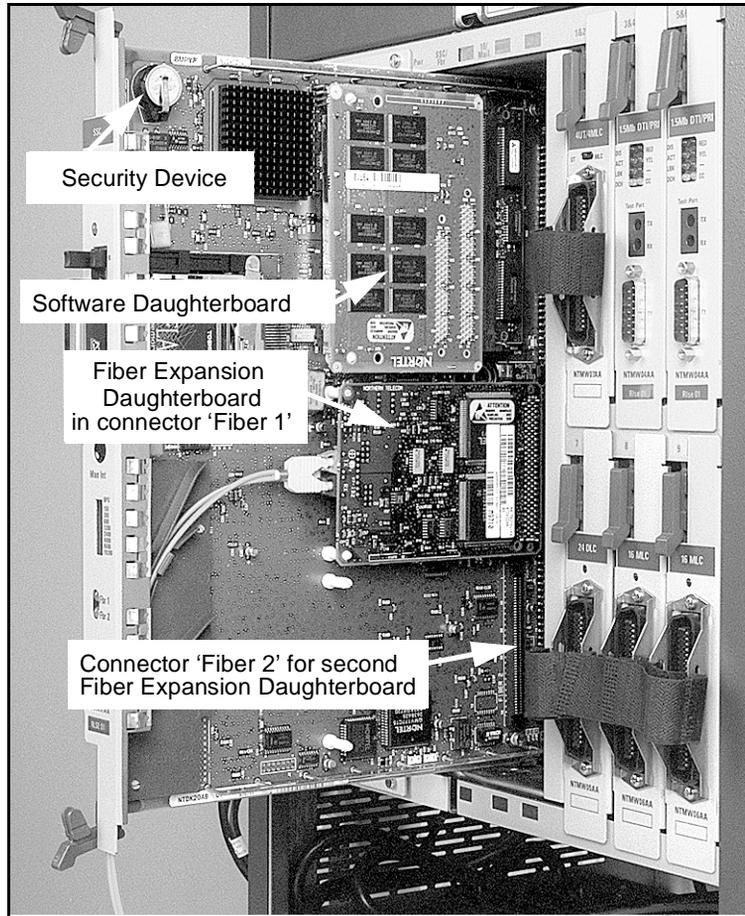


### Ten-slot expansion cabinet NTMW35 backplane

The NTMW36 ten-slot expansion cabinet backplane provides CPU and power slots compatible with Option 11 hardware. It provides five DS-30X loops and a CE-MUX bus on the top plane, and five single DS-30X on the bottom plane. The ten-slot backplane also provides connectors for a CPU serial data interface and Ethernet.

### NTMW49 RSM circuit card

The NTMW49 RSM circuit card supports three RS232-C ports and a 2X25 pair socket for the MDF connection. It also provides one socket for connecting to the backplane of the main cabinet. The card has a BYPASS slider switch and an LED indicator light. The NTMW49 circuit card is enclosed in a metal box (the NTMW50).

### ISDN and Digital Trunk Interface

The NTMW04 1.5 M b DTI/PRIcard provides 1.5 Mb ISDN primary rate interface and digital trunk interface capabilities as well as Clock recovery and D-Channel interface. It can be installed in any of the three upper PE slots in the main cabinet.

For more information about ISDN and network equipment, refer to the *Option 11C Compact 1.5 DTI/PRI Administration and Maintenance Guide*,

## Peripheral cards

The following Peripheral (PE) cards are used in both the Main and Expansion cabinets.

- NTMW05 24 Port Digital Line Card (24 DLC) is a mini card equipped with 24 voice ports and 8 data ports capable of interfacing with Digital Aries sets and M2250 Digital Console.

- NTMW06 16 Port Message Waiting Analog Line Card (16 MLC) is a mini card equipped with 16 voice ports capable of interfacing with 500- and 2500-type analog telephone sets. It also supports high voltage message waiting lamp indicator.

- NTMW07 4 Port Universal Trunk/4 Port Analog Line Card (4þUT/4þMLC) is a mini card equipped with four analog trunk ports and four analog line ports. The four trunk ports can interface CO, Loop, TIE, Paging or RAN trunks.The four line ports provide the same functionality as the ports on the 16 MLC.
  The NTMW07 also provides a Power Failure Transfer Unit (PFTU) function. It allows one trunk on the card to be connected to a telephone set on the same card in the event of a power failure.

- NTMW44 4 Port Universal Trunk Card (4þUT) is a mini card equipped with four analog trunk ports. The four ports can interface CO, Loop, TIE, Paging or RAN trunks.

*Note:* The NTMW44 does not provide an internal Power Failure Transfer Unit (PFTU) function. However, it does provide an external Power Failure Transfer capability.

# Fiber Expansion equipment

## Fiber Receiver card

Multi-cabinet systems require an NTMW10 Fiber Receiver Card in each Expansion cabinet.

One NTDK22 Fiber Expansion daughterboard mounted on the SSC card in the main cabinet is required for each Expansion cabinet.

The connection between cabinets is made using an A0632902 Plastic Fiber Optic cable which is 10 m (33þft) long.

# Telephones and attendant console

The Option 11C Compact system supports analog telephones as well as many telephones currently used with the Meridian 1 systems.

The following is a list of the telephones supported by Option 11C Compact:

- Analog (500/2500 type) Telephones with or without message waiting lamps

- Meridian Digital Telephones (M2006, M2008, M2216 and M2616)

- M2616 or M2216 Central Answering Position (CAP). This telephone must be equipped with an ACD LCD display in order to function as a CAP telephone.

- Meridian 2250 (TCM) Attendant Console

# Cables and wires

**Table 2**
**Cable and wire specifications**

| Cables and wires | Purpose/description |
|---|---|
| A0317094 power cord | Connects a system cabinet to a 110 V ac commercial power source Length: 9 ft 10 in. (3000 mm). |

**Table 2**
**Cable and wire specifications**

| Cables and wires | Purpose/description |
|---|---|
| A0391685 power cord | Connects a system cabinet to a 220 V ac commercial power source Length: 9 ft 10 in. (3000 mm). |
| A0632902 Plastic Fiber Optic cable (multi-mode) | Connects a Main and Expansion cabinet by interfacing with an expansion daughterboard and a Fiber Receiver card. Length: 10 m (33 ft) |
| NTBK48 three-port SDI cable | Connects TTYs, modems, and so on, to the SSC card. |
| NTAK1118 one-port SDI cable | Connects TTYs, modems, and so on, to Fiber Receiver card supported SDI ports in the expansion cabinet. The cable provides a 9-pin to 25-pin converter connection. |
| A0601397 F-F DCE to DTE converter, or A0601396 F-M DCE to DTE converter | May be required when connecting SDI ports to TTYs, modems, etc. |
| NTMW37 1.5 Mb DTI/PRI carrier cable (A0681162) | Connects the 1.5 Mb DTI/PRI card to the Channel Service Unit (CSU). Brings Tx and Rx pairs to a standard 15 pin connector. |
| NE-A25B 25-pair cable | Connects peripheral equipment cards to cross-connection terminals. |
| #6 AWG insulated ground wire | Connects a system cabinet to a building ground source. |
| Cross-connecting wire | Makes cross-connections at the cross-connect terminal. |
| NTMW51 RSM Assembly cable | Connects the Option 11 Compact with the RSM Assembly. The cable is 1.2 m (4 feet) in length. |
| NTMW55 GAC RS232C cable assembly | Connects Ports 2, 3 or 4 to a GAC terminal. Provides DB25 male and female connectors on ends. Wired for null-modem use. The cable is 12 m (40 feet) in length. |

# Miscellaneous items

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

- modems or Data Communication Equipment (DCE) for remote access to the system

- on-site Data Terminating Equipment (DTE) or teletypewriter (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) A0601397 converter may be required to interface the DTE to the system.

# Chapter 3 — System and site requirements

Before installing the Meridian 1 Option 11C Compact system, make sure that the site meets all of the following environmental, grounding, power, and cross-connect terminal requirements.

## Environmental requirements

The Option 11C Compact system is designed to operate in an office environment that meets the following general conditions:

- The room is clean and well ventilated. Each cabinet dissipates up to 500 Watts of power in the form of heat (1700 BTU [1800 kJ] per hour). Equipment room ventilation must be sufficient to maintain the temperature at an acceptable level.

- The temperature is maintained between 32° and 115°F (0°and 45° C) when the cabinets are mounted side-by-side.

- The humidity is maintained between 5% and 95% non-condensing.

- The location selected to mount the equipment is not subject to constant vibration.

- The equipment is located at least 12 ft (4.5 m) from sources of electrostatic, electromagnetic or radio frequency interference. These sources include such things as:

  — power tools

  — appliances (such as vacuum cleaners)

  — office business machines (such as copying machines)

— all electric motors

— electrical transformers

# Earthquake bracing requirements

> **IMPORTANT**
>
> The following earthquake bracing guidelines conform to the requirements for the state of California specifications in the U.S.A.

The guidelines recommend that the cabinets be mounted on a wall using a sheet of 3/4 in. (20 mm) plywood as a backboard. The plywood should be secured to the wall with a minimum of six fasteners. (Refer to Table 3 and Table 4 for a description of appropriate fasteners.)

The following table identifies the maximum allowable wall height in earthquake prone areas for various types of stud wall construction.

**Table 3**
**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 4**
**Minimum fastener requirements**

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

The mounting bracket for each cabinet should be fastened to the sheet of plywood with all the screws supplied with the bracket.

A detailed procedure for earthquake bracing is included in .

# Grounding requirements

```
                         WARNING
Failure to follow grounding recommendations may result in an
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 installing the Option 11C Compact system and applying AC power, measure the impedance of the building ground reference. (An ECOS 1023 POW-R-MATE or similar meter is suitable for this purpose.) If the ground path connected to the Option 11C Compact has an impedance of 5 ¾ or more, better grounding arrangements should be made. Any improvements to the grounding system should be made before the system is installed.

Other grounding requirements are as follows:

- The impedance of the link between the ground post of the system cabinets and the Single Point Ground (SPG) to which it is connected must be less than 0.25¾. Reliable system 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 may not be immediately apparent: degradation may occur over longer periods of time.

- Do not connect the single point ground conductor from the Option 11C Compact system to structural steel members or electrical conduit. In particular, do not 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 Compact system:

    — must be a minimum of #6 AWG at any point

    — 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

    — must not carry current under normal operating circumstances

- 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 ones.

- All conductors must be terminated in a permanent manner. Make sure all terminations are easily visible and accessible for maintenance purposes.

- Tag ground connections clearly with a message such as "CRITICAL CONNECTION: DO NOT REMOVE OR DISCONNECT".

---

**CAUTION**

Once the system is installed, the impedance of the link between the ground post of the main cabinet and the single point ground to which it is connected must be less than 0.25 ¾.

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### Ground bus isolation

It is permitted in the USA under the exception to article 384-20 in the NEC to isolate a panel's ground bus from the housing, provided the panel concerned is not at the main service entrance. This is also permitted in some Canadian locations. For more information on ground bus isolation, refer to local electrical codes.

---

**CAUTION**

Do not isolate the ground bus from the housing unless it is specifically permitted by local electrical codes. Work inside electrical panels should only be performed by qualified electricians. Do not attempt to remove bonding conductors without approval from qualified personnel.

---

**WARNING**

Ground conductors between supply panels must be routed through the same conduit as the supply conductors. This is a safety requirement of both the NEC and CEC.

---

## Grounding method

> **CAUTION**
>
> In order to prevent grounding problems, cabinets should be powered from the same dedicated power panel.

Each Option 11C Compact system cabinet is equipped with two ground lugs located inside the cabinet.

The method of grounding used for the Option 11C Compact system depends on whether or not cabinets are powered by the same service panel.

### Cabinets powered by the same service panel

In the main cabinet, a #6 AWG ground wire is connected from one of the lugs to the ground source (the ground bus in the AC power service panel). The second ground lug is used to extend the ground connection (#6 AWG ground wire) to an expansion cabinet.

### Cabinets powered by different service panels

If an expansion cabinet cannot be powered from the same service panel as the main cabinet, then it must be grounded separately to the service panel that supplies it.

## Conduit requirements

Conductive conduit linking panels and equipment are legal for use as a grounding network in most countries. It is recommended that properly sized, insulated copper conductors routed inside conduit for all Option 11C Compact system ground paths be used whenever possible. A ground link dependent on conduit may compromise or defeat the improvements made by installing dedicated panels and transformers for the following reasons:

- Conduit links may be separated by personnel servicing unrelated equipment.

---

> **WARNING**
>
> If conduit link separation occurs anywhere between the Option 11C Compact system and the building ground reference, the conduit is incapable of providing a ground path. This is a hazardous situation.

- Metallic conduit is liable to corrode over time, particularly at threaded connections. Such corrosion increases resistance significantly. This problem is compounded when multiple links are involved. Applications of paint over the conduit may accelerate the corrosion process.

- Conduit is usually anchored to secure surfaces. Often, it is bolted to structural steel members, which may function as ground conductors to very noisy equipment, such as compressors, motors, and so on. The coupling of these noisy signals into the Option 11C Compact grounding system may seriously impair its performance. The resulting intermittent malfunctions can be difficult to trace.

# Commercial power requirements

The Option 11C Compact system uses commercial ac power as a power source.

There are two types of ac-powered installations that can be used with the Option 11C Compact system:

- Optimal ac-powered installation

- Alternative ac-powered installation

### Optimal power

The optimal power installation for a Option 11C Compact system consists of a direct connection to the electrical system in the building, provided certain requirements are met.

### Alternative power

Alternatively, where meeting the optimum requirements may be too expensive or may not be achievable, an approved isolation transformer may be used.

---

## Optimal power installation

A dedicated AC service panel should be used with the Option 11C Compact system. Equipment unrelated to the Option 11C Compact system should not be connected to this panel. Keep all lighting, fans, motors, air conditioning equipment, and the like, as "electrically separate" from the Option 11C Compact system as possible.

The ac power requirements for each cabinet are itemized in Table 5. Check power requirements for other system equipment and install additional outlets if required.

**Table 5**
**AC input requirements for each cabinet**

| | |
|---|---|
| **Voltage** | Maximum rated input voltage 100-240 Volts RMS, single phase, 50-60 Hz. |
| **Power (I/P max)** | 750 VA minimum |
| **Outlet Type** | NEMA IG5-15R for 120 Volt, 15 Amp supply |
| | NEMA IG6-15R for 208/240 Volt, 15 Amp supply |

### Site requirements

The following is a list of required site features for an optimal power system installation.

If the conditions below cannot be provided with a dedicated panel, the use of an Isolation Transformer is recommended, as described under the heading of this chapter.

• **Dedicated circuit breaker panel**

Provides power solely to the Option 11C Compact system and its associated hardware, such as TTYs, printers, and so on.

*Note:* It may not always be possible to power a complete system from a single circuit-breaker panel. For example, an expansion cabinet may be remotely located.

- **Insulated copper ground conductor**

  Connects the ground bus in the dedicated panel to the main service panel ground or building ground reference. It must always be routed through the same conduit as the supply conductors feeding the panel.

- **Isolated-ground receptacles**

  All outlets connected to the dedicated panel should be of the isolated ground type. A separate circuit should be used for each device connected to the panel. Outlets serving the cabinets must be close enough so that the power cord can reach the cabinet power supply.

  For systems equipped an expansion cabinet, a separate outlet for each cabinet is required. Each outlet must be from separate circuits in the same panel.

- **Isolated ground bus in the electrical panel, where permitted by local codes.**(Figure 3 on page 28)

**Figure 3**
**Isolated Ground Bus**



Notes:

1. Ground conductor should be the same size as the largest conductor run between the transformer and the AC panel.

2. Transformer (dedicated for Meridian and Telco Interface Equip) can be either a single phase 120/240 or a three phase 208Y/120 and must have a system ground conductor and should be120/240 or 480 to 208Y/120.

3. Receptacles: All 120V service drops in the Equipment room must have IG type receptacles. Each circuit must have individual hot, neutral and ground conductors.

4. NEMA numbers for ground receptacles are:
   208/240 @ 15 A  IG-6-15
   120 @ 15 A  IG-5-15

5. Dedicated service panel must be located in the equipment room.

6. Required by Canadian Electrical Code: other electrical codes may not.

7. Bonding conductor is enclosed in same raceway/conduit cable containing conductors as per CEC 10-906(9).

8. A "Dirty Ground Bus" is not a mandatory requirement in the Meridian  AC Service Panel.  If this type of bus is installed, connections must be limited to non-Meridian1 auxiliary equipment.

### Location of power outlets

Commercial power outlets must be installed within reach of the power cord from the cabinet (the power cord from each cabinet is 9 ft 10 in. [3000 mm] long).

# Alternative power installation

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

- 120/208/240 V input, over-current protected at primary

- 120/208/240 V available at secondary outputs, each circuit breaker-protected

- Primary and secondary windings must be fully isolated from one another

- Certified for use locally as a stand alone user product (CSA, UL, or other locally recognized markings apparent)

- Capable of providing power to all Option 11C Compact system equipment operating simultaneously at full load

- Equipment unrelated to the Option 11C Compact system must not be powered from a transformer serving the Option 11C Compact system.

### Isolation transformer ground

The transformer ground should have the following characteristics:

- Separate grounds for primary and secondary windings rather than common ground

- A "clean" and permanent Single Point Ground (SPG) reference at the transformer secondary for the Option 11C Compact system.

Verify the ground conductors inside the transformer to ensure they are sized appropriately.

*Note:* Do not ground the transformer or Option 11C Compact system to structural steel or water pipes. Connect them to a known building ground reference.

### Receptacles

Receptacle requirements are as follows:

- When mounted on the wall, they must be installed within reach of the cabinet power cords (the power cord from each cabinet is 9 ft 10 in. [3000 mm] long).

- 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 Single Point Ground (SPG). If it doesn't, use the chassis ground of the transformer as the SPG.

### Transformers with pluggable power cords

See the following for installation instructions.

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

**2**   Secure an insulated conductor between the ground lug on the main cabinet of the Option 11C Compact system 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 NTMW11 power supply.

*Note:* All equipment associated with the Option 11C Compact system should be powered exclusively from the secondary of the transformer and grounded to the secondary isolated ground lug. Do not connect equipment unrelated to the Option 11C Compact system to an isolation transformer powering it.

The transformer primary must be powered through a dedicated circuit. If the primary has a pluggable cord, ensure an additional ground connection is made between the Option 11C Compact system SPG and a known building ground reference. This connection is vital for safe and reliable operation. Do not connect any Option 11C Compact system ground lines to structural steel or water pipes, or any other unreliable ground path. Use a ground point known to be "clean" and permanent. Place a "DO NOT DISCONNECT" tag on it. Figure 4 shows the pluggable cord connections.

**Figure 4**
**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 system 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 system cabinet.  Route separately from AC power cable.

**7**   Separate breaker required for each  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.

### Transformers without pluggable power cords

If the transformer does not have a pluggable cord, it must be hardwired to an electrical panel, and all wires (including grounds) must be routed through a single conduit. Some electrical codes permit the use of conduit as the sole ground conductor between pieces of equipment. It is recommended that a separate insulated ground conductor be run through the conduit to bond chassis grounds together. Such a conductor will maintain the safety ground connection in the event that the conduit becomes corroded or disconnected. All ground lines should be run through the same conduit as the phase conductors serving the equipment. Figure 5 shows the Isolation transformer connections.

**Figure 5**
**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 system 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 cabinet.  Route separately from AC power cable.

**7**   Separate breaker required for each 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.

# Auxiliary equipment power

Terminals, printers, modems, and other data units used in conjunction with the Option 11C Compact system 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 Compact system

- be grounded to the same panel or transformer as the Option 11C Compact system

- be tagged at the panel to prevent unauthorized interruption

- not be controlled by a switch between the breaker and the equipment.

Service receptacles for the system and associated equipment should 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

The system can be equipped with a modem to allow remote access. See "Chapter 15 – Installing and connecting SDI and Ethernet ports" on page 125 for information about setting-up modems recommended for use with the Option 11C Compact system.

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

If an error-correcting modem is connected to the Option 11C Compact 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

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

See "Terminal setup" on page 131 for terminal set-up information.

## On-site access

Each system should be equipped with an M2616 or M2008 telephone with a display assigned as a maintenance telephone.

A variety of TTY terminals can be used to access the Option 11C Compact system. However, a VT220 terminal is recommended as an on-site terminal. It can be used to perform service changes, maintenance and diagnostic functions, as well as Meridian Mail Option 11C Compact administration activities.

## Remote access

Although several types of modems can be used to access the system, a 2400 baud auto-answer modem is the recommended modem and 1200 baud is the minimum. It can be used to perform service change, maintenance and diagnostic functions, as well as Meridian Mail Option 11C Compact administration activities from a remote location.

*Note:* Additional maintenance functions can be performed through remote access on the Option 11C Compact system. For additional information, refer to the *Customer Configuration Backup and Restore Guide*.

# Cross-connect terminal requirements

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

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

- one 25-pair cable from each PE card (maximum six per cabinet)

- wiring from telephone sets and trunks.

The **BIX cross-connect system** is recommended for use with the system. However, use of this system is not mandatory. Other similar cross-connect systems can also be used.

Information about the **BIX cross-connect system** is found in the following Nortel Publications (NTPs):

- *BIX In-Building Cross-Connect System Material Description* (NTP 631-4511-100)

- *BIX In-Building Cross-Connect System Planning* (NTP 631-4511-150)

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

# Equipment layout plan

Develop an equipment layout plan to determine where each system component will be positioned before installing the Option 11C Compact system.

Preparation of the site according to the plan is important. Site preparation consists of making sure the site is ready to accept the equipment and that items such as power outlets and backboards are correctly installed.

Consideration should be given to the lengths of the various cables in order to make the best use of space available. Refer to Table 2, "Cable and wire specifications," on page 16 for a complete description of Option 11C Compact system cable and wire specifications.

## General layout guidelines

> **CAUTION**
> The mounting surface must be able to support at least 100 lb (45 kg). It is recommended that you secure a backboard consisting of 3/4 in. (20 mm) plywood, or other similar material, to the surface of the wall to hold the equipment.

Use the following guidelines to assist in positioning the system equipment:

- The cabinets are designed to be mounted on a wall.

- Each cabinet measures approximately 20 in. (510 mm) high by 15 in. (380 mm) wide by 12 in. (305 mm) deep.

- If only installing a main cabinet, leave adequate space for an expansion cabinets.

  *Note:* The interconnecting fiber optic cable measures approximately 33 ft (10 m). The distance between the main and expansion cabinets is therefore limited by the length of the interconnecting fiber optic cable.

- When planning for a system that is equipped 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 cabinet on and off the bracket.

- Leave at least 12 in. (305 mm) between the top of a cabinet and the ceiling to ensure proper ventilation.

- Leave at least 10 in. (255 mm) between the bottom of the cabinet and the floor to prevent water damage and to allow for ventilation.

- If the NTAK92 Off-premises protection module is used, allow for proper installation (according to local practices)

- Ensure power outlets are within reach of each cabinet. Cable and wire specifications are shown in .

## Equipment layout plan for wall mounting

shows a typical wall layout using BIX cross-connection equipment. Use of other types of terminal blocks and equipment will alter the layout.

**Figure 6**
**Typical minimum distance layout of wall mounted cabinets**
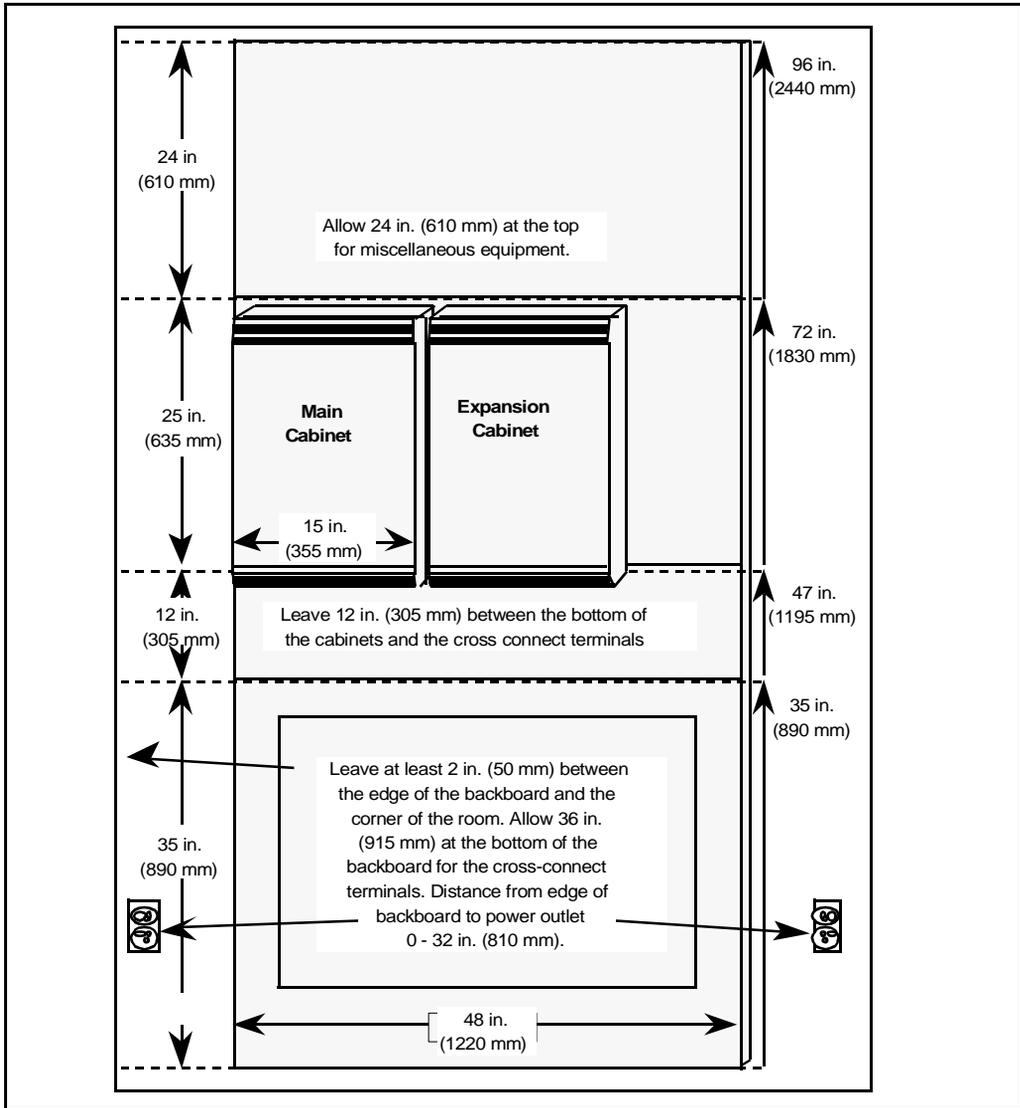
# Card slot assignments

A card slot allocation plan showing circuit card to Peripheral Equipment (PE) slot assignments () should be prepared for each cabinet.

### NTMW01 Small System Controller (SSC)

The NTMW01 Small System Controller (SSC) card must be installed in the main cabinet in the CPU slot. It can be equipped with an NTDK22 10m Fiber Expansion Daughterboard to provide a connection to an expansion cabinet.

### NTMW02 Meridian Mail CPU card

The NTMW02 Meridian Mail CPU card must be installed in the main cabinet in the MMail slot. It can be equipped with up to two NTMW03 4 Port Mail DSP Daughterboards. Each daughterboard supports four voice mail ports.

### NTMW04 DTI/PRI card

The NTMW04 DTI/PRI card must be installed in the main cabinet in any of slots 1 & 2, 3 & 4 or 5 & 6 (upper PE slots).

The NTMW04 card is recognized by the system as the odd-numbered card when installed as follows:

- card 1, when installed in slot 1 & 2

- card 3, when installed in slot 3 & 4

- card 5, when installed in slot 5 & 6

  *Note:* This card cannot be installed in the lower PE slots of the main cabinet (slots 7 through 9) or in any slot of an expansion cabinet.

### Line cards

The following Peripheral circuit cards can be installed in any slot in the main and expansion cabinets:

- NTMW05 24 Port Digital Line Card

- NTMW06 16 Port Analog Line Card

### Combined Trunk and Line card

The NTMW07 Analog Trunk/Line Card can be installed in any upper PE slots of the NTMW08 cabinet (main and expansion).

The trunk portion of the card is always recognized by the system software as the odd-numbered card as follows:

- In a main NTMW08 cabinet

    — card 1, when installed in slot 1 & 2

    — card 3, when installed in slot 3 & 4

    — card 5, when installed in slot 5 & 6

- In an expansion NTMW08 cabinet

    — card 11, when installed in slot 11 & 12

    — card 13, when installed in slot 13 & 14

    — card 15, when installed in slot 15 & 16

The line portion of the card is always recognized by the system software as the even-numbered card as follows:

- In a main NTMW08 cabinet

    — card 2, when installed in slot 1 & 2

    — card 4, when installed in slot 3 & 4

    — card 6, when installed in slot 5 & 6

- In an expansion NTMW08 cabinet

    — card 12, when installed in slot 11 & 12

    — card 14, when installed in slot 13 & 14

    — card 16, when installed in slot 15 & 16

### Analog 4 Port Trunk card
The NTMW44 4-Port Universal Trunk card can be installed in any PE slot in the main and expansion cabinets.

To prepare the plan, list the total number of the following circuit cards required for the installation:

## Used only in the NTMW08 main cabinet

| | |
|---|---|
| NTMW01 SSC | 1 |
| NTMW02 Meridian Mail CPU | 1 |
| NTMW04 1.5 Mb DTI/PRI | _____ |
| NTDK22 Fibre Daughterboard | _____ |
| Voice Mail Daughterboards | _____ |

## Used only in expansion cabinets

| | |
|---|---|
| NTMW10 Fiber Receiver card | 1 |

*Note:* Expansion cabinets require an NTMW10 Fiber Receiver card positioned in the CPU slot in an NTMW08 Expansion cabinet or the fiber receiver slot (first slot to the right of the power supply slot) in an NTMW35 Expansion cabinet.

## Used in the main and expansion cabinets

| | | |
|---|---|---|
| NTMW11 Power Supply | _____ | |
| NTMW05 Digital line card | _____ | |
| NTMW06 Analog line card | _____ | |
| NTMW07 Analog Trunk/Line card | _____ | (See Note 1) |
| NTMW44 Analog Trunk card | _____ | |

*Note 1:* The NTMW07 Analog Trunk/Line card is not used in NTMW35 Expansion cabinets.

Assign the cards to the main cabinet first. Fill the remaining card slots as required.

Assign all line cards in consecutive card slots if using the pre-assigned numbering plan with consecutive Directory Numbers (DN).

**Figure 7**
**Card slot assignments — NTMW08 Main cabinet layout**
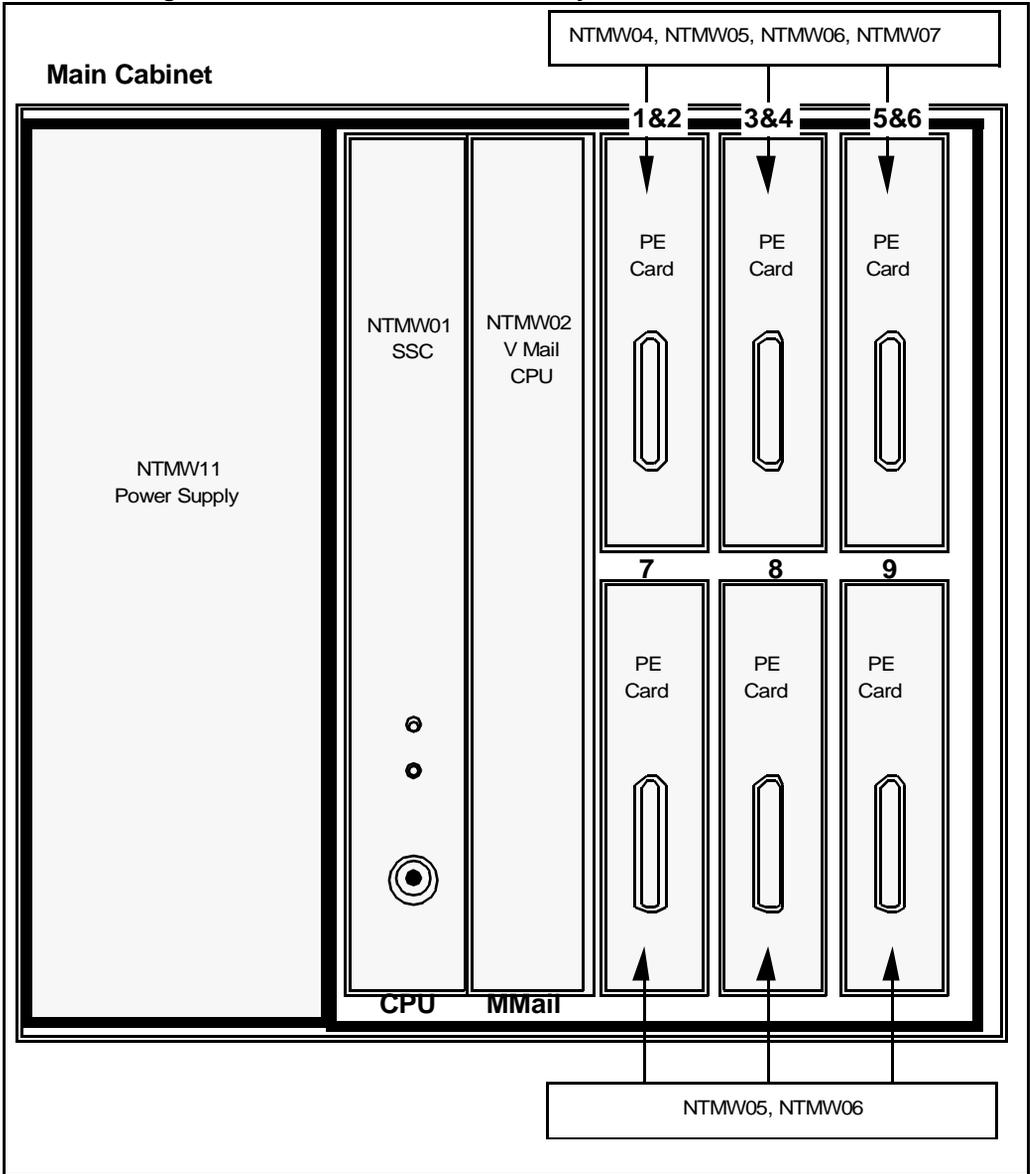
**Figure 8**
**Card slot assigments — NTMW08 Expansion cabinet layout**
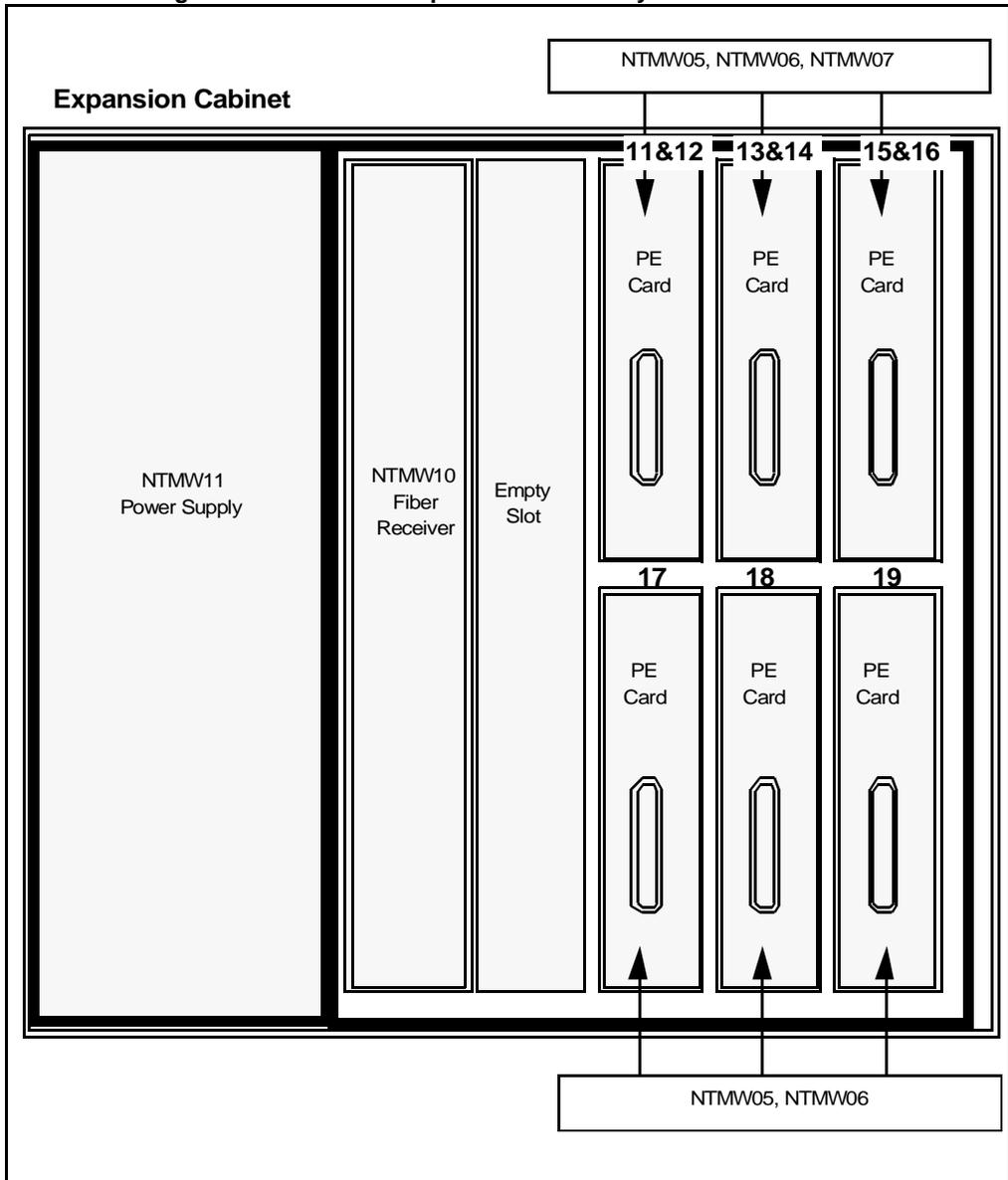
**Figure 9**
**Card slot assignments — First NTW35 expansion cabinet**



NTMW05, NTMW06, NTMW44

NTMW11
Power Supply

NTMW10
Fiber
Receiver

PE
Card

PE
Card

PE
Card

PE
Card

PE
Card

Card Slot Numbers

11   12   13   14   15

16   17   18   19   20

PE
Card

PE
Card

PE
Card

PE
Card

PE
Card

NTMW05, NTMW06, NTMW44
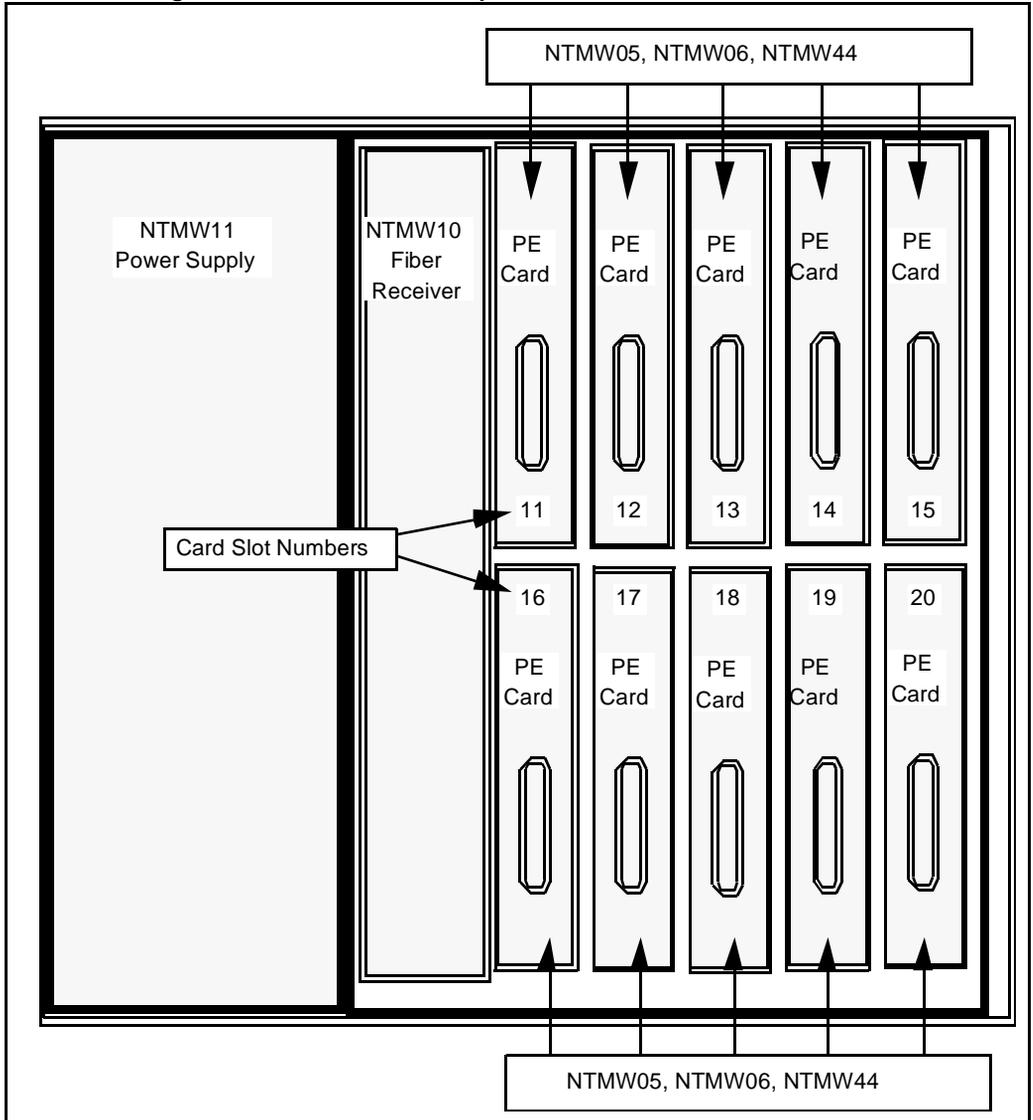
*Note:*  The ten-slot cabinet supports a maximum of six NTMW05 cards.

**Figure 10**
**Card slot assignments — Second NTW35 expansion cabinet**
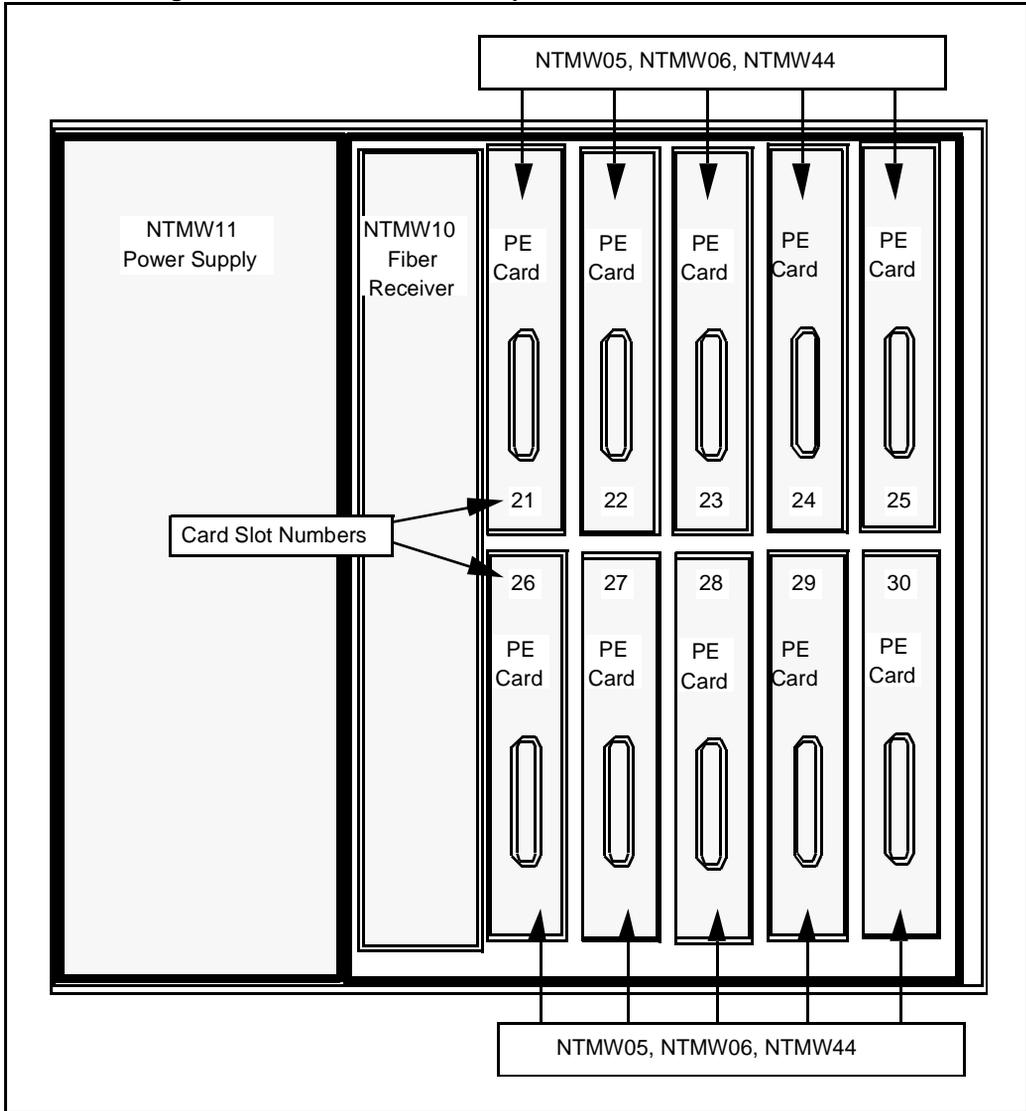


*Note:*  The ten-slot cabinet supports a maximum of six NTMW05 cards.

# Chapter 4 — Regulatory and other information

This Chapter contains information about regulatory compliance of Option 11C Compact installations.

## Fiber Optic Cable Interface products

The fiber optic interface product used in the Meridian 1 Option 11C Compact is considered safe. However, as a precaution do not look at the optical port or the end of fiber optic cable.

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**WARNING**

Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

---

## Notice for United States installations

The Meridian 1 Option 11C Compact complies with Part 68 of the FCC rules. Each system cabinet has a label that contains, among other information, the FCC registration number and Ringer Equivalence Number (REN) for this equipment. If requested, this information must be provided to the telephone company.

## Importance of Ringer Equivalence Number

The FCC regulation label includes the Ringer Equivalence Number (REN). This number is a representation of the electrical load that will be applied to your telephone line once the PBX is plugged into the wall jack. The telephone line serving your premises will not operate properly if the total ringer load exceeds the capability of the telephone company central office equipment. That is, if too many ringers are connected to the line, there may be insufficient energy to ring your system. If the ringer load is excessive, you may also have difficulty 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 Compact 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 has been corrected, or you are sure that the equipment is not malfunctioning. If it is possible, they will notify you in advance of the pending disconnection. You will also 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 give you an opportunity to maintain uninterrupted service.

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

## Hearing aid compatibility

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

# Notice for Canadian installations

The Industry Canada 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 alphabetic 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 should ensure 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 should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations 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 should ensure for their own 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 may be particularly important in rural areas.

---

**CAUTION**

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

---

**WARNING**

Users should not attempt to make electrical ground connections themselves, but should contact their local electrical inspection authority or electrician.

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# Repair facilities

The addresses for repair facilities for Canada and the United States are given below.

## Canada

Northern Telecom Canada Ltd.
250 Sidney Street
Belleville, Ontario
Canada, K8N 5B7

## United States

Northern Telecom Inc.
640 Massman Drive
Nashville, Tennessee
U.S.A. 37210

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# U.S.A. and Canada Network connections

Table 6 contains information that must be given to the local telephone company when ordering standard network interface jacks for the Option 11C Compact. Note that the table includes columns for system port identification, Facility Interface Code (FIC), Service Order Code (SOC), USOC jack identification and associated Nortel equipment part numbers.

## North American Numbering Plan

The software configuration within the Meridian 1 Option 11C Compact that allows the user access to the public network must be re-programmed to recognize newly established network area codes as they are placed in service.

Failure to re-program the system to recognize the new codes as they are established may restrict the customer and the customer's employees from gaining access to the network and these codes.

Bell Communications Research (BellCore) publishes the North American Numbering Plan (NANP) on paper, microfiche and tape. An abbreviated summary of the newly established area codes and exchange codes is available. BellCore may be contacted at (608) 699-6700 to obtain appropriate information to keep customer equipment upgraded.

## Equal Access

This equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

## 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. Permissible exceptions are:

  — a call is unanswered

  — a busy tone is received

  — a reorder tone is received

**Table 6**
**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<br><br>(2-Wire, Local Switched Access, Loop-Start) | 02LS2 | 9.0F | 1.1B | RJ21X<br>or<br>CA21X | NTMW07<br>and<br>NTMW44 |
| 2-Wire, LSA, G-S<br><br>(2-Wire, Local Switched Access, Ground-Start) | 02GS2 | 9.0F | 1.1B | RJ21X<br>or<br>CA21X | NTMW07<br>and<br>NTMW44 |
| 2-Wire, LSA, R-B<br><br>(2-Wire, Local Switched Access, Reverse-Battery) | 02RV2-T | 9.0F | 0.0B | RJ21X<br>or<br>CA21X | NTMW07<br>and<br>NTMW44 |
| 1.544 Mbps OSI, SF | 04DV9-B | 6.0P | N/A | RJ48<br>or<br>A48 | NTMW04 |
| 1.544 Mbps OSI, SF | 04Dv9-C | 6.0P | N/A | RJ48<br>or<br>CA48 | NTMW04 |

# Radio and TV interference

The Option 11C Compact complies with Part 15 of the FCC rules in the U.S.A. Operation is subject to the following two conditions:

- Option 11C Compact may not cause harmful interference.

- Option 11C Compact must accept any interference received, including interference that may cause undesired operation.

If the Meridian 1 Option 11C Compact causes interference to radio or television reception, which can be determined by placing a telephone call while monitoring, the user is encouraged to try to correct the interference by the following measures:

- Reorient the receiving TV or radio antenna where this may be done safely.

- To the extent possible, relocate the receiver with respect to the telephone equipment.

If necessary, the user should consult the dealer or an experienced radio or television technician for additional suggestions. The user may also find helpful the booklet "How to Identify and Resolve Radio-TV Interference," prepared by the Federal Communications Commission. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.

## Information for Canada

The Option 11C Compact 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 5 — Safety instructions

This chapter provides important safety information for installing and using your telephone equipment. Make sure this chapter is readily available for use as a reference tool.

## Symbols you should recognize

Whenever you see the symbol shown below on Meridian 1 Option 11C Compact equipment or documentation, it is intended to alert you to the presence of important operating and maintenance instructions.
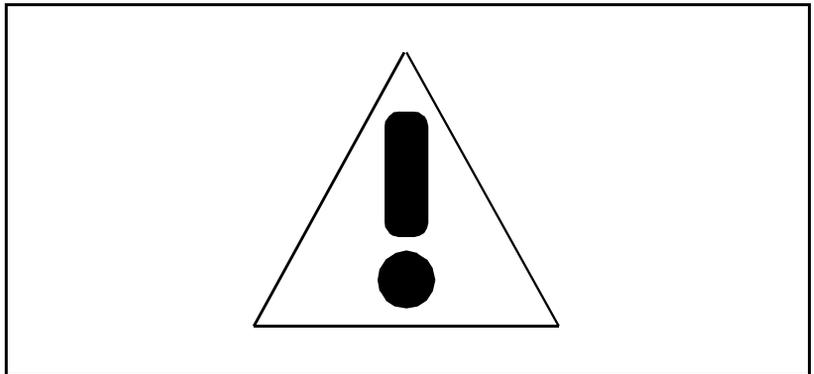
# Safety instructions when installing telephone equipment

1   Never install telephone wiring during a lightning storm.

2   Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

3   Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

4   Use caution when installing or modifying telephone lines.

# Safety instructions when using telephone equipment

When using telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

1   Follow all warnings and instructions marked on the product.

2   Unplug the telephone from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

3   Do not use the telephone near water, for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement or near a swimming pool.

4   Do not place the telephone on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.

5   Slots and openings in the cabinet and the back or bottom are provided for ventilation, to protect it from overheating. These openings should never be blocked or covered.

The openings on a telephone should never be blocked by placing the product on the bed, sofa, rug, or other similar surface. The product should never be placed near or over a radiator or heat register. The product should not be placed in a built-in installation unless proper ventilation is provided.

6   The product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply, consult your distributor.

**7**   Some equipment is equipped with a three-wire grounding type plug: a plug having a third grounding pin. The plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace the obsolete outlet. Do not defeat the purposes of the grounding-type plug.

Some equipment is equipped with a polarized line plug: a plug having one blade wider that the other. This plug will fit into the power outlet only one way. This also is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still doesn't fit, contact your electrician to replace the obsolete plug. Do not defeat the purpose of the polarized plug.

**8**   Do not allow anything to rest on the power cord. Do not locate the product where the cord will be abused by persons walking on it.

**9**   Do not overload wall outlets and extension cords as this can result in the risk of fire or electrical shock.

**10**   Never push objects of any kind into the product through cabinet slots as they may touch dangerous voltage points, or short out parts that could result in a risk of fire or electrical shock. Never spill liquid of any kind onto the product.

**11**   To reduce the risk of electrical shock, do not disassemble a non-operating product.

**12**   Unplug the telephone from the wall outlet and refer servicing to qualified personnel under the following conditions:

   **a**   When the power supply cord or plug is damaged or frayed

   **b**   If liquid has been spilled into the telephone

   **c**   If the telephone has been exposed to rain or water

   **d**   If the telephone has been dropped or the cabinet has been damaged

   **e**   If the product exhibits a distinct change in performance

   **f**   If the telephone does not function properly under normal operating conditions

**13**   Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

**14**   Do not use the telephone to report a gas leak in the vicinity of the leak.

# Fiber optic cable handling procedures

---

**WARNING**

The fiber optic interface product used in the Option 11C Compact is considered safe. However, as a precaution do not look at the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

---

The Option 11C Compact system supports fiber optic cable interconnection between system cabinets using the following equipment:

- A0632902 10 m Plastic Fiber Optic cable (multi-mode)

- NTDK22 10 m Fiber Expansion daughterboard

- NTMW10 Fiber Receiver card

The following safety precautions must be followed when handling fiber equipment:

- All persons handling Fiber Expansion daughterboards and Fiber Receiver cards must be Electrostatic Discharge (ESD) protected.

- Always ensure the fiber optic cable is routed out of the way of any traffic through the premises.

- Never staple or bend the fiber optic cable at an extreme angle. Do not exceed the minimum bend radius of 1.5 in. (35 mm) (90° soft bend).

    *Note:* A conduit is not required for routing fiber optic cable between cabinets. However, if a conduit is required for identification or other reasons, use a conduit measuring a minimum of 1 in. (25 mm) in diameter to allow the connector on the cable to pass through.

# Chapter 6 – Bracing cabinets against earthquakes

## General information

The cabinets must be mounted on the wall in order to meet earthquake protection requirements.

Earthquake bracing is performed by securely fastening a 3/4 in.(20 mm) sheet of plywood to the wall, then placing the system components on the backboard (not attaching them directly to the wall).

**Table 7**
**Steps for earthquake bracing of system cabinets**

| Step | Description |
|------|-------------|
| 1 | Determine the size of the backboard. |
| 2 | Determine the fasteners required to mount the backboard to the wall. |
| 3 | Determine where to place the fasteners on the backboard. |
| 4 | Proceed with the system Installation. |

# Bracing system cabinets

The following describes how to brace the cabinets.

**1**    Determine the size of the backboard.

A backboard large enough to accommodate all the wall-mounted components is needed. Refer to the equipment layout plan for the site.

***Note:*** An equipment layout plan should have been previously completed. Refer to "Equipment layout plan" on page 38 for further details.

The backboard size should be within the following 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

The following information is needed to determine fastener requirements:

- Type of fasteners needed.

- The minimum embedment of the fasteners into the wall.

- The vertical distance between fasteners.

- The horizontal distance between fasteners.

- For wood and metal stud walls, this requirement is determined by the spacing between wall studs, which must be within the following range:

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

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

**Table 8**
**Hardware recommendations**

| Type of wall | Fastener | Vertical spacing between fasteners | Minimum embedment |
|---|---|---|---|
| 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 9**
**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) |
| | |
| 6 X 18 Gauge | 20 ft (6000 mm) |

**Table 10**
**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 the placement of fasteners.

Refer to the following figures for assistance with the placement of fasteners on the backboard. In each figure, the minimum sized backboard (2 ft by 6 ft) and the maximum sized backboard (4 ft by 8 ft) are used as examples:

- **Figure 11:** provides fastener locations for wood and metal stud walls with the minimum allowed stud spacing of 16 in. (400 mm).

- **Figure 12:** provides fastener locations for wood and metal stud walls with the maximum allowed stud spacing of 24 in. (600 mm).

- **Figure 13:** provides fastener locations for concrete and masonry walls.

**Figure 11**
**Plywood fastener locations for wood and metal stud walls — 16 inch spacing**
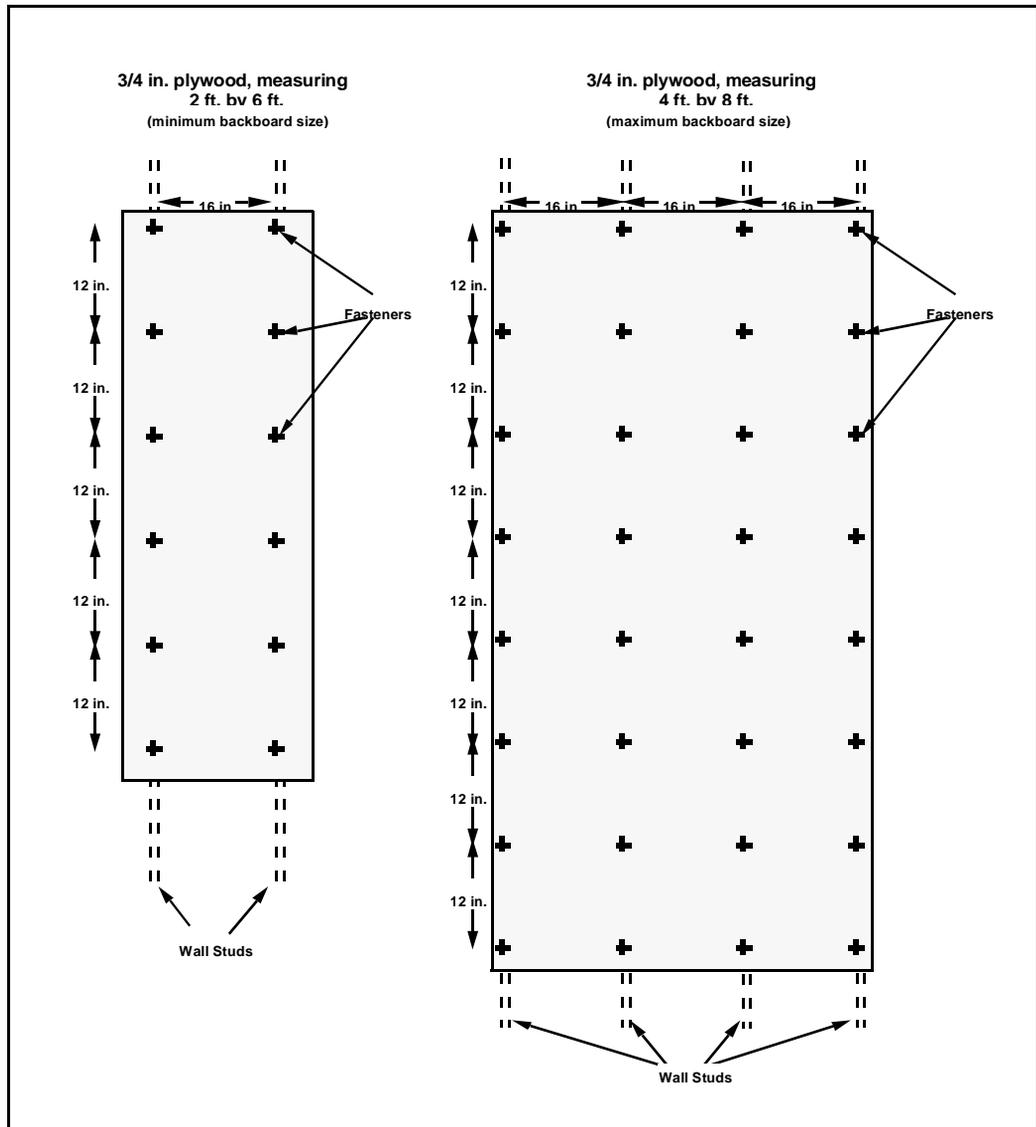
**Figure 12**
**Plywood fastener locations for wood and metal stud walls — 24 inch spacing**
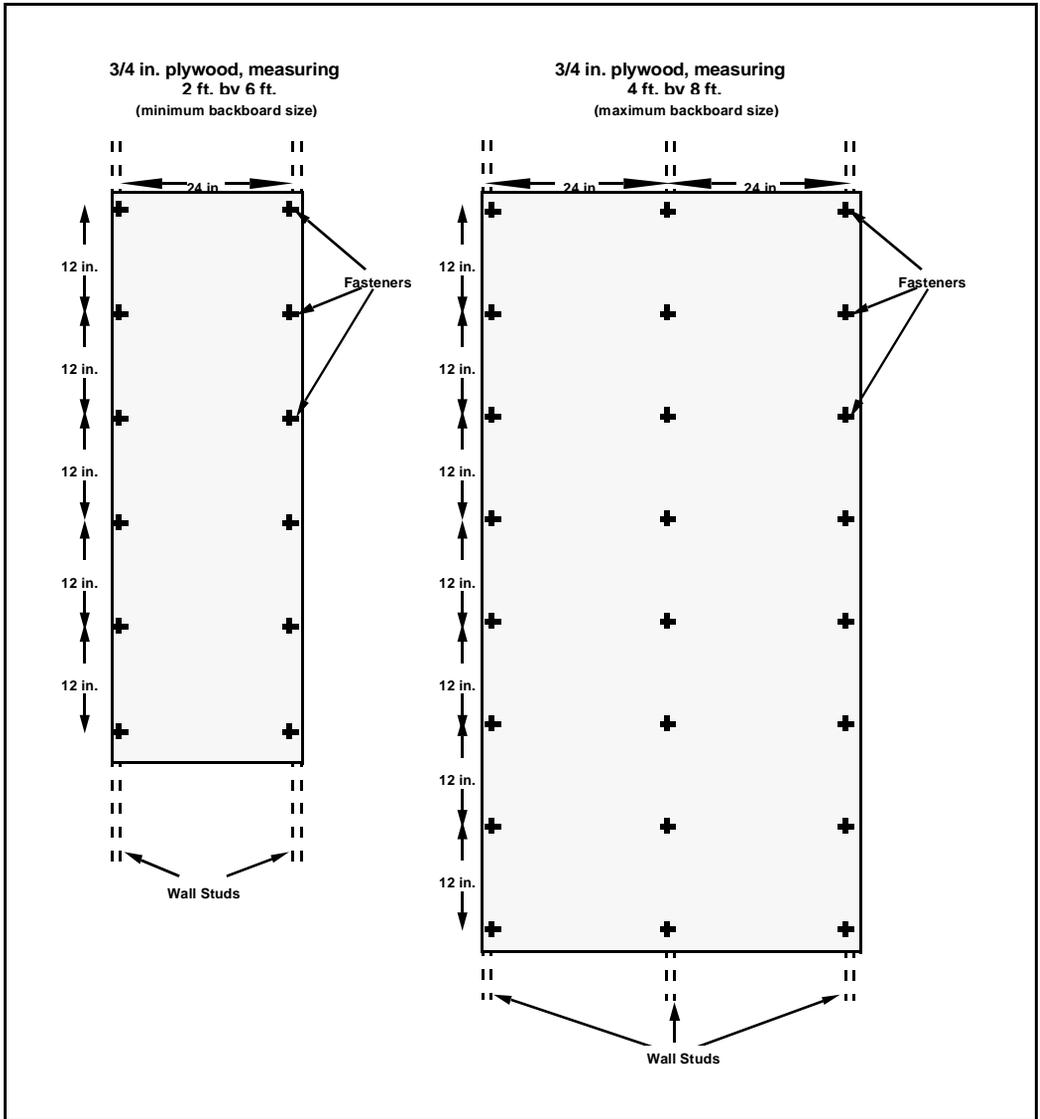
**Figure 13**
**Plywood fastener locations for concrete and masonry walls**
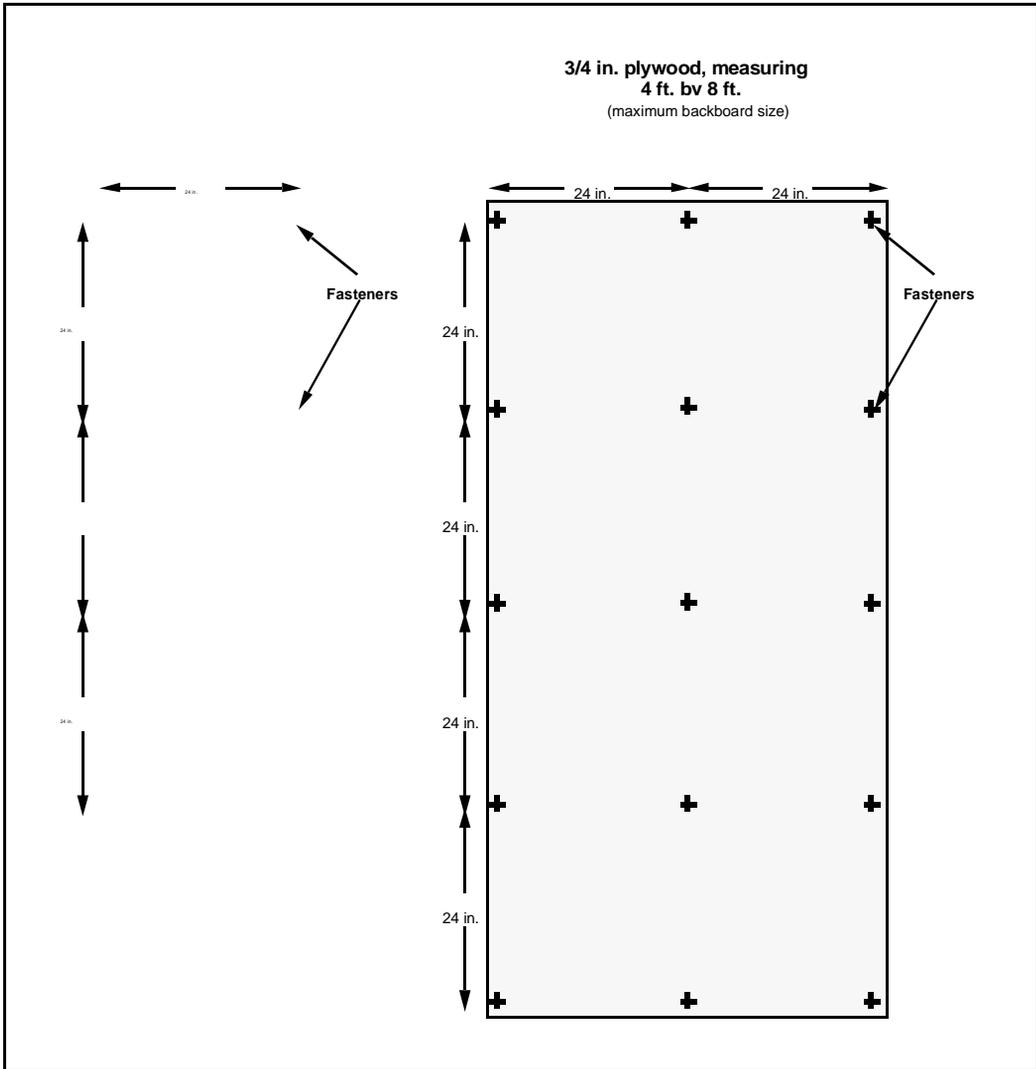
**4**     Proceed with the system installation

Once the backboard is securely fastened to the wall, proceed with the equipment installation procedures as described in .

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

# Chapter 7– Preparing for installation

Before proceeding with the installation, obtain all the tools necessary to install the Meridian 1 Option 11C Compact.

Check the site requirements. Make sure that all the equipment has been received, and that equipment layout and card slot assignment plans have been prepared.

## Tools checklist

The following is a list of tools needed to install the system components:

☐ a variety 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

Before proceeding:

☐   read all safety instructions in <u>"Chapter 5 — Safety instructions" on page 57</u>

☐   check to ensure you all the equipment ordered has been received

☐   make sure the site meets all environmental requirements

☐   check for all power requirements

☐   check for proper grounding facilities

☐   make sure an equipment layout plan for the system has been prepared

☐   make sure a card slot allocation plan has been prepared

☐   make sure all the tools required to proceed with the installation are available

# Chapter 8 – Installing a new system

## General information

This chapter describes how to install a Meridian 1 Option 11C Compact system, with or without expansion cabinets.

Make sure that an equipment layout plan and card slot layout plan have been created and are available, and that site requirements, as described in "Chapter 3 — System and site requirements" on page 19 are met.

## Installing the system

Follow the steps in Procedure 1 on page 73 to install the new Meridian 1 Option 11C Compact system. Complete each step as described before proceeding with the next step. Check off the box located in the left margin next to each step as it is completed.

References are made to other chapters in this guide in order to provide additional information.

**Procedure 1**
**New system installation**

☐ 1    **Locate the carton containing the main cabinet and, if provided, the expansion cabinet.**

☐ 2    **Mount the cabinets as described in "Chapter 9 – Mounting the cabinets" on page 79.**

Make sure that they are mounted according to the equipment layout plan.

Make sure that they are securely mounted.

☐ **3**   **Install the cabinet ground wire for the main cabinet and expansion cabinets (if provided) as described in "Chapter 10 – Installing the system ground" on page 85.**

Make sure that a minimum #6 AWG ground wire is used.

Tag the main ground connection at the ground source to ensure that it is not accidentally disconnected.

Make sure to test the ground.

☐ **4**   **Install the power supplies in each cabinet as described in "Chapter 11 – Installing the power supply" on page 89.**

Make sure the circuit breaker on each power supply is in the OFF position.

Check the option switches on each power supply to make sure that they are correctly set.

☐ **5**   **Skip this step if this is a single-cabinet system (no expansion cabinet) and go to Step 6 on page 74.**

**Install and connect the fiber optic interfaces and cable between the two cabinets as described in "Chapter 12 – Adding an expansion cabinet" on page 95.**

---

**WARNING**

The fiber optic interface product used in Option 11C Compact is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

---

☐ **6**   **Install the Software Daughterboard and the Security Device on the NTMW01 SSC Card as described in "Chapter 13 – Installing the circuit cards" on page 107.**

☐ **7    Install the NTMW01 SSC card and the remaining circuit cards as outlined in the card slot assignment plan. Refer to <span style="color:red">"Chapter 13 – Installing the circuit cards" on page 107</span>.**

Make sure all circuit cards are inserted in their assigned slots.

Make sure that the proper software daughterboard and the security device is installed on the NTMW01 SSC card.

Make sure a Fiber Expansion daughterboard is installed on the NTMW01 SSC card for each expansion cabinet (if equipped).

Make sure that circuit cards equipped with option switches or plugs are properly set.

☐ **8    Install the cross-connect terminal. Refer to <span style="color:red">"Chapter 14 – Installing and connecting the cross-connect terminal" on page 121</span>.**

Install the cross-connect terminal as shown on the equipment layout plan.

Allow space to connect up to six NE-A25B cables from each cabinet.

Allow for additional cables at the cross-connect terminal if any slots are left vacant in preparation for future expansion.

*Note:* Each line or trunk card requires an NE-A25B cable.

Don't forget to attach designations to the terminal blocks to identify the cables.

☐ **9    Install the cables from the faceplate connector on each line and trunk card in the cabinet to the cross-connect terminal. Refer to <span style="color:red">"Chapter 14 – Installing and connecting the cross-connect terminal" on page 121</span>.**

Tag the cables for easy identification.

Install the cables neatly.

There should be one NE-A25B cable for each line or trunk card in the cabinet.

☐ **10**    **Connect the SDI interfaces on the SSC card to the appropriate SDI port cables. If required, connect the ethernet cable to the ethernet interface connector in the main cabinet. Refer to "Chapter 15 – Installing and connecting SDI and Ethernet ports" on page 125.**

Make sure the baud rate and device option settings are properly set.

If the equipment operates in DTE mode, make sure that the A0601396 or A0601397 Modem eliminator is installed.

Connect communication equipment such as TTY terminals and modems to the SDI cables.

☐ **11**    **Start up and test the system as described in "Chapter 16 – Starting up and testing the system" on page 139.**

Check all connections and make sure that the circuit cards are properly installed.

Make sure that the circuit breaker in each cabinet is set to ON.

If the system is equipped with one or more expansion cabinets, check the fiber related LEDs on the SSC card.

- The LED for the Expansion Daughterboard should be **green**.

- If it is **red** (disabled indication);
  Load overlay program 135 and enter ENL FL1 for first expansion cabinet, or ENL FL2 for the second expansion cabinet.

- If the LED is **yellow** (fault indication):
  Check the fiber optic cable to make sure that it is properly connected and not damaged.

☐ **12**    **Connect the M2616 or M2008 administration and maintenance telephone equipped with a display. Configure it as Model 99. Refer to "Chapter 17 – Connecting the telephones and attendant console" on page 157.**

Make sure that it is activated as a model 99.

☐ **13    Install (if not previously installed) and activate the telephones. Refer to "Chapter 17 – Connecting the telephones and attendant console" on page 157.**

*Note:*  Make sure that user guides provided with telephone sets are left with the telephone. This ensures that the telephone set user will understand how to use the features provided by the Option 11C Compact system.

Use the administration telephone to set the default models and default numbering plan.

Configure any custom telephone models which may be required.

Make sure the wiring to each telephone is properly connected.

Make sure all the telephones are in their correct location.

Make sure that user guides provided with telephone sets are left with the telephone.

Make sure that all the required feature key caps are installed on the phones.

Make sure that the correct features are assigned to each telephone and are functioning.

☐ **14    Connect the trunks to the system as described in "Chapter 18 – Connecting the trunks" on page 179.**

Make sure that the wiring to each trunk is properly connected.

Make sure that the trunks are correctly assigned.

Make sure that all the trunks are working properly.

☐ **15    Perform a system backup, using overlay 43.**

Dump or copy the configuration data to the primary and backup flash drives using the EDD command

☐ **16    Install any remaining equipment, such as external alarms (Refer to "Chapter 19 – Connecting an external alarm" on page 191) and the Meridian Mail feature ("Chapter 20—Meridian Mail Compact Option installation and maintenance" on page 191).**

☐ **17    Replace cabinet covers.**

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

# Chapter 9 – Mounting the cabinets

## General information

Procedure 2 on page 80 describes how to mount cabinets on a wall.

## Earthquake bracing

If the Meridian 1 Option 11C Compact system cabinet requires earthquake bracing, refer to "Chapter 6 – Bracing cabinets against earthquakes" on page 61 before continuing.

## Mounting the cabinet on a wall

### Items required

The following is needed to mount the cabinet:

- the equipment layout plan as described in the "Equipment layout plan" on page 38

- the mounting bracket supplied with each cabinet

- screws provided or other appropriate fasteners to secure the mounting bracket and cabinet to the wall

- a 3/4 in. (20 mm) sheet of plywood secured to the wall

---

**CAUTION**

A fully loaded cabinet weighs up to 60 lb (28 kg). Make sure that the equipment is securely fastened to the wall. Use fasteners that are designed to hold securely in 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 that it is anchored directly to the wall studs at a minimum of six locations.

---

**Procedure 2**
**Wall mounting**

> *Note:* If adding a cabinet next to an existing installed cabinet, start at .

1    **Draw a level line on the plywood backboard indicating where the mounting brackets for each system cabinet will be located.**

     Refer to the equipment layout plan and Figure 14 for measurements.

2    **Locate the mounting bracket and mounting screws shipped with each cabinet.**

3    **Rest the bottom of the bracket on the line drawn for the main cabinet and fasten the mounting bracket to the wall with the screws provided (or other suitable fasteners).**

     Make sure that:

        • the mounting bracket is even with the line drawn

        • the hook on the bracket is facing upward.

**Figure 14**
**Mounting Bracket position**
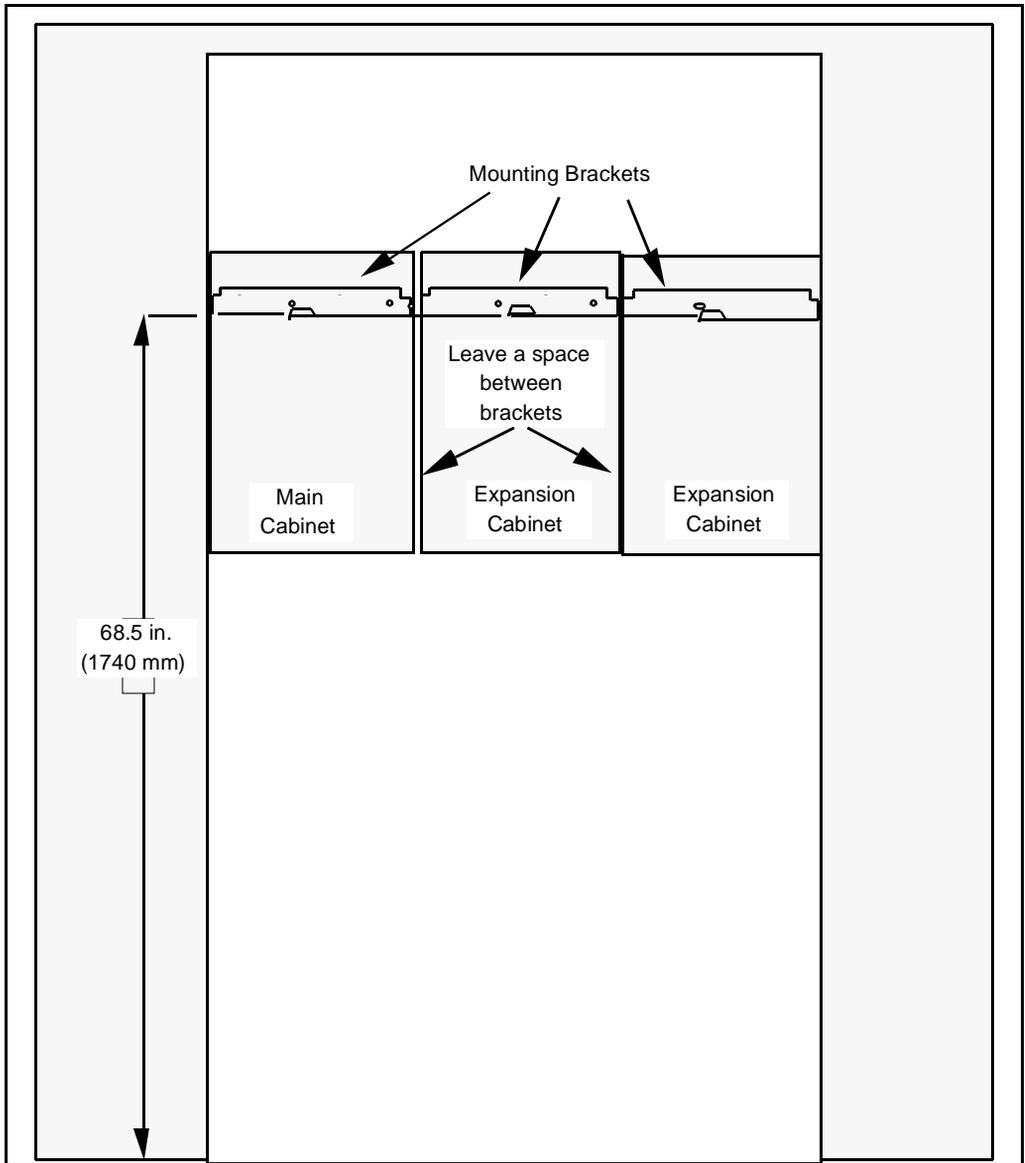
4     **Rest the bottom of the bracket on the line drawn for the expansion cabinet, and fasten the mounting bracket to the wall with the screws provided (or other suitable fasteners).**

Make sure the mounting bracket is even with the line drawn, and that the hook on the bracket is facing upward.

5     **Remove the main cabinet (or expansion cabinet if the main cabinet has been installed) from its carton and remove its front cover.**

The front cover is held in place by magnetic latches and a locking screw (see Figure 15). If the locking screw is in the locked position, use a screwdriver and turn counterclockwise 90° to the unlocked position.

Grasp the sides of the cover and pull the top outwards, then lift it upward to remove it from the cabinet.

*Note:*  The bottom of the front cover is supported but not secured to the cabinet. Be careful not to drop it.

---

**WARNING**

An empty cabinet weighs 32 lb (14.5 kg). Obtain help to lift the cabinet if necessary.

---

6     **Lift the cabinet and hang it on the mounting bracket hook.**

7     **Locate the two screw holes at the bottom towards the rear of the cabinet. See Figure 16.**

8     **Adjust the cabinet so that it is straight and level. Fasten the bottom of the cabinet to the wall with the two screws provided with the cabinet.**

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

**Figure 15**
**Front cover locking screw**



Cover locking screw

**Figure 16**
**Securing the cabinet to the wall**



Screw holes
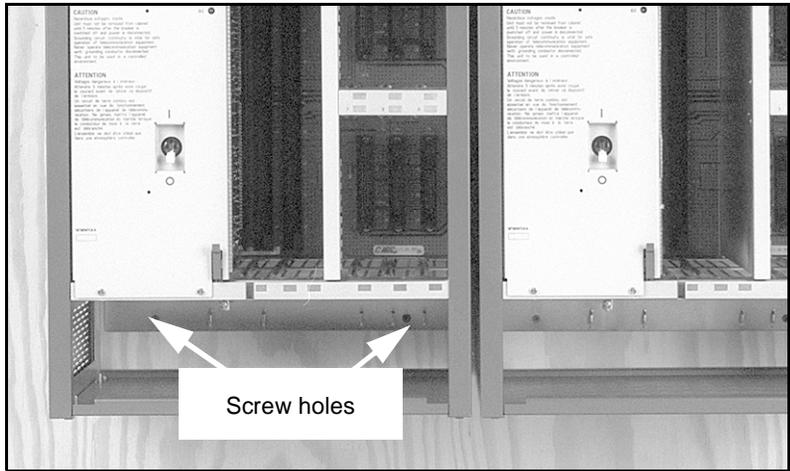
# Chapter 10 – Installing the system ground

## General information

of this chapter describes how to install and connect the ground source to the Meridian 1 Option 11C Compact cabinets. Refer to for detailed information about grounding requirements.

*Note:* The information contained in this Chapter applies to both the Option 11C Compact and Compact Hospitality unless stated otherwise.

---

**WARNING**

Proper grounding is extremely important.
Failure to complete the following steps could result in a system that is:

- unsafe for personnel using the equipment

- not protected from lighting or power surges

- subject to service interruptions.

Insulated ground wire must be used for system grounding.

---

## Cabinets powered by the same service panel

In two-cabinet systems, a #6 AWG ground wire is connected from one cabinet to the other. The main cabinet is in turn connected to a ground source (the isolated ground bus in the AC service panel).

## Cabinets powered by different service panels

If both cabinets in a two-cabinet installation cannot be powered from the same service panel, each one must be grounded separately back to the service panel that supplies it.

# Grounding instructions for cabinets

The following procedure describes how to ground the Option 11C Compact system cabinets. Repeat the steps for each cabinet installed in the system.

**Procedure 3**
**Grounding cabinets**

1    **If the cabinet is equipped with a power supply unit, make sure that the AC power cord is disconnected from the power outlet.**

---

**WARNING**

Power should never be connected to a cabinet that is not properly grounded.

---

2    **In multi-cabinet systems, install a #6 AWG ground wire from one of the ground lugs in the main cabinet to one of the ground lugs in the expansion cabinet.**

Connect the ground wire to the ground lug located in the bottom of the cabinet (Refer to Figure 17).

Route the ground wire through the opening at the bottom rear of the cabinet.

3       **Install a #6 AWG ground wire from the remaining ground lug in the main cabinet to a suitable ground source (the ground bus in the AC power service panel).**

---

**WARNING**

The connection in the AC power service panel should be performed by a qualified technician or electrician.

---

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

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

**Figure 17**
**Ground lugs in the NTMW08 cabinet**



Ground Lugs
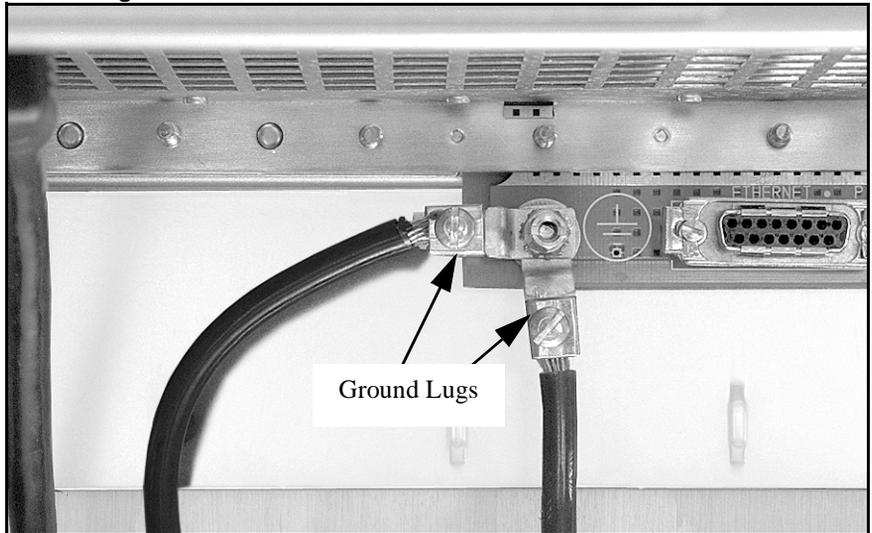
# Chapter 11 – Installing the power supply

## General information

describes how to install the power supply unit used in the Meridian 1 Option 11C Compact system cabinets. shows the location of the power supply unit in the cabinet.

*Note:* The information contained in this chapter applies to both the Option 11C Compact and Compact Hospitality unless stated otherwise.

## Power supplies

An NTMW11 AC power supply is required with its appropriate power line cord for each cabinet.

Power supplies are shipped separate from the cabinets.

### Switch settings

The power supplies are equipped with a series of switches which must be set before the units are installed in the cabinet (Refer to ).

**Figure 18**
**Power supply location — main and expansion cabinets**
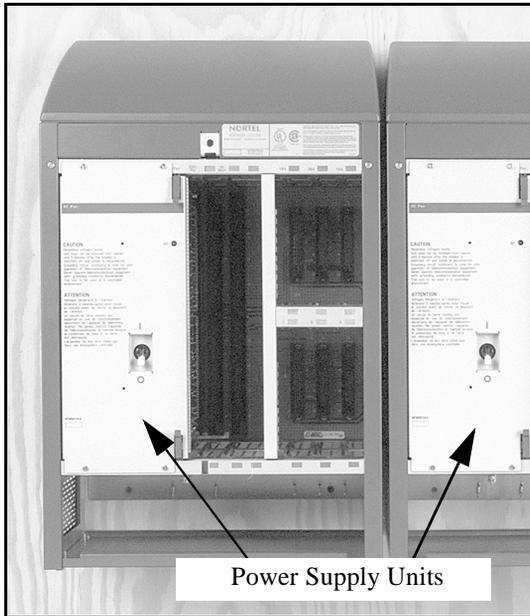


Power Supply Units

**Figure 19**
**NTMW11 power supply switch settings**

| | SW1 | SW2 | SW3 | SW4 |
|---|---|---|---|---|
| **Message Waiting** | | | | |
| **-150V** | ON | | | |
| **-120V** | OFF | | | |
| **Ringing** | | | | |
| **86VRMS** | | OFF | OFF | OFF |
| **80VRMS** | | ON | OFF | OFF |
| **75VRMS** | | OFF | ON | OFF |
| **70VRMS** | | OFF | OFF | ON |

| Frequency | Setting |
|---|---|
| 50 Hz | |
| 25 Hz | |
| 20 Hz | |

**4 3 2 1**
OFF
ON

Switches located at top inside unit
Unseat unit to set switches
Set switch in lower position for ON

## Example:
The setting for North America is normally:
 **-150V for message waiting**
and
 **86VRMS 20 Hz for ringing**

## AC power supply installation

### AC power requirements

A non-switched dedicated AC power outlet installed within 6 ft (1830 mm) of each cabinet is required, with:

- one non-switched dedicated outlet per cabinet with:

  — Voltage: Recommended 100 to 240 volts
     Maximum limits 90 and 250 volts
     Single phase

  — Frequency: 50 or 60 Hz

  — Power (I/P Max): 750VA

Refer to "Commercial power requirements" on page 25 for detailed information about power requirements.

---

**WARNING**

Wait at least five minutes after power to the unit is switched off before removing the unit from the cabinet. Make sure that the power cord is disconnected.

---

**Procedure 4**
**Installing the NTMW11 power supply**

1    Set the AC breaker on the front of the power supply to the OFF position

2    Make sure that the switches on the power supply are properly set as shown in **Figure 19** on **page 91**.

3    Insert the power supply into the first slot on the left of the card shelf (Refer to **Figure 18**).

4    Lock it into place with the four locking screws.

5    Route the power line cord up through the opening at the rear bottom of the cabinet.

6    Attach the power line cord to the connector on the left side of the power supply (see **Figure 20**).

**Figure 20**
**NTMW11 power cable connection**



Commercial AC power connection
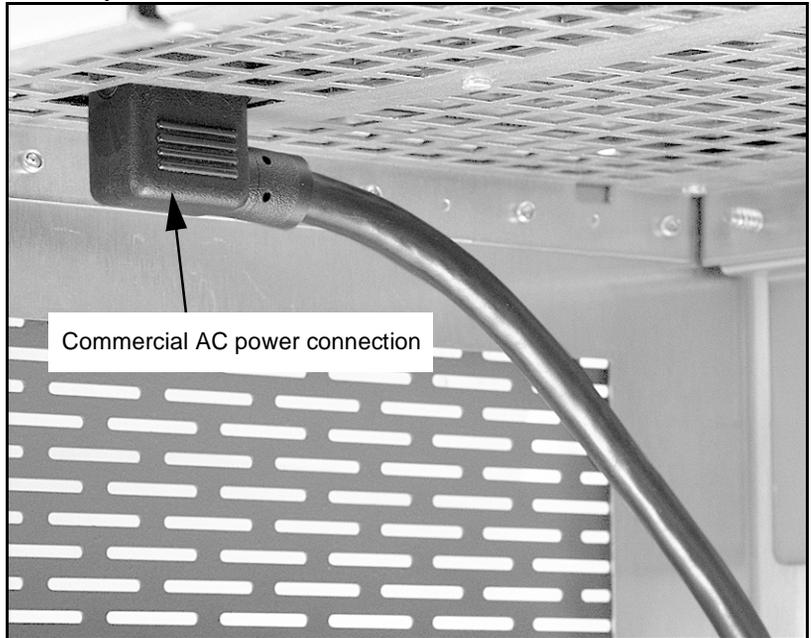
**7**    **Test the ground of each system cabinet using the following procedure.**

**a**    Set the circuit breakers feeding the AC outlet used to power the cabinet to OFF.

**b**    Connect the power line cord to the NTMW11 main cabinet power supply.

**c**    Using an ohmmeter, measure the resistance from the ground pin on the line cord to the ground receptacle on the AC outlet.
The resistance must be less than 0.25 ¾.
If the cabinets are powered from different service panels, the ground must be traced back to the panel serving the cabinet.

**d**    Reset the circuit breaker once the ground connection is verified.

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

# Chapter 12 – Adding an expansion cabinet

## General information

of this chapter describes how to install expansion cabinets using the 10 m (33 ft) plastic fiber optic cable.

*Note:* The information contained in this chapter applies to both the Option 11C Compact and Compact Hospitality unless stated otherwise.

### Cabinet configurations

Cabinets are designed to be mounted on a wall. Refer to the for details about equipment layout planning.

### Fiber optic equipment

The following fiber optic equipment is required when adding an expansion cabinet:

- **A0632902 Plastic Fiber Optic Cable**
  This is a 10 m (33 ft) long cable used as a connection between the two cabinets.

- **NTDK22 Fiber Expansion daughterboard**
  Mounts on the NTMW01 SSC card to provide a fiber optic cable interface connection in the main cabinet.

- **NTMW10 Fiber Receiver card**
  Mounts in the expansion cabinet to provide a fiber optic cable interface connection in the expansion cabinet.

> **CAUTION**
>
> Do not staple fiber optic cable or bend it beyond a minimum 35 mm bend radius (90° soft bend).

> **CAUTION**
>
> Incorrectly connected fiber optic cables may cause the following problems:
>
> – a series of repetitive fault indicating messages
>
> – a complete failure of the expansion cabinet
>
> If fault indicating messages appear, check the fiber optic cable connections.
>
> Since messages are stored in a buffer, they may continue to be displayed until the buffer is empty. After checking the cable connections, wait a couple of minutes for the messages to stop.

## Grounding

Grounding for the expansion cabinet is provided by a #6 AWG ground wire installed between the main and expansion cabinets.

*Note:* It is preferable that all cabinets on a site be powered from the same power panel.

For more information on grounding, refer to .

## Power

Each cabinet requires a dedicated outlet. All outlets should, if possible, be connected to the same power panel. Refer to for more information about power requirements.

**Procedure 5**
**Adding an expansion cabinet**

1    **Mount the expansion cabinet as described in**
     **"Chapter 9 – Mounting the cabinets" on page 79.**

     Make sure that it is mounted according to the equipment layout plan.

     Make sure that it is securely mounted.

     *Note:*  The distance between the cabinets is limited by the length of the A0632902 Plastic Fiber Optic Cable, which is 10 m (33 ft) long.

2    **Install the cabinet ground wire as described in**
     **"Chapter 10 – Installing the system ground" on page 85.**

     Make sure that a minimum #6 AWG ground wire is used.

     Make sure to test the ground.

3    **Install the power supply as described in "Chapter 11 – Installing the power supply" on page 89.**

     Make sure the circuit breaker on the power supply is in the OFF position.

---

**CAUTION**

Static electricity can damage the components of power supplies and circuit cards. Wear an anti-static wrist strap or, if one is not available, touch the frame of the cabinet before handling the power supplies or other circuit cards.

---

     Check the option switches on the power supply to make sure that they are correctly set.

---

**WARNING**

The fiber optic interface product used in Meridian 1 Option 11C Compact is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

---

☐ **4**     **Connect the fiber optic cable to the connector on the Fiber Receiver card as shown in <span style="color:red">Figure 21</span> on <span style="color:red">page 102</span>.**

An A0632902 Plastic Fiber Optic Cable is used to connect the main cabinet to an expansion cabinet.

Do not staple or twist fiber optic cable. Do not bend it beyond a minimum 35 mm bend radius (90° soft bend).

Remove the two protective plugs from the connectors on the Fiber Receiver card.
Connect the cable to the NTMW10 Fiber Receiver card making sure that the 'V' shaped groove on the cable connector is facing inward and that the connector is fully seated. See Figure 22 on page 103.
The mark (if equipped) on the connector should not be visible when properly connected.

Wind the excess fiber optic cable on the cable storage device located on the component side of the Fiber Receiver card (see <span style="color:red">Figure 21</span> on <span style="color:red">page 102</span>).

☐ **5**     **If not already done, install the circuit cards in the expansion cabinet according to the card slot assignment plan.
Refer to <span style="color:red">"Chapter 9 – Mounting the cabinets" on page 79</span>.**

Make sure all circuit cards are inserted in their assigned slots.

Make sure that the NTMW10 Fiber Receiver card is installed in the Fbr Rx slot of the new expansion cabinet.

Make sure that circuit cards equipped with option switches or plugs are properly set.

---

<table>
<tr><td>☐</td><td>**6**</td><td>**Install or expand the cross-connect terminal to accommodate the new expansion cabinet. Refer to <span style="color:red">"Chapter 14 – Installing and connecting the cross-connect terminal" on page 121</span>.**</td></tr>
</table>

Install the cross-connect terminal as shown on the equipment layout plan.

Allow space to connect up to six NE-A25B cables from each cabinet.

Allow for additional cables at the cross-connect terminal if any slots are left vacant in preparation for future expansion.

*Note:*  Each line or trunk card requires an NE-A25B cable.

Don't forget to attach designations to the terminal blocks to identify the cables.

☐  **7**  **Install the cables from the cabinets to the cross-connect terminal. Refer to <span style="color:red">"Chapter 14 – Installing and connecting the cross-connect terminal" on page 121</span>.**

Tag the cables for easy identification.

Install the cables neatly.

There should be one NE-A25B cable for each line or trunk card in the cabinet.

Connect and terminate the AUX cable.

☐  **8**  **If required, connect the SDI cable for the Fiber Receiver card. Refer to <span style="color:red">"Chapter 15 – Installing and connecting SDI and Ethernet ports" on page 125</span>.**

Make sure the baud rate and device option settings are properly set.

If the equipment operates in DTE mode, make sure that the A0601397 Modem eliminator is installed.

Connect communication equipment such as TTY terminals and modems to the SDI cables.

☐  **9**     **Power up the new expansion cabinet.**

Check all connections and make sure that the circuit cards are properly installed.

Connect the power line cords.

Set the breakers on the power supplies in the cabinet and reserve power supply (if provided) to ON.

Make sure that the circuit breakers in each cabinet are set to ON.

**The following Steps 10 through 17 are performed at the main cabinet.**

*Note:* Perform the following steps only if the Fiber Expansion Daughterboard was not previously installed and connected to the fiber optic cable at the main cabinet. The following steps apply only when adding an expansion cabinet to an existing working system.

☐  **10**     **Remove the cover from the main cabinet.**

---

**CAUTION**

The following steps (Steps 11 through 16) in this procedure will interrupt service on the entire Option 11C Compact system for approximately 20 minutes.

---

☐  **11**     **Set the circuit breaker on the power supply in the main cabinet to OFF.**

☐  **12**     **Unseat the NTMW01 SSC card. Install a Fiber Expansion daughterboard on the SSC card as described in "Chapter 13 – Installing the circuit cards" on page 107.**

**13**     **Connect the Fiber Expansion Daughterboard to the connector labeled 'Fiber 1' for the first Expansion cabinet or 'Fiber 2' for the second Expansion cabinet (Figure 23 on page 104).**

*Note:* The Compact Hospitality system can accomodate a maximum of two NTMW35 Expansion cabinets. The Option 11C Compact can only accomodate one NTMW08 Expansion cabinet.

> **WARNING**
>
> The fiber optic interface product used in the Option 11C Compact
> system is considered safe. However, as a precaution do not view the
> optical port or the end of fiber optic cable. Under certain conditions
> (such as during cable testing or under light magnification) the cable or
> port may expose the eye beyond the limits of Maximum Permissible
> Exposure recommended in some jurisdictions. Do not remove
> protective caps or plugs until ready to connect the cable.

☐ **14   Connect the fiber optic cable to the Fiber Expansion
Daughterboard on the NTMW01 SSC card as shown in Figure 23
on page 104.**

Remove the two protective plugs from the connectors on the Fiber
Expansion Daughterboard.
Connect the fiber optic cable to the Fiber Expansion Daughterboard
making sure that the 'V' shaped groove on the cable connector is
facing outward and that the connector is fully seated. The mark (if
equipped) on the connector should not be visible when properly
connected. See Figure 24 on page 105.

☐ **15   Insert the NTMW01 SSC card in the CPU slot of the main cabinet.**

☐ **16   Set the circuit breaker on the power supply in main cabinet to ON.**

The Option 11C Compact system reloads (SYSLOAD) and service is
restored.

Check the fiber related LEDs on the SSC card.

- The LED for the Expansion Daughterboard should be **green**.

- If it is **red** (disabled indication);
  Load overlay program 135 and enter ENL FL1 to enable
  expansion cabinet.

- If the LED is **yellow** (fault indication):
  Check the fiber optic cable to make sure that it is properly
  connected and not damaged.

Check system time and date using LD 2. Reset if required.

☐ **17   Reinstall covers.**
————————————— *End of Procedure* —————————————

**Figure 21**
**Fiber optic cable connector on Fiber Receiver card**
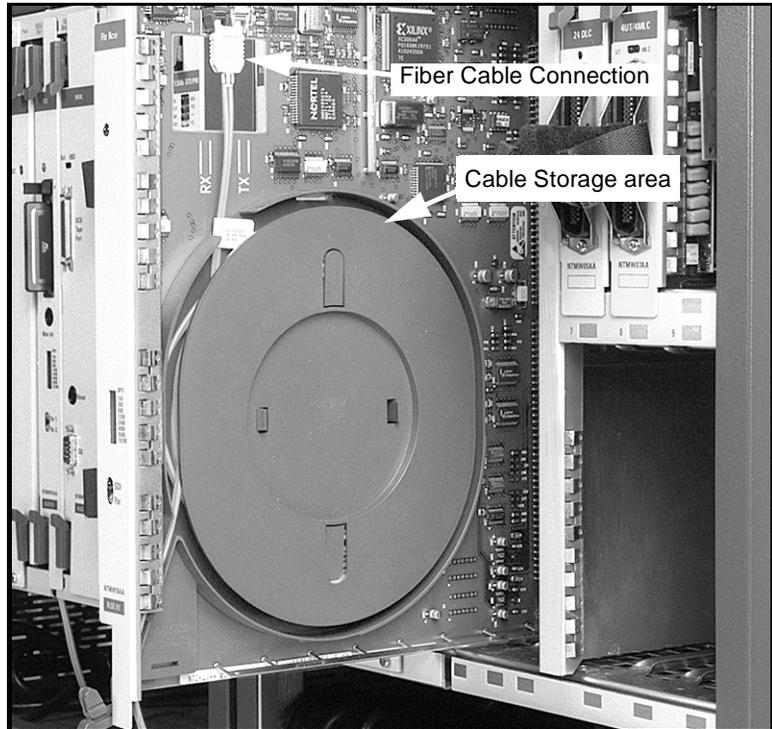
**Figure 22**
**Fiber optic cable connection**



If the connector is equipped with a marking, it should be hidden by the clasp when properly connected.

Insert the connector firmly. A distinct 'snapping' sensation is felt when the connector is properly seated

'V' shaped groove facing inward
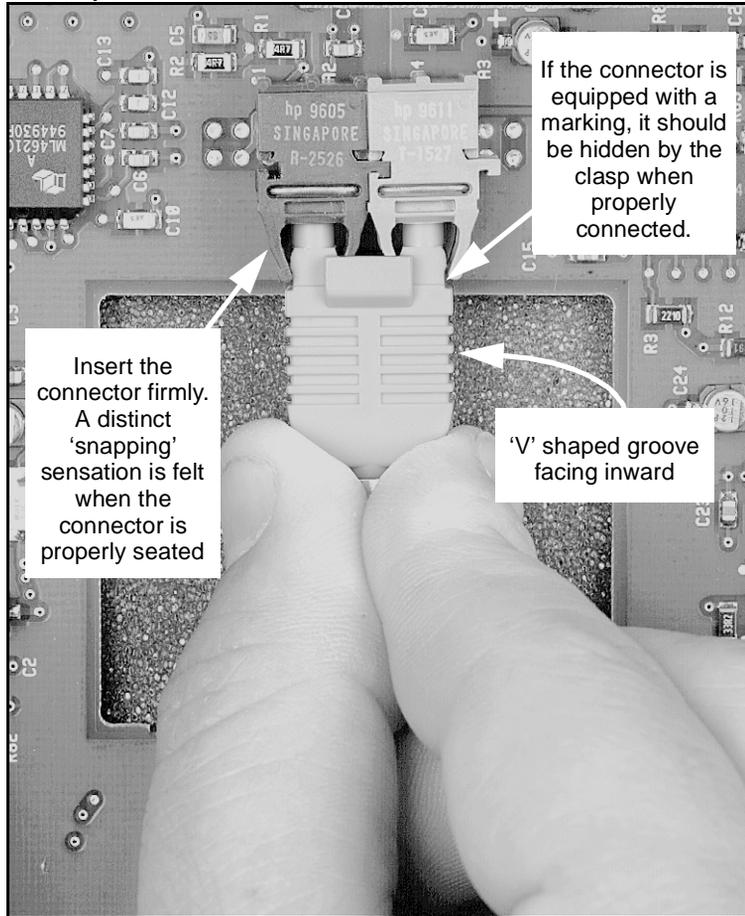
**Figure 23**
**Fiber optic cable connection**



Fiber Cable Connection to
Daughterboard in
connector 'Fiber 1'

Connector 'Fiber 2'
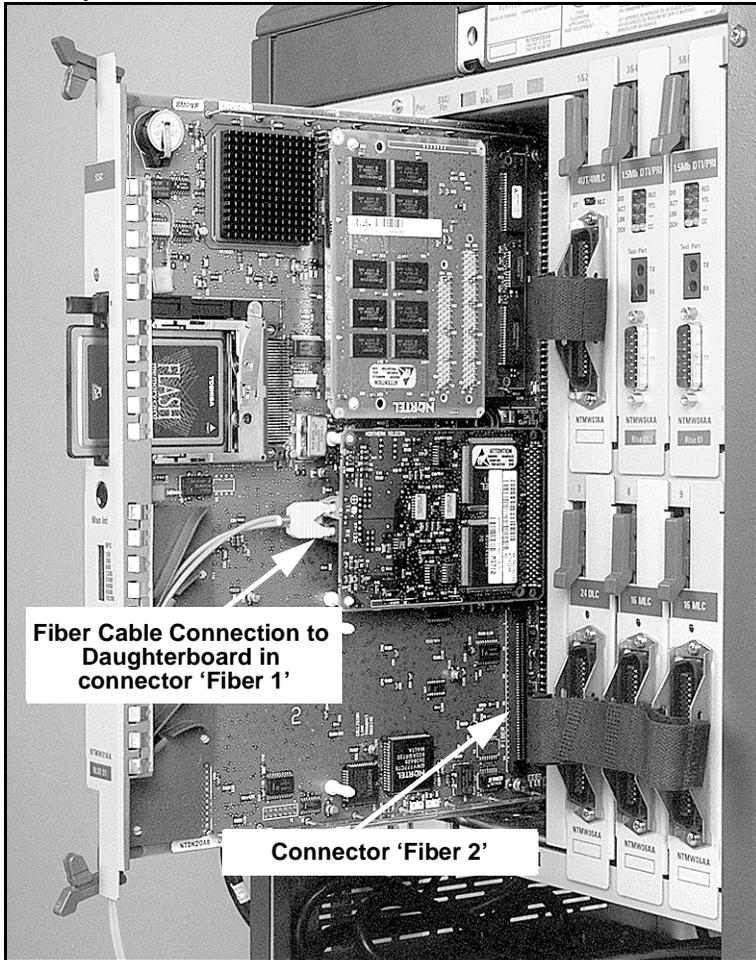
**Figure 24**
**Plastic Fiber Optic Cable Connection**



If the connector is equipped with a marking, it should be hidden by the clasp when properly connected.

Insert the connector firmly. A distinct 'snapping' sensation is felt when the connector is properly seated and the clasps are engaged.

'V' shaped groove facing outward
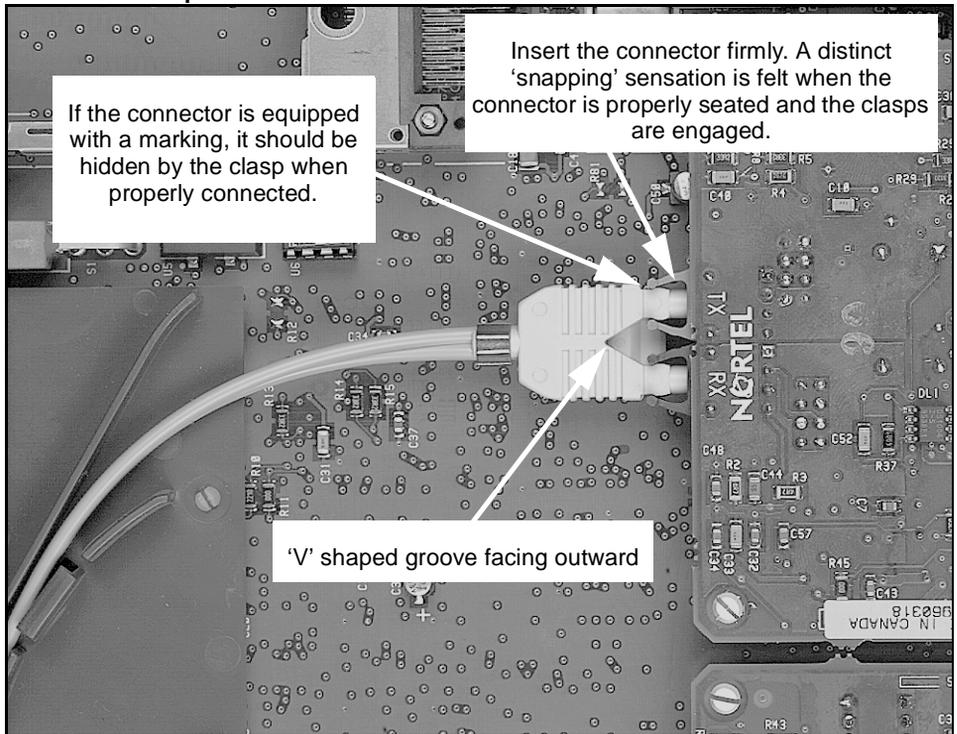
# Chapter 13 – Installing the circuit cards

## General information

This chapter describes how and where to install the various circuit cards used in the Meridian 1 Option 11C Compact system.

*Note:* The information contained in this chapter applies to both the Option 11C Compact and Compact Hospitality unless stated otherwise.

Some circuit cards are equipped with option switches, plugs and daughterboards.

Always handle circuit cards with care to avoid damaging them due to static electricity. Always store unused circuit cards in an anti-static bag or the original packaging.

---

**CAUTION**
Static electricity can damage the components of power supplies and circuit cards. Wear an anti-static wrist strap or, if one is not available, touch the frame of the cabinet before handling the power supplies or other circuit cards.

---

The show the shelf assignments for the circuit cards in the main and expansion cabinets.

**Figure 25**
**Card slot assignments — NTW08 main cabinet**
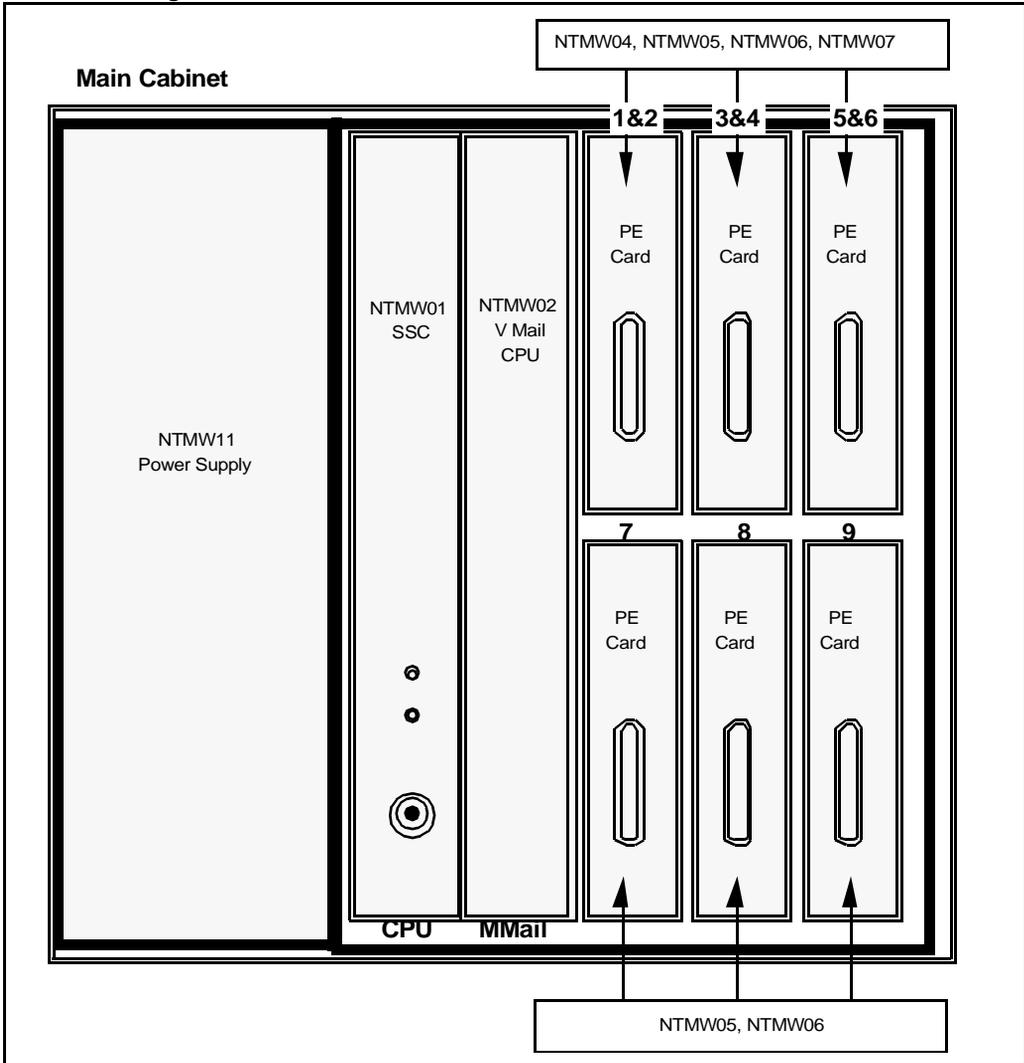


*Note:* The NTMW04 DTI/PRI circuit card must reside in the main cabinet, slots 1 & 2, 3 & 4 or 5 & 6 (upper slots). Meridian Mail Compact, requires the MM slot in the main cabinet.

**Figure 26**
**Card slot assignments — NTW08 expansion cabinet**
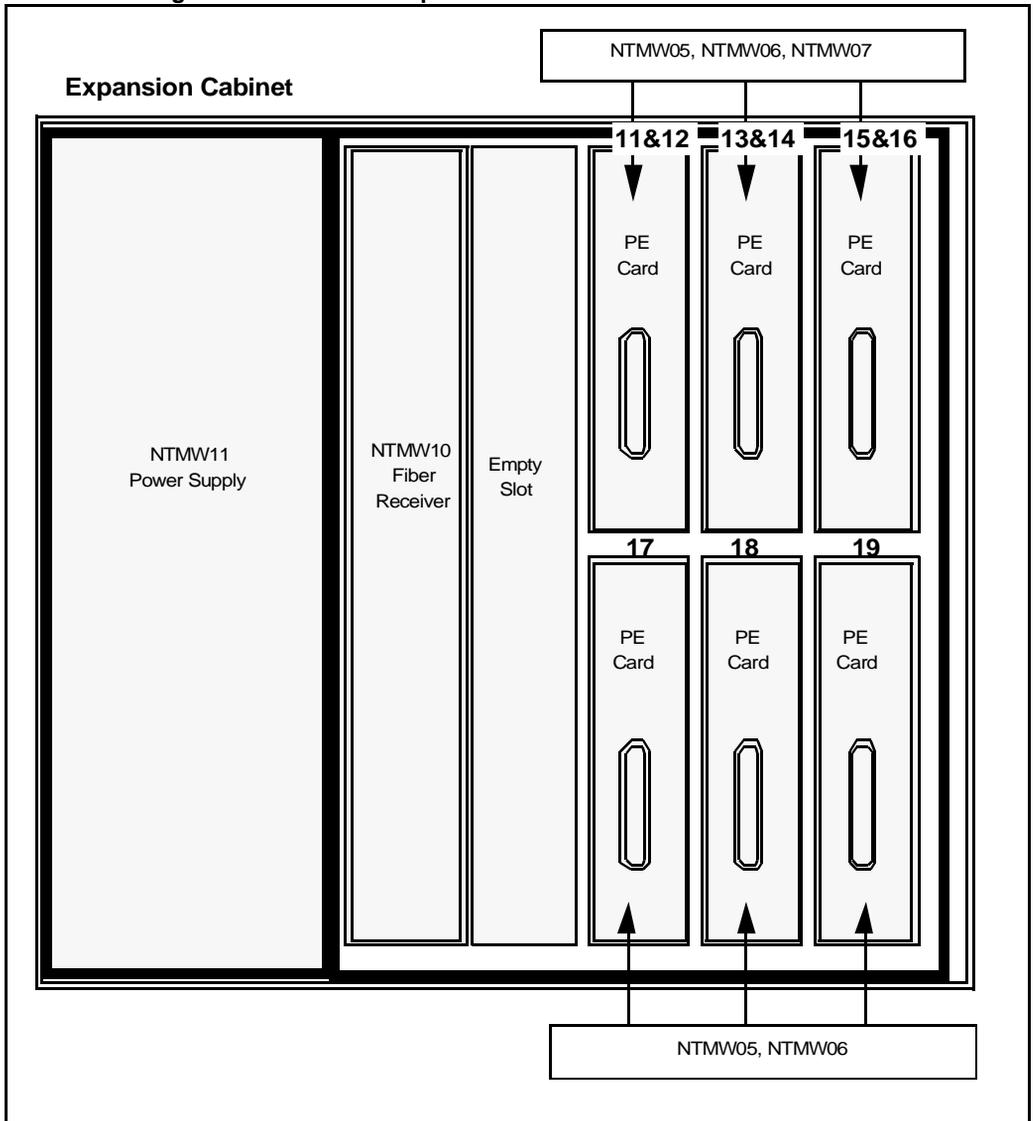
**Figure 27**
**Card slot assignments — First NTW35 expansion cabinet**

| | | | NTMW05, NTMW06, NTMW44 | | | |
|---|---|---|---|---|---|---|
| NTMW11 Power Supply | NTMW10 Fiber Receiver | PE Card | PE Card | PE Card | PE Card | PE Card |
| | | 11 | 12 | 13 | 14 | 15 |
| Card Slot Numbers | | 16 | 17 | 18 | 19 | 20 |
| | | PE Card | PE Card | PE Card | PE Card | PE Card |
| | | NTMW05, NTMW06, NTMW44 | | | | |
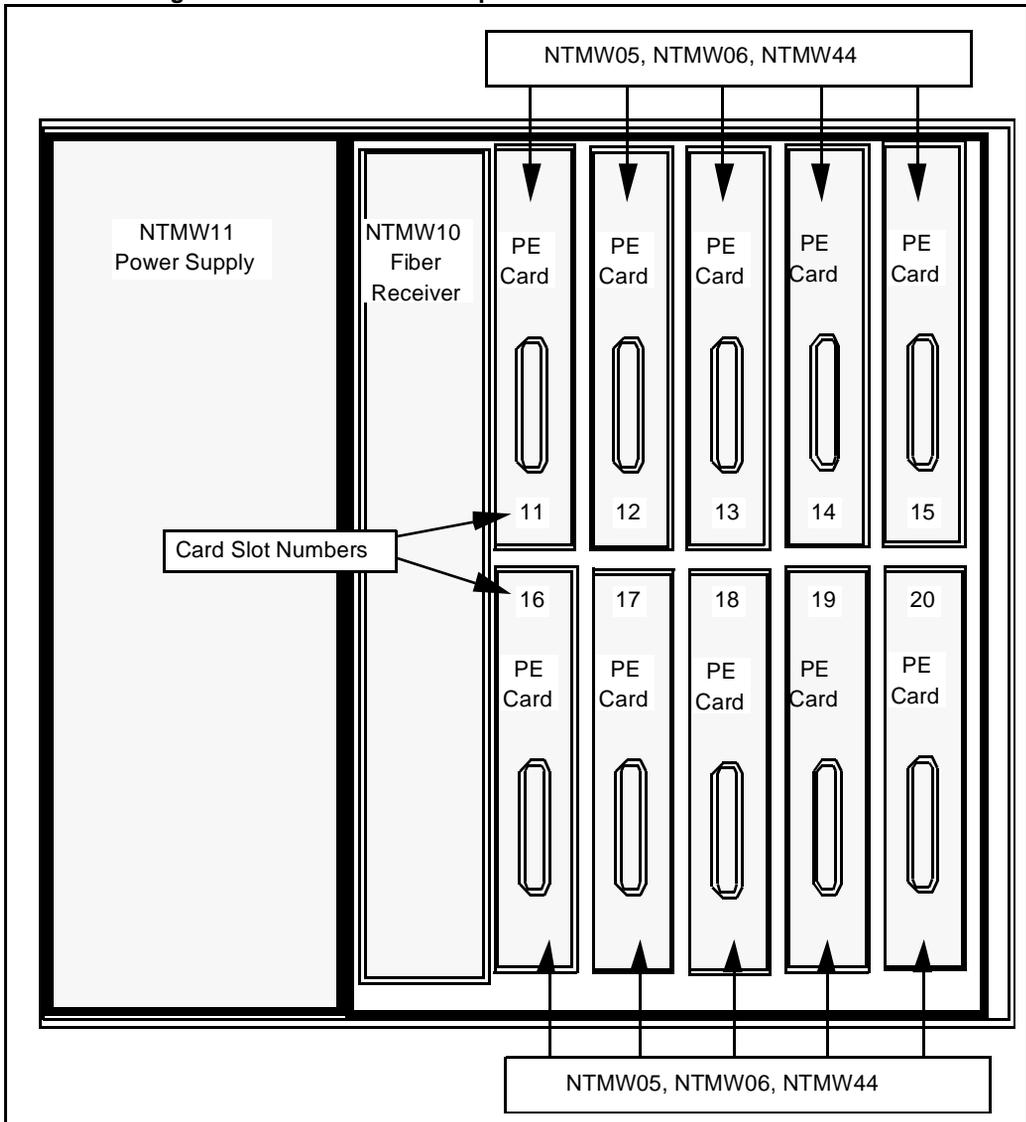
*Note:*  The ten-slot cabinet supports a maximum of six NTMW05 cards.

**Figure 28**
**Card slot assignments — Second NTW35 expansion cabinet**
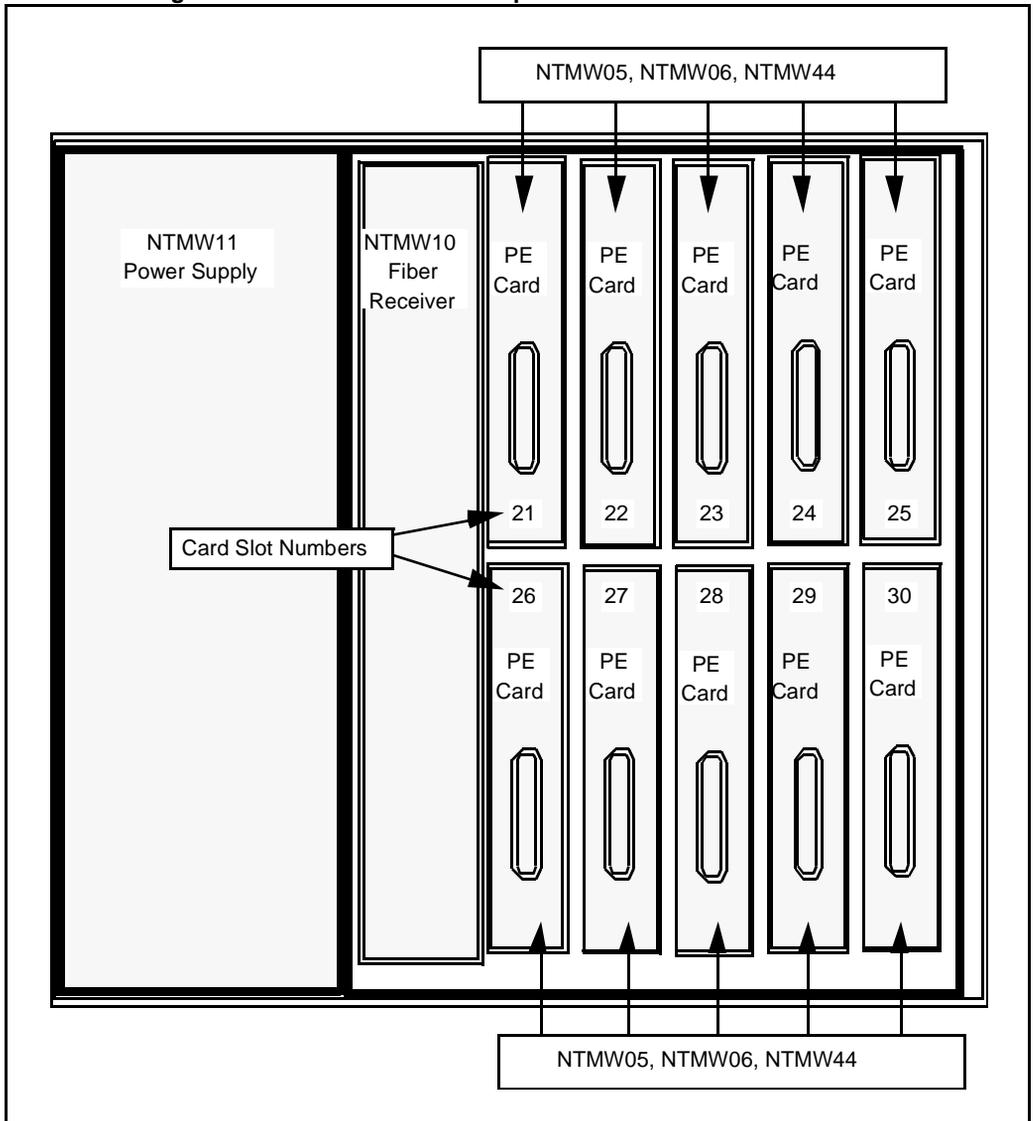


*Note:* The ten-slot cabinet supports a maximum of six NTMW05 cards.

# Circuit cards

The following circuit cards are used in the Option 11C Compact system.

## NTMW01 Small System Controller (SSC) card

**Procedure 6**
**Installing the SSC card**

1    **Install the NTDK21 or NTDK81 Software Daughterboard and the Security Device on the SSC Card as shown in <span style="color:red">Figure 29</span>.**

---

**CAUTION**

The NTMW01 SSC card is equipped with components on both sides of the circuit board. Be careful not to damage any of the components when handling the card.

---

2    **If required, install a Fiber Expansion daughterboard on the SSC card for an expansion cabinet.**

Connect the Fiber Expansion Daughterboard to the connector labeled 'Fiber 1' (top connector).

---

**WARNING**

The fiber optic interface product used in Meridian 1 Option 11C Compact is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

---

**3**     **Connect the fiber optic cable to the Fiber Expansion
Daughterboard on the NTMW01 SSC card as shown in <span style="color:red">Figure 29</span>.**

Remove the two protective plugs from the connectors on the Fiber
Expansion Daughterboard.

Connect the cable to the Fiber Expansion Daughterboard making sure
that the 'V' shaped groove on the cable connector is facing outward
and that the connector is fully seated. The black mark on the connector
should not be visible when properly connected.

**4**     **Insert the NTMW01 SSC card in the CPU slot (slot SSC) of the
main cabinet.**

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

**Figure 29**
**NTMW01 SSC card**



Security Device

Software Daughterboard

Fiber Expansion
Daughterboard
in connector 'Fiber 1'

Fiber Cable Connection

Connector 'Fiber 2'
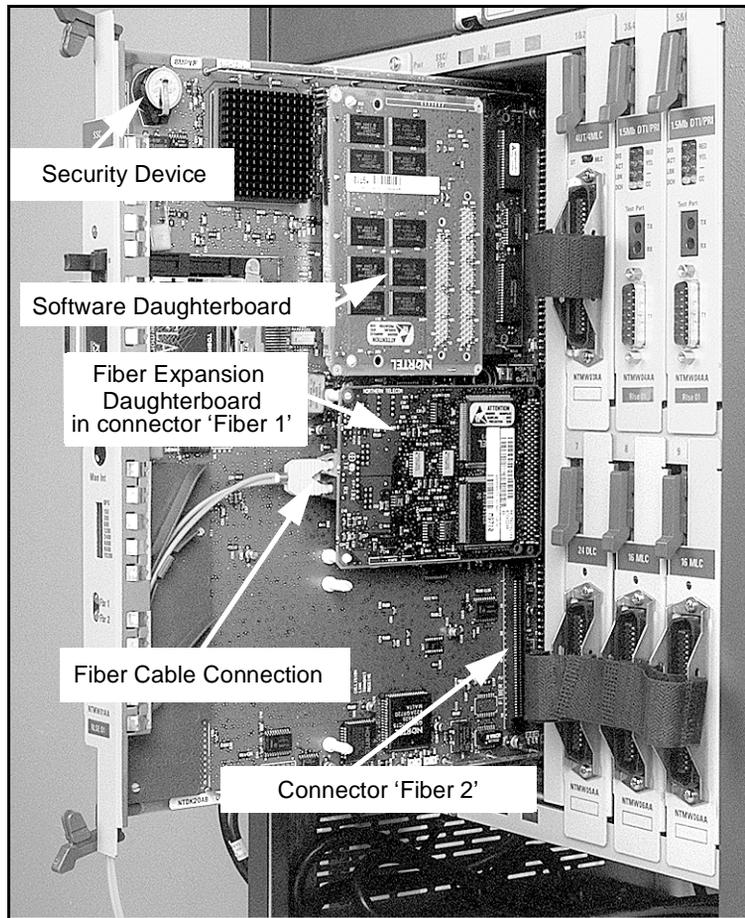
## NTMW02 Meridian Mail CPU

The NTMW02 Meridian Mail CPU card can be equipped with up to two NTMW03 4 Port Mail DSP daughterboard, each providing four ports of voice mail (maximum eight ports). Refer to the *Meridian Mail Compact documentation* for detailed descriptions and to "Chapter 20 — Meridian Mail Compact Option installation and maintenance" on page 193 for installation instructions.

## NTMW04 DTI/PRI

The NTMW04 DTI/PRI Card supports 1.5 Mb digital trunks and can run in free run or slave operation. Refer to the *1.5 Mb Administration and Maintenance Guide* for further details.

## NTMW05 24DLC

The NTMW05 24 Port Digital Line Card supports 24 voice ports, Aries telephone sets and M2250 Attendant Consoles.

**Procedure 7**
**24DLC installation**

1    **Insert the NTMW05 card in its assigned slot.**

The NTMW05 card can be installed in any peripheral equipment slot.

2    **Connect an NE-A25B type 25 pair cable from the connector on the faceplate of the NTMW05 to the cross-connect terminal.**

3    **Configure and enable the card using overlay programs 11 and 32.**

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

## NTMW06 16MLC

The NTMW06 16 Port Message Waiting Analog Line Card supports 16 analog voice ports, 500/2500-type telephones and high-voltage message waiting indicators.

**Procedure 8**
**16MLC installation**

1    Insert the NTMW06 card in its assigned slot.

The NTMW06 card can be installed in any peripheral equipment slot.

2    Connect an NE-A25B type 25 pair cable from the connector on the faceplate of the NTMW06 to the cross-connect terminal.

3    Configure and enable the card using overlay programs 10 and 32.

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

## NTMW07 4UT/4MLC

The NTMW07 4 Port Universal Trunk/4 Port Analog Line Card supports 4 universal analog trunk ports (loop and ground start) and four analog voice ports capable of supporting 500/2500-type telephones and high-voltage message waiting indicators.

*Note:* The NTMW07 Trunk/Line card can reside only in the main cabinet in slots 1/2, 3/4 or 5/6 and in the expansion cabinet in slots 11/12, 13/14 or 15/16 (upper slots).

**Procedure 9**
**4UT/4MLC installation**

1    Verify jumper strap settings (see Table 22, "Jumper Strap Settings," on page 182, and Table 23, "Power fail transfer," on page 183).

2    Insert the NTMW07 card in its assigned slot.

3    Connect an NE-A25B type 25 pair cable from the connector on the faceplate of the NTMW07 to the cross-connect terminal.

4    Configure and enable the card using overlay programs 10 for line ports, 14 for trunks and 32.

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

## NTMW44 4-port Universal Trunk Card

The NTMW07 4 Port Universal Trunk Card supports 4 universal analog trunk ports (loop and ground start).

**Procedure 10**
**4UT installation**

1   Verify jumper strap settings (see **Table 11, "Jumper Strap Settings," on page 118**).

2   Insert the NTMW44 card in its assigned slot.

3   Connect an NE-A25B type 25 pair cable from the connector on the faceplate of the NTMW44 to the cross-connect terminal.

4   Configure and enable the card using overlay programs 10 for line ports, 14 for trunks and 32.

5   Set J1 jumper to 2,3 to disable Power Fail Transfer.

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

**Table 11**
**Jumper Strap Settings**

| Trunk Types | Loop Length | Jumper Strap Settings | | | |
|---|---|---|---|---|---|
| | | J1 n | J2 n | J3 n | J4 n |
| **Factory Setting** | | | | | |
| CO/FX/WATS | 0 — 5000 ft (1525 m) | Off | Off | 1-2 | 1-2 |
| 2-way TIE (LDR) | | | | | |
| 2-way TIE (OAID) | | | | | |
| DID | 0 — 600 ohms | | | | |
| RAN: continuous operation mode | Not applicable: RAN and Paging trunks should not leave the premises. | | | | |
| Paging | | | | | |
| **Extended Range** | | J1 n | J2 n | J3 n | J4 n |
| CO/FX/WATS | > 5000 ft (1525 m) | Off | Off | 1-2 | 1-2 |
| 2-way TIE (LDR) | | | | | |
| 2-way TIE (OAID) | | | | | |
| DID | > 600 ohms | On | On | 1-2 | 2-3 |
| RAN: pulse start or level start modes | Not applicable: RAN and Paging trunks should not leave the premises. | Off | Off | 2-3 | 1-2 |

*Note:* Jumper strap settings J1 n, J2 n, J3 n and J4 n apply to all trunk units. 'n' indicates the unit number (0-3). 'Off' means that no jumper strap is installed on a jumper block. Store unused straps by installing them on a single jumper pin.

## NTMW50AA

The NTMW50AA is a wall mounted enclosure installed next to the main cabinet. The NTMW50AA houses the NTMW49AA RS232 Service Module (RSM). The RSM connects to the backplane in the main cabinet by way of a 25-pair cable. The RSM provides buffering for the RS232 signals that come from the Compact Mail circuit card.

The RSM provides three RS232 ports, two of which connect to personal computers used for Property Management System services and Guest Administration services. The third port connects to the small system controller carde in the main cabinet by way of an SDI cable.

An LED on the RSM module shows its status. When the LED is lit, the system is operating in Normal Mode. When the LED is off, the system is in Bypass Mode.

**Procedure 11**
**RSM installation**

1    **Install the RSM assembly module NTMW50 close to the main cabinet.**

2    **Connect the RSM to the main cabinet backplane using an RSM Module cable assembly (NTMW51AA).**

3    **Connect the RSM to the personal computers used to provide Hospitality services. Use GAC cables (NTMW55AA).**

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

# Chapter 14 – Installing and connecting the cross-connect terminal

## General information

This chapter describes how to install and connect a typical cross-connect terminal to a Meridian 1 Option 11C Compact system, using the BIX cross-connect system. Although the use of the BIX system is not mandatory, it is the recommended choice.

Information about the BIX cross-connect system is found in the following publications:

*   *BIX In-Building Cross-Connect System Material Description* (NTP 631-4511-100)

*   *BIX In-Building Cross-Connect System Planning* (NTP 631-4511-150)

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

Information about 1.5 Mb DTI/PRI related wiring and cables can be found in the *1.5Mb DTI/PRI Administration and Maintenance Guide*.

This chapter contains the following procedures:

# Terminal block requirements

The cross-connect terminal requires sufficient connecting blocks to terminate the following wires:

- up to six 25-pair cables from each NTMW08 cabinet and up to ten 25-pair cables from each NTMW35 cabinet.

  — Each trunk or line circuit card requires a cable. Allow for additional cables at the cross-connect terminal if any of the PE slots are initially left vacant.

- wiring from telephones and trunks

---

**WARNING**

Always use caution when installing or modifying telephone lines. Avoid installing telephone wiring during a lightning storm. Never touch uninsulated telephone wiring unless the line has been disconnected at the network interface.

---

# Installing the cross-connect terminal

Procedure 12 describes how to install the cross-connect terminal.

**Procedure 12**
**Installing the cross-connect terminal**

1    **Consult the equipment layout plan to determine where the cross-connect terminal should be located**

2    **Install the terminal blocks in a layout similar to that shown in the Figure 30.**

If installing the BIX system, refer to *BIX Installation and Servicing* (NTP 631-4511-200).

**Figure 30**
**Typical BIX cross-connect terminal layout**

**Main Cabinet**

Card  in slot1 (2)

Card in slot 3 (4)

Card in slot 5 (6)

Card in slot 7

Card in slot 8

Card in slot 9

Miscellaneous

Miscellaneous

Telephones

Trunks

and

Miscellaneous

**Expansion Cabinet**

Card  in slot11 (12)

Card in slot 13 (14)

Card in slot 15 (16)

Card in slot 17

Card in slot 18

Card in slot 19

Miscellaneous
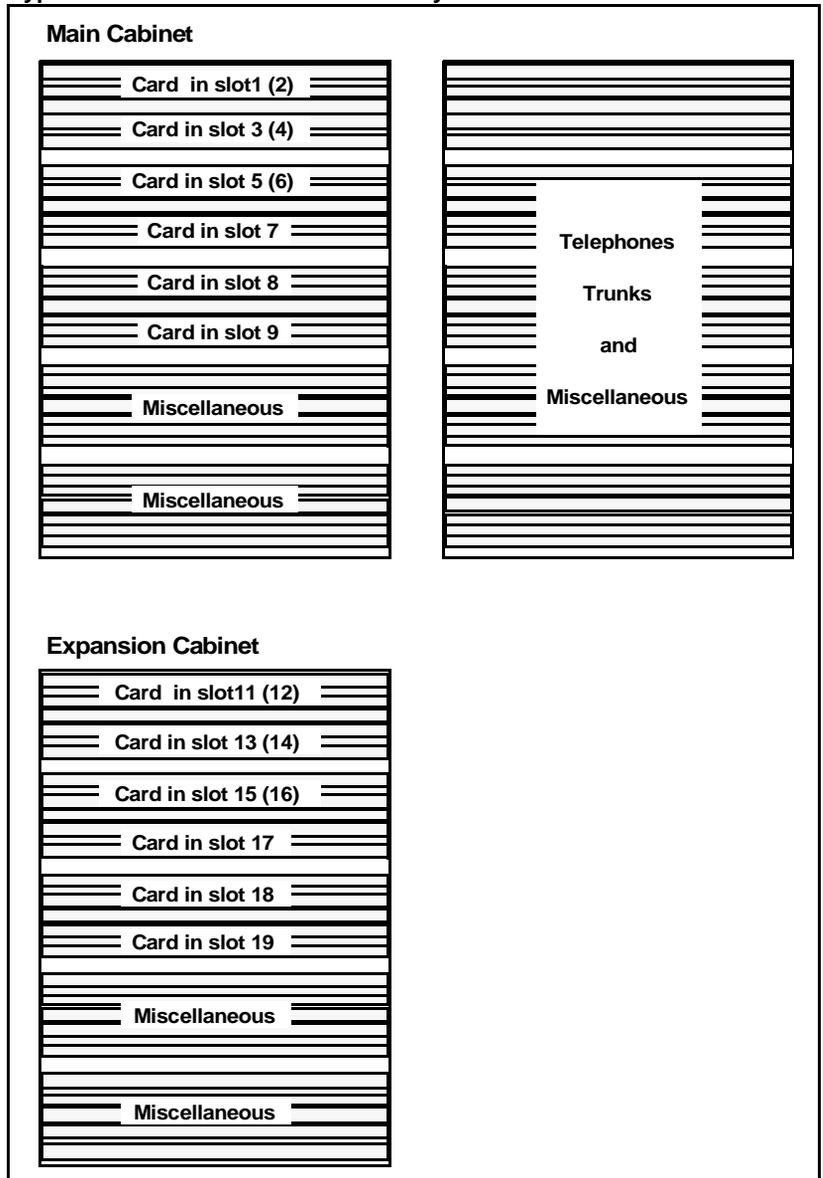
Miscellaneous

3    **Attach labels on the cross-connect terminal to indicate the terminal blocks assigned to:**

- 25-pair cables from the cabinets

- telephones and consoles

- trunks

- other miscellaneous equipment

**Note:** If installing the BIX cross-connect system, refer to *BIX Installation and Servicing* (NTP 631-4511-200) for information about labels used with these terminal blocks.

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

---

**WARNING**

Always use caution when installing or modifying telephone lines. Avoid installing telephone wiring during a lightning storm. Never touch uninsulated telephone wiring unless the line has been disconnected at the network interface.

---

# Connecting the cables

Each NTMW08 cabinet requires up to six 25-pair cables amd each NTMW35 cabinet requires up to ten 25-pair cables. Cables are routed through the opening at the bottom rear of the cabinet.

**Procedure 13**
**Connecting the cables**

1    **Route the cables up through the opening at the bottom rear of each cabinet.**

2    **Connect a 25-pair cable to connector on the faceplate of each line and trunk card.**

3    **Terminate 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 allocation plan.

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

# Chapter 15 – Installing and connecting SDI and Ethernet ports

## General information

This chapter describes two procedures for connecting communication devices to the Meridian 1 Option 11C Compact system.

explains how to install and connect SDI ports to terminals and modems. Instructions are provided on how to access ports through the NTMW01 SSC and the NTMW10 Fiber Receiver card.

provides instructions on how to install and connect an Ethernet cable to the main cabinet.

Option 11C Compact system SDI ports are provided by the following cards:

- NTMW01 SSC: provides three SDI ports

- NTMW10 Fbr Rcvr card: provides one SDI port

Terminal setup instructions are given in .

# Modem setup requirements

Configure the modems connected to the Option 11C Compact system as follows:

- CD (Carrier Detect): Active if carrier detected on incoming call

- CTS (Clear to Send): Normal operation or forced active

- Hardware and software: Disabled flow control.

The ports on the Option 11C Compact system will be disabled if devices connected to them generate extra "garbage" characters. For this reason, modems should not be used in the following modes:

- Loopback

- Auto Echo

- Self Test

    *Note:* The SDI ports are designed for use with "dumb" modems. You can also use "Intelligent" modems if you ensure that the modems do not enter into modes of operation that will send extra characters to the system.

---

**CAUTION**

Do not use Hyperterminal software to communicate with the Option 11C Compact. Hyperterminal may transmit garbled or unwanted characters to the Compact, resulting in port failure.

---

Table 12 lists some of the problems that may be encountered.

**Table 12**
**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 Compact system 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
## NTMW01 SSC

The baud rate for port 0 is controlled by a switch setting on the circuit card's faceplate. Ports 1 and 2 are user configurable using overlay program 17.

- Port 0 is the only SDI port that can be used for software installation and upgrades.

- All three ports on the SSC card can be used to connect terminals.

- Modems should only be connected to Port 0 since it is the only port that supports Carrier Detect (CD).

- An NTBK48 3-port SDI cable must be used with the NTMW01 SSC card.

*Note:* The default baud rate of the SSC card is 19200 bps. When changing the DIP switch on the faceplate, make sure only one baud rate switch is set to ON (Refer to Table 13).

**Table 13**
**Default port configuration for the NTMW01 SSC 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 |

describes how to connect a terminal, modems and other devices such as CDR devices and additional TTYs to the SSC card.

**Procedure 14**
**Connecting SDI ports on the SSC card**

1       **Connect the NTBK48 3-port SDI cable to the 9-pin SDI connection
        at the bottom of the main cabinet.**

**Figure 31**
**Cable connection**



NTBK48 cable connection
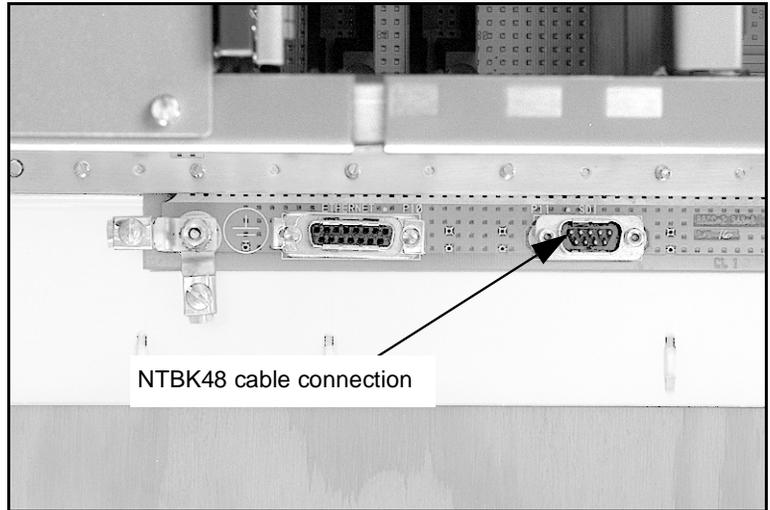
2       **Connect the system terminal to the cable marked "port 0" on the
        NTBK48 3-port cable.**

        A Modem Eliminator Adapter is required to connect the Option 11C
        Compact system to a TTY terminal.

3       **If the system is to be accessed remotely, connect the system
        modem to the cable marked "port 1" on the NTBK48 cable.**

4       **Connect the modem to an outside line.**

5       **Test the modem for proper operation once the system is
        operating.**

        *Note:*  The remaining ports can be used for other equipment such as
        CDR devices or TTYs.

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

## NTMW10 Fiber Receiver card

The Fiber Receiver card provide one SDI port in the expansion cabinet.

The baud rate is set by a DIP switch on the card's faceplate. Other communication settings are identical to the port 0 configuration on the SSC card (Refer to Table 13).

A Fiber Receiver card port must be configured using overlay program 17 before it can be used to access overlays.

> *Note:* Although all device numbers can be assigned to any cabinet, TTY 0, 1 and 2 are usually assigned to the main cabinet. TTY 3 is typically assigned to the expansion cabinet.

Procedure 15 describes how to connect the SDI ports on Fiber Receiver cards.

**Procedure 15**
**Connecting SDI ports to the Fiber Receiver card**

1     **Connect the NTAK1118 one-port SDI cable to the 9-pin SDI connection at the bottom of the expansion cabinet. See Figure 32.**

**Figure 32**
**Cable connection**



NTAK1118 cable connection
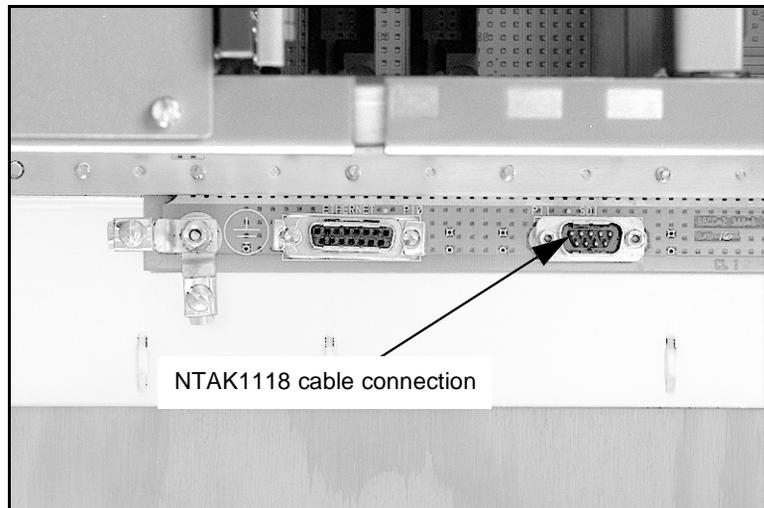
**2**       **Connect the NTAK1118 SDI cable to a TTY terminal.**

*Note:* A Modem Eliminator is required to connect to a terminal.

**3**       **If the system is to be accessed remotely, connect the SDI cable to the system modem.**

**4**       **Connect the modem to an outside line.**

**5**       **Test the modem for proper operation once the system is operating.**

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

# Terminal setup

Setup values are given in . Use the following procedure to set up the terminal.

**Procedure 16**
**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 current setup values are displayed.

**3**       **Change the value in each field on each setup screen as necessary.**

Use the following keys to view and change setup values:

| Key | Function |
|-----|----------|
| Arrow key | Move from field to field |
| <Enter> | Scroll through possible values or cause requested action to take place (depends on type of field) |
| <Next Screen> | Move to next setup screen |
| <Prev Screen> | Move back 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 14**
**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 15**
**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 16**
**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 Compact system provides one 10 Mbit/s Ethernet connection to a Local Area Network (LAN). The ethernet cable connector is located to the left of the backplane at the bottom rear of the main cabinet as shown in Figure 33.

**Figure 33**
**Ethernet port location**



Ethernet Port
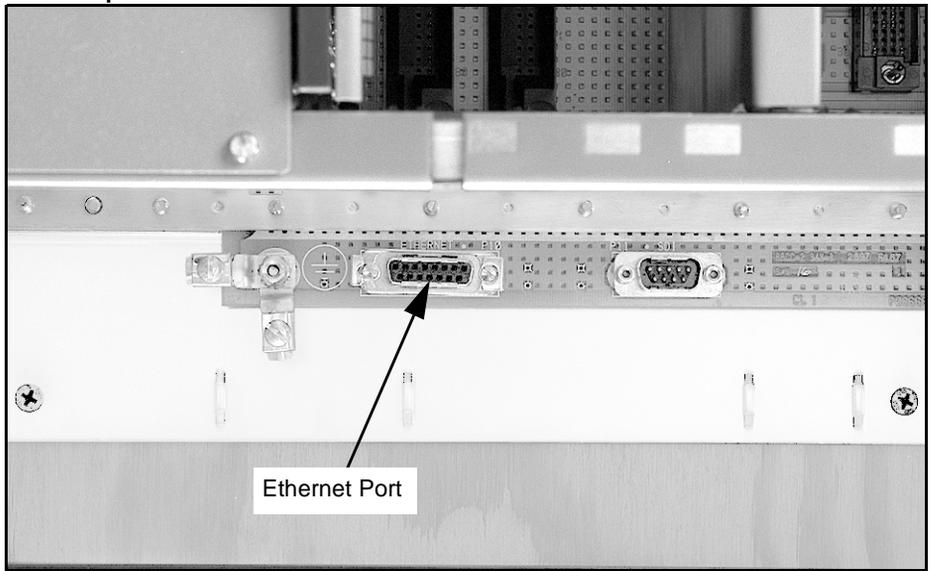
### J7 Jumper plug

A jumper plug located on connector J7 (see Figure 34 and Figure 35) on the component side of the NTMW01 SSC card must be in place for the ethernet connection to function. The card is normally shipped with the plug installed. If the Ethernet connection does not appear to function properly, check the jumper plug to make sure that it is installed.

**Figure 34**
**J7 Jumper Plug location on NTMW01 SSC card**



Location of J7 jumper
plug connector
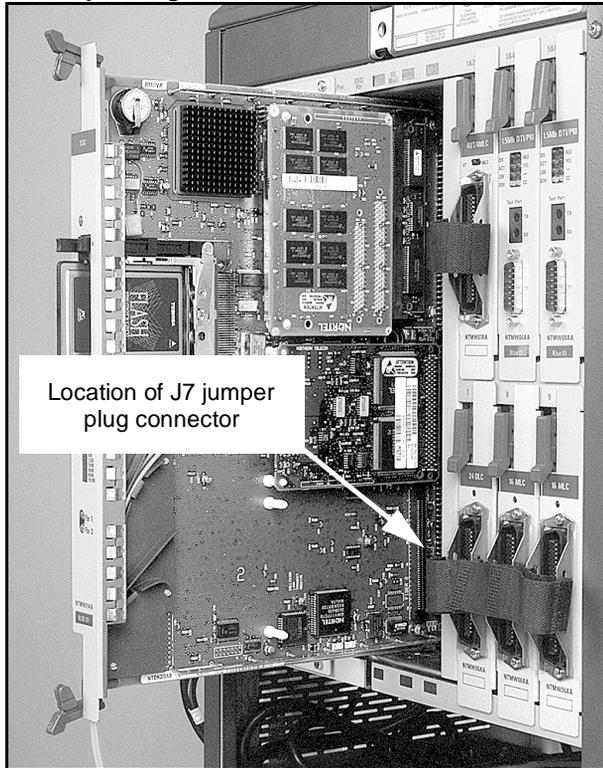
**Figure 35**
**J7 Jumper Plug**
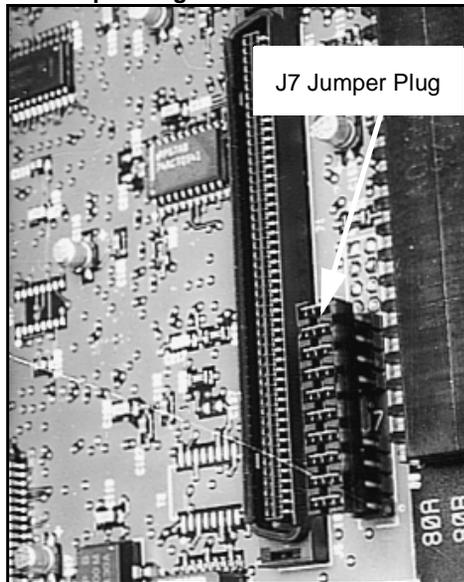


**Procedure 17**
**Connecting the Ethernet cable**

1    Route the Ethernet cable up through the opening at the bottom
     rear of the main cabinet.

2    Connect the cable to the 15-pin AUI connector at the bottom of
     the main cabinet. See Figure 33.

3    If not previously done, configure the ethernet port in software as
     described in the *Software Administration Input/Output Guide.*

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

# Chapter 16 – Starting up and testing the system

## General information

This chapter gives an overview of the software components used in the Option 11C Compact system and describes how to start up the system and install the software.

Before continuing with the procedures outlined in this chapter, verify that all pertinent hardware is either connected to, or installed in the system.

## Overview of Software Components

### Software Daughterboard

The Software Daughterboard contains all the components associated with a particular release of software including preconfigured customer database, feature sets and other pertinent databases and software. It interfaces with the system CPU through a connector mounted on the component side of the NTMW01 Small System Controller (SSC) card.

### Software Delivery (PCMCIA) Card

The PCMCIA is capable of storing (or archiving) several customer databases. Specific databases can then be retrieved and customized to suit individual Meridian 1 Option 11C Compact sites.

When upgrading or modifying an existing Option 11C Compact, the PCMCIA stores a backup copy of the flash ROM while the flash ROM is being erased and re-programmed. If there is a problem during the upgrade or modification, the system can be restored to its previous state from the backup copy on the Software Delivery Card.

Once the installation or modification is completed successfully, the PCMCIA can be removed from the Small System Controller card and reused at other sites.

## Software Installation Program

The Software Installation Program provides a menu-driven method of selecting from the various options for installing, modifying or upgrading the software, customer data, feature set and Incremental Software Management (ISM) parameters. Information about the selections is stored in flash ROM in the form of a list of instructions for the program to follow when it is run.

### Invoking the program

The Software Installation Program must be run from TTY 0 (port 0 on card 0). There are two methods of invoking the Software Installation Program:

**1)**  by issuing the "upgrade" command in overlay 143 (not for use when upgrading to Release 2 software),

or

**2**  by pressing ^I (control I) keys while the installation prompt is displayed during SYSLOAD.

*Note:*  When a new system is powered up before software has been installed, the Software Installation Program is invoked automatically.

To upgrade from Generic X27 Release 1 to Release 2 software, you must use the control-I keystroke to start the Software Installation Program. You cannot use overlay 143 to upgrade to Release 2.

### Function selection

The Software Installation Program is menu driven. The main menu provides the core functionality of the program. It encompasses the following key functions:

•   installing software in a new system

•   upgrading and modifying software in an existing system

•   using utilities to work with archived databases, review data, back up data, undo an installation in progress and to clear unwanted data

After all installation or upgrade selections have been made, validating keycodes must be entered. If an invalid keycode is entered, the install function will not be allowed to continue.

*Note:* Entering an invalid keycode does not affect the software and databases on the present system.

Once the keycode validation passes, the software is installed.

The Software Installation Program has the following other options:

- **Clear Upgrade Information**
  If for any reason the installation is to be terminated after the keycodes are entered, but before the installation is done, the installation can be aborted with this option.

- **Confirm Upgrade Information**
  This option allows the review of the installation options chosen. It can be used after the keycodes are validated, but before the installation is done.

- **Set system time and date**
  This is usually done prior to installation to ensure that all flash drive files have their correct creation date.

## Keycodes

Installation of software, feature set and ISM parameters is protected by a security keycode scheme. The installation is not allowed unless the correct keycodes are entered.

Keycodes are required for each new installation as well as existing system upgrades. They are provided on a Keycode Data Sheet supplied with the software and security device. Keycodes are unique to each site for a particular combination of items such as software release, feature set, ISM parameters and so on.

*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 keycodes are rejected, the installation function is halted and one of the following actions can be taken.

- Check the software and make sure it is the correct version for this site

- Check the feature set and make sure the correct data was entered

- Check the ISM parameters and make sure the correct data was entered

- Check the keycodes and make sure the correct ones were entered (they must match the ones listed on the Keycode Data Sheet)

- Abort the installation

Validation of keycodes is limited to three consecutive attempts. After the third consecutive validation failure, the Software Installation Program returns to the main menu and 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 Compact system. A feature set (such as Office Communications or Inter-Office Communications) has an associated list of software packages and ISM parameters. Several preconfigured feature sets may be included on the Software Delivery Card.

The Software Installation Program also allows the addition of individual packages from the feature set and the changing of system ISM parameters.

Since additions and changes are keycode controlled, 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 Compact system. This device is attached to the component side of the NTMW01 Small System Controller (SSC) card at time of initial installation and remains there for the life of the system.

### Aux ID

The Aux ID is entered using the Software Installation Program. For new Option 11C Compact sites, the Aux ID is the system security ID.

Once 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**
  Several preconfigured databases and their associated feature sets may be included on the Software Delivery Card.

  In addition, a minimal database is provided which consists of 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 Compact 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 be using the Security Device that will be installed in the Option 11C Compact at the customer site, or must have its own keycodes for the feature set used.

- **Remote restored database**
  A database may be remotely restored using the Overlay 143 (LD 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 flash daughterboard, which contains the primary flash drive with the operational customer database, fails.

### Menu displays

The Software Installation program displays a series of easy to follow menus to assist in installing, upgrading and modifying system software and customer databases.

#### Main menu

The *Software Installation Main* menu allows the selection of:

1) New System Installation

2) System Upgrade

3) Utilities

   This selection is used to access the various utilities provided with the Software Installation Program.

#### Feature Set menu

The *Select the Feature Set you Wish to Enable* menu displays a listing of the feature sets that are currently available for installation.

#### Database Install menu

The *Select Database to Install* menu offers a listing of the available databases.

#### Database Archives menu

The *Archived Database available* menu displays a listing of the archived databases that are available for selection.

#### Database Upgrade menu

The *Select type of upgrade to be performed* menu allows the selection of the type of upgrade to be performed options.

#### Utilities menu

The *Utilities* menu allows such things as restoration of backed up data, archiving, reviewing data, restoring archived databases, clearing upgrade information and undoing software installations.

#### Restore menu

The *Restore* menu provides access to methods of restoring backed up databases.

### *Archive menu*

The *Archive* menu provides a means of listing, removing and storing customer databases in an archive.

# Start-up procedures

There are two sets of procedures to follow when starting up the Option 11C Compact system.

- outlines the steps involved in starting up a system and loading software from a new Software Daughterboard programmed with the latest release of software.

  *Note:* This is the standard method of loading software in a new system installation.

- outlines the steps involved in starting up a system and loading software using Software Delivery Card (PCMCIA card) to load software onto the software delivery card.

**Procedure 18**
**Loading system software from a Software Daughterboard**

**1    Connect the external power supply, if not already done.**

*Note:*  The commercial AC power outlet should be tested to make sure the correct voltage is present before plugging in the power cord.

Plug the power cord from each cabinet into the power supply outlet.

**2    Set the circuit breaker on the NTMW11 power supply in each cabinet to ON.**

Observe the LED on the faceplate of the NTMW01 SSC card. The LED should light steadily for a moment, then flash three times as it performs its self test.

**3    Observe the TTY or terminal screen.**

*Note:*  The TTY must be connected to TTY port 0.

Once the system is loaded, a menu driven program called the "Software Installation Program" is automatically invoked. This program is used to install the system software as described in .

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

**Procedure 19**
**Loading system software from a Software Delivery Card**

**1      Connect the external power supply, if not already done.**

*Note:* The commercial AC power outlet should be tested to make sure the correct voltage is present before plugging in the power cord.

**2      Install the Software Delivery Card in the PCMCIA socket located in the faceplate of the NTMW01 SSC card. Gently press on the card until it is firmly seated.**



PCMCIA Socket 'A'
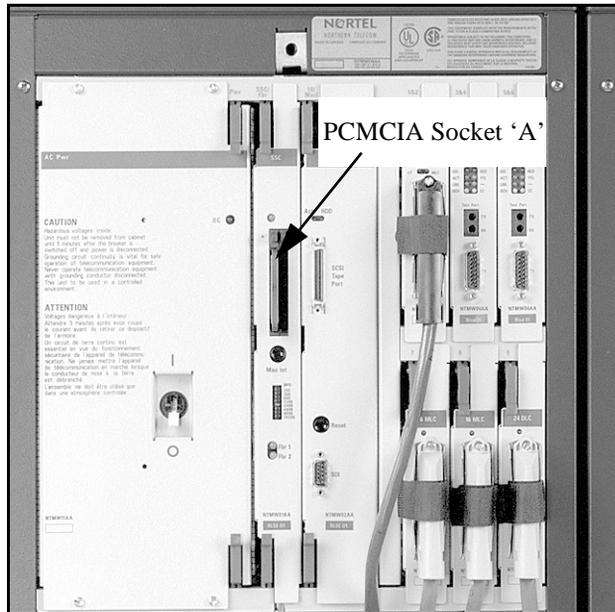
**3**   **Set the circuit breaker on the NTMW11 power supply in each cabinet to ON.**

Observe the LED on the faceplate of the NTMW01 SSC card. The LED should light steadily for a moment, then flash three times as it performs its self test. Observe the TTY or terminal screen.

*Note:*  The TTY must be connected to TTY port 0.

**If**
```
FIVE SECONDS TO ENTER CONTROL-I TO INVOKE
SOFTWARE INSTALLATION PROGRAM
```

| | |
|---|---|
| message appears during sysload | Press 'control' key and press 'I' then perform . |

**If**
```
INSERT SOFTWARE DELIVERY CARD
```

| | |
|---|---|
| message appears during sysload | Insert the PCMCIA card in socket 'A' in the faceplate of the SSC card then perform . |

**If**
```
INSTALL SETUP PROGRAM
```

| | |
|---|---|
| message appears during sysload | Perform . |

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

## Installing the software

Procedure 20 describes how to use the Software Installation Program install the system software.

**Procedure 20**
**Software Installation Procedure**

**1**     Observe the terminal screen.

`SOFTWARE INSTALLATION PROGRAM`
message appears.

**2**     Observe the terminal screen.

If
`Current system time and date: 00:00:00 -- 00/00/00`
message appears, proceed with

If
`Software Installation Main Menu`
message appears, proceed with

**3**     Set the system Time and Date.

*Note:* The Time and Date prompt appears only when the Install Setup Program detects a system Year Date that is not in the range of 1995-2095.

**4**     Select item 1 or 4 from the Main Menu.

If you have just completed , select item 1.

If you have just completed , 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
```

**5**    Select the Feature Set to be enabled.

*Note:* The Feature Set selected must match the ones provided with key codes. The Feature Set names shown below are examples only.

```
*** NOTE: The following questions require
information
on the Keycode Data Sheet.
Please have it available.***
```

```
*** NOTE: If an External Data Card is being used for
this system, please insert it into drive b: Now.***
```

(The following feature sets are examples)

```
Select Feature Set You Wish to Enable:
1. Office Communications (NTMW30CA)
2. Interoffice Communications (NTMW30DA)
3. Hospitality Communications (NTMW30EA)
4. Advanced Hospitality Communications (NTMW30FA)
```

```
[q]uit, [p]revious, [m]ain menu, [h]elp or [?],
<cr> redisplay
```

**6**    Indicate whether or not packages are to be added.

```
Feature Set Selection: Inter-Office Communications
```

```
Do you wish to add packages? (y/n/[a]bort) :
```

```
n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)
```

If the response was **n**
proceed with <span style="color:red">Step 9</span>

If the response was **y**
Proceed with <span style="color:red">Step 7</span>

7    Select the Feature packages to be added.

(example)

```
Summary of Packages selected is:
0-2 4-5 7-14 16-21 23-25 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

Enter packages (s) to be added, blank line to end:

22<cr>
<cr>
```

8    Confirm Feature Set and packages.

```
Your Feature Set Selection is "Inter-Office
Communications":
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
...
...
200-208

Is this selection correct?

n<cr> (no)
y<cr> (yes)
a<cr>  (abort, return to main menu)
```

If the response was **n**

If the response was **y**

9    Select a Database.

```
Select database to Install:
1. Pre-Configured database
2. Basic Configuration
3. Archived Database

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr>
redisplay
```

**10**   Review ISM parameters.

*Note:* On a new installation, the ISM parameters displayed on the terminal screen will be the default settings associated with the Feature Set selection. These settings can be accepted without changes or changed to suit the requirements of the new system.

```
Current ISM Parameters:
TNS    (0048)   (number of terminal numbers)
AGNT   (0128)   (number of ACD agents)
ACDN   (300)    (number of ACD DNs)
AST    (0000)   (number of associate Sets)
DSL    (0000)   (number of Digital Subscriber Loops)
LTID   (0000)   (number of Logical Terminal IDs)
MOPT   (0000)   (Meridian Mail option)

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 **y**
proceed with

the response was **n**
proceed with

**11**   Select ISM parameters.

(example)

```
Enter new ISM parameters, <cr> to leave as is:
TNS (0048)              64<cr> (change)
AGNT (0128)             <cr> (no change)
ACDN (300)              <cr> (no change)
AST (0000)              <cr> (no change)
DSL (0000)              <cr> (no change)
LTID (0000)             <cr> (no change)
MOPT (0000)             <cr> (no change)
```

**12**    Confirm ISM parameters.

```
New ISM parameters are:
TNS   (0064)
AGNT  (0128)
ACDN  (0100)
AST   (0000)
DSL   (0000)
LTID  (0000)
MOPT  (0000)

Is this correct?
```

**n<cr>** (no)
**y<cr>** (yes)
**a<cr>** (abort, return to main menu)

If the response was **n**
go to Step 10

If the response was **y**
go to Step 13

**13**    Define the AUX ID.

*Note:* You should not need to change the AUX ID on the Option 11C Compact.

**14**    Review and confirm information entered.

```
New Installation Information Summary:
System ID    :    20000326
Aux ID       :    20000326
Added Pkgs   :    none
Feature Set  :    Inter-Office Communications
Database     :    Company.ABC
                  OLD    NEW
S/W Release  :    0100   0100
ISM Parameters    OLD    NEW
   TSN       :    0048   0064
   AGNT      :    0128   0128
   ACDN      :    300    300
   AST       :    0000   0000
   DSL       :    0000   0100
   LTID      :    0000   0000
   MOPT      :    0000   0000

Is this correct?
```

`y<cr>` (yes)
`n<cr>` (no)
`a<cr>` (abort, return to main menu)

If the response was **n**
go to Step 5

If the response was **y**
go to Step 15

**15**    Enter the keycodes

*Note:*  Enter keycodes in place of **x, y, z**, as shown.

```
Enter new Keycodes:
Key 1:              xxxxxxxx<cr>
Key 2:              yyyyyyyy<cr>
Key 3:              zzzzzzzz<cr>
```

If after the last keycode is entered,
`'Keycode validation successful"`
`***WARNING*** A system restart will be invoked as`
`part of the software installation process"`
message appears
go to Step 16

If after the last keycode is entered,
`'Keycode validation unsuccessful'`
message appears
do Step 15 again to re-enter correct keycodes

*Note:*  After three unsuccessful keycode validation attempts, the
following message appears.

```
Keycode validation unsuccessful.
Installation aborted...returning to main menu.
```

**16**    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 **y**

—End—

If the response was **n**
go to Step 4.

**17**    **Observe the screen a second time once the installation program has been completed.**

Messages will appear on the TTY or terminal screen. When the message "INIXXX" appears, the system is operational.

**18**    **If required, set the system time and date using LD 2.**

**19**    **Perform an EDD using LD 43.**

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

# Chapter 17 – Connecting the telephones and attendant console

## General information

This chapter contains information about connecting telephones to the cross-connect terminal. It also contains information about the location of the individual extension numbers (DNs) when you are implementing one of the default numbering plans and how to activate each telephone. Refer to the instructions provided with the telephone or console for information about installing telephones and consoles. Refer to "Chapter 23 – Pre-programmed data" on page 363 for information about pre-programmed data.

The cable from the line card associated with the telephone being connected, must be installed before continuing. Refer to "Chapter 14 – Installing and connecting the cross-connect terminal" on page 121, if additional cabling is required.

### Cable assignments

The cables from each cabinet are labeled at the cross-connect terminal. Each cable represents a specific set of Terminal Numbers (TNs).

The TN assignments for the different types of line cards are described in the following Tables:

- Table 17, "NTMW05 24 DLC Terminal number assignments," on page 167

- Table 18, "NTMW06 16 ALC Terminal number assignments," on page 168

- Table 19, "NTMW07 Trunk/Line Terminal Number (TN) assignments," on page 169

## Power Failure Transfer

The NTMW07 Trunk/Line card has a built-in Power Failure Transfer (PFT) feature, designed to operate with a loop start trunk. This feature allows the connecting one trunk on the card to an analog telephone on the same card in the event of a commercial power or system failure, or if this card is disabled.

*Note:* Ground start trunks require a telephone set equipped with a ground start button to place outgoing calls when in PFT mode.

The Terminal Numbers (TNs) that are equipped to perform the PFT function vary depending on the slot assignment in the cabinets. When a PFT occurs, the following are connected:

- **In the Main cabinet**

    — When the NTMW07 card is in slot 1 & 2
    TN 01 03 connects to TN 02 03
    (Trunk on Card 01 Unit 03 connects to the telephone on Card 02 Unitþ03)

    — When the NTMW07 card is in slot 3 & 4
    TN 03 03 connects to TN 04 03
    (Trunk on Card 03 Unit 03 connects to the telephone on Card 04 Unitþ03)

    — When the NTMW07 card is in slot 5 & 6
    TN 05 03 connects to TN 06 03
    (Trunk on Card 05 Unit 03 connects to the telephone on Card 06 Unit 03)

- **In the Expansion cabinet**

    — When the NTMW07 card is in slot 11 & 12
    TN 11 03 connects to TN 12 03
    (Trunk on Card 11 Unit 03 connects to the telephone on Card 12 Unit 03)

    — When the NTMW07 card is in slot 13 & 14
    TN 13 03 connects to TN 14 03
    (Trunk on Card 13 Unit 03 connects to the telephone on Card 14 Unit 03)

— When the NTMW07 card is in slot 15  & 16
TN 15 03 connects to TN 16 03
(Trunk on Card 15 Unit 03 connects to the telephone on Card 16
Unit 03)

---

**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 specifically
designed for wet locations. Never touch uninsulated telephone wiring
unless the line has been disconnected at the network interface.

---

# Cross-connecting telephones

## Connecting on-premise telephones

Connect the telephones according to the following figures. Cross-connections
for Analog (500/2500 type) telephones are shown in Figure 36 for the
MTMW06 card, and Figure 37 for the NTMW07 card.

*Note:*  Refer to "Power Failure Transfer" on page 158 for telephones
requiring the PFT feature.

Connection for Meridian Digital Telephones are shown in Figure 38.

**Procedure 21**
**Cross-connecting telephones**

1    **Locate telephone terminations at the cross-connect terminal.**

2    **Connect Z-type cross-connecting 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-connecting wire to the
     assigned TN terminal block.**

     The telephone can now be activated as described in "Activating
     telephones" on page 172.

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

---

**Figure 36**
**NTMW06 Analog Line Card cross-connections**
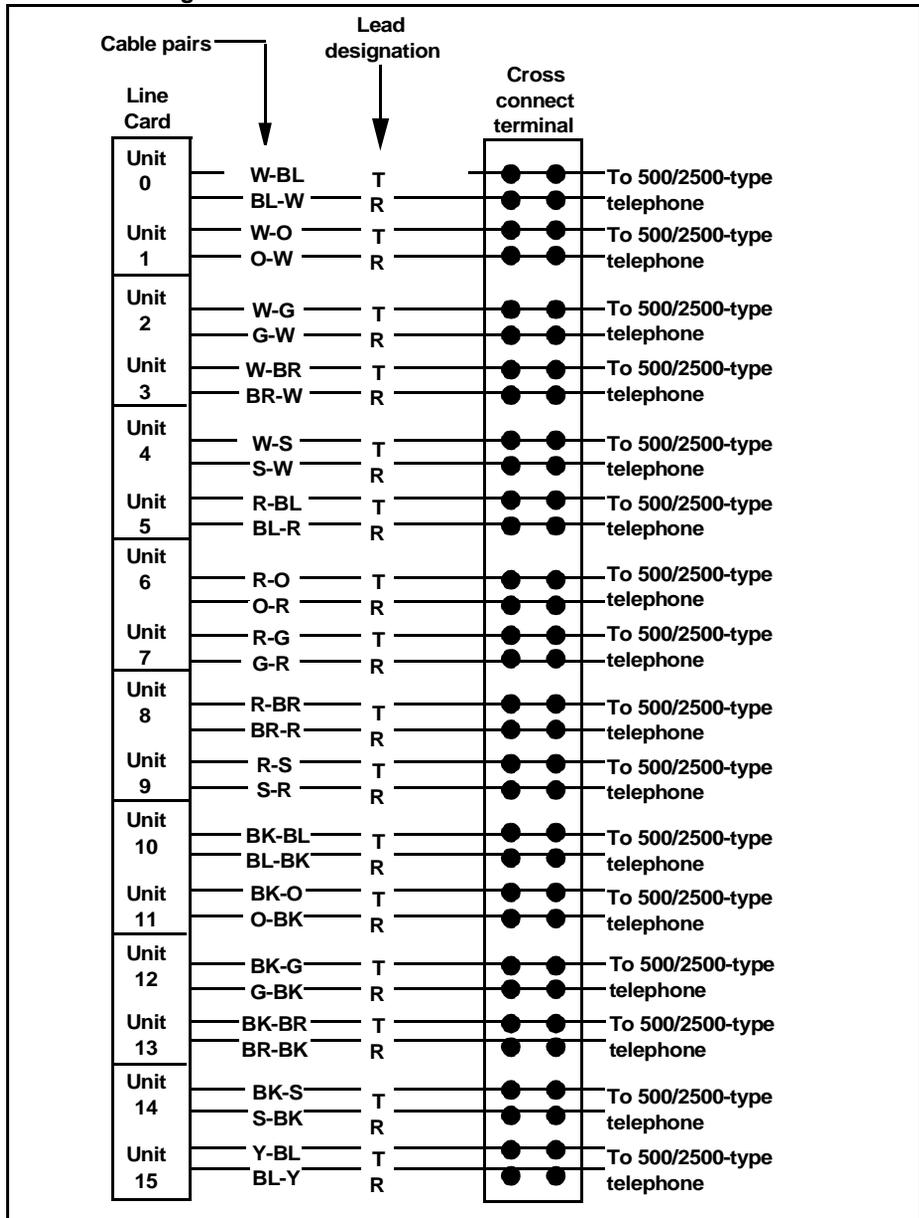
**Figure 37**
**NTMW07 Analog Trunk/Line Card cross-connections (telephone sets)**
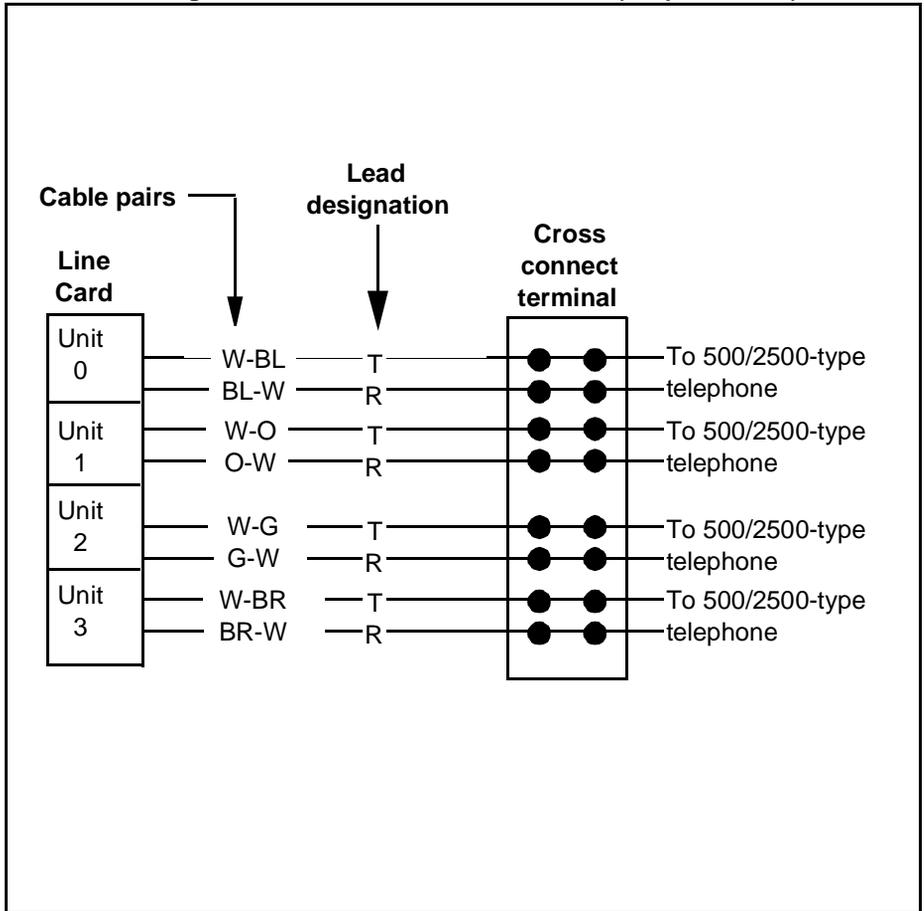
**Figure 38**
**Meridian Digital Telephone cross-connections**
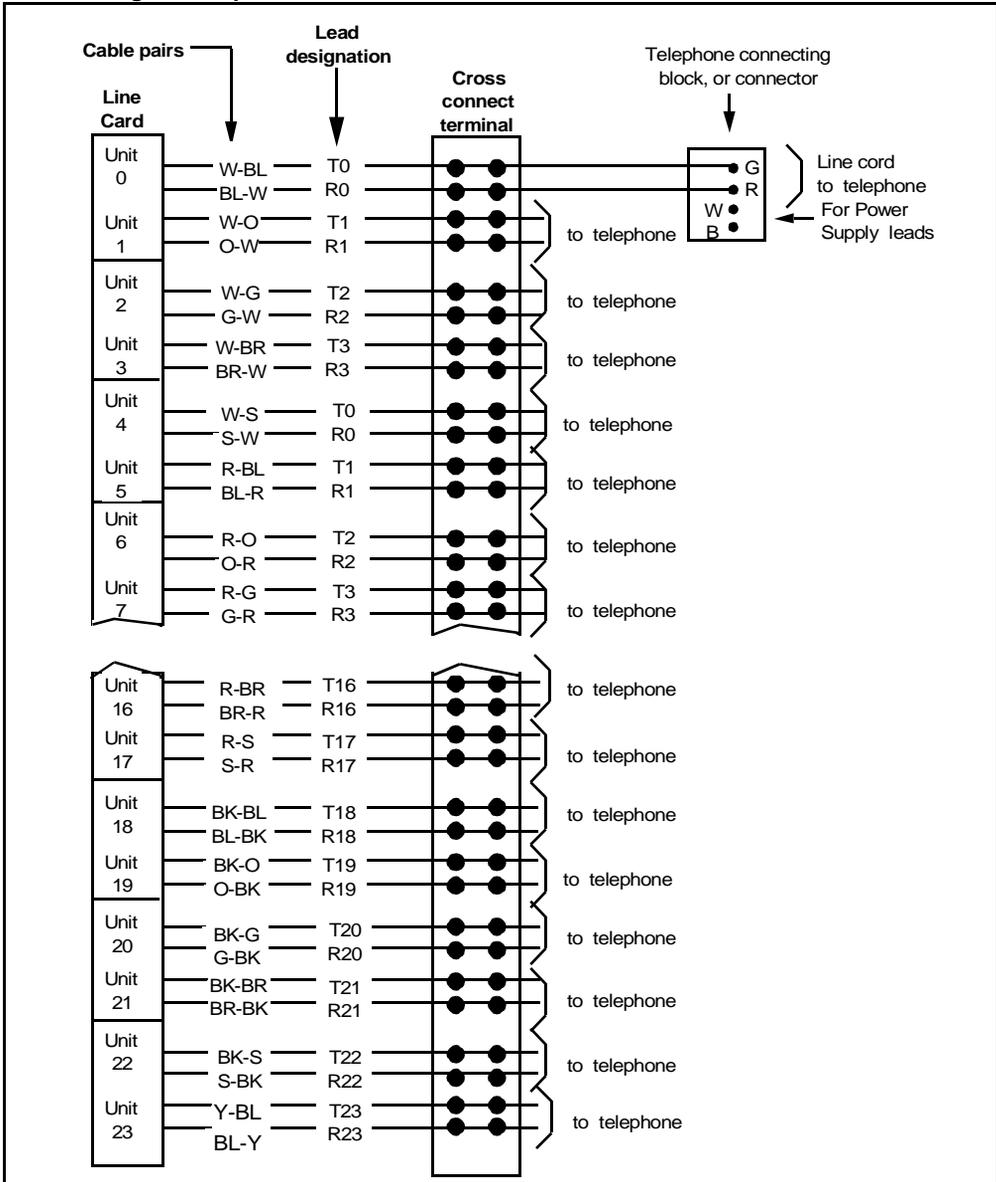
## Connecting off-premise telephones

Off-premise 500/2500-type telephones must be connected through an NTAK92AA Off-Premise Protection module. Each module can connect up to four analog telephones and can interface with an NTMW06 Analog Line Card or with an NTMW07 Trunk/Line Card.

---

**WARNING**

The message waiting indicator 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 Class Of Service (CLS) assigned to the telephone is LPD (message waiting lamp denied) and MWD (Message Waiting Denied) in LD 10. Refer to the *Software Guide* for information about LD 10.

Under no circumstances should LPA or MWA be assigned in the Class of Service on off-premise telephones

---

**Procedure 22**
**Connecting an off-premise telephone.**

1    **Mount the NTAK92AA Off-Premise protection module on the wall using four #10 1/2 in (minimum) screws.**

2    **Connect a #6 AWG ground wire from the ground lug at the bottom of the NTAK92AA Off-Premise protection module to an earth ground. Refer to Figure 39.**

---

**WARNING**

If connecting to a message waiting line card, unseat the card from its assigned slot before proceeding 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 36.

4     **Cross-connect the J1 cable to the Tip and Ring connections coming from the line card.**

Refer to Tables 20 and 21.

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 cabinet near the velcro wriststrap fastener.**

7     **Install the line card in its assigned position.**

The telephone can now be activated as described in .

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

## Connecting an attendant console

Procedure 23 describes how to connect an attendant console to an NTMW05 line card.

**Procedure 23**
**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 40.**

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

**Figure 39**
**NTAK92AA Off-Premise Protection Module connections**
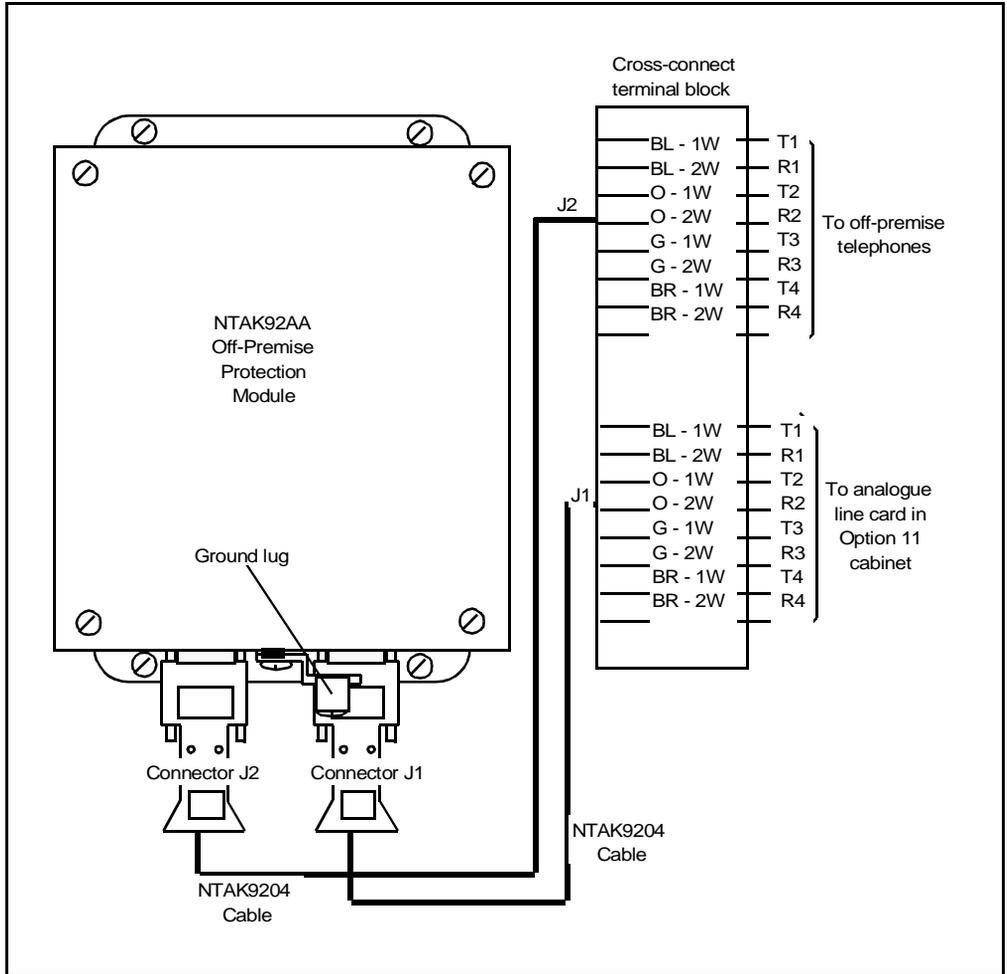
**Figure 40**
**Attendant console connections**



**Note 1:**  The M2250 is powered by the line circuits on the circuit card.  In addition to the primary TN, secondary TN and ASMTN, two TNs are cabled to the M2250 through the + AUX and - AUX leads. 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.

**Table 17**
**NTMW05 24 DLC Terminal number assignments**

| Card Slot | Card Assignment | First TN......Last TN | Cable | Cabinet |
|---|---|---|---|---|
| 1 & 2 | 1 | Voice 01 00.....01 23<br>Data 01 24......01 31 | 1 & 2 | Main |
|  | 2 | — |  | Main |
| 3 & 4 | 3 | Voice 03 00.....03 23<br>Data 03 24......03 31 | 3 & 4 | Main |
|  | 4 | — |  | Main |
| 5 & 6 | 5 | Voice 05 00.....05 23<br>Data 05 24......05 31 | 5 & 6 | Main |
|  | 6 | — |  | Main |
| 7 | 7 | Voice 07 00.....07 23<br>Data 07 24......07 31 | 7 | Main |
| 8 | 8 | Voice 08 00.....08 23<br>Data 08 24......08 31 | 8 | Main |
| 9 | 9 | Voice 09 00.....09 23<br>Data 09 24......09 31 | 9 | Main |
| 10 |  | Meridian Mail | — | Main |
| 11 & 12 | 11 | Voice 11 00.....11 23<br>Data 11 24......11 31 | 11 & 12 | Expansion |
|  | 12 | — |  | Expansion |
| 13 & 14 | 13 | Voice 13 00.....13 23<br>Data 13 24......13 31 | 13 & 14 | Expansion |
|  | 14 | — |  | Expansion |
| 15 & 16 | 15 | Voice 15 00.....15 23<br>Data 15 24......15 31 | 15 & 16 | Expansion |
|  | 16 | — |  | Expansion |
| 17 | 17 | Voice 17 00.....17 23<br>Data 17 24......17 31 | 17 | Expansion |
| 18 | 18 | Voice 18 00.....18 23<br>Data 18 24......18 31 | 18 | Expansion |
| 19 | 19 | Voice 19 00.....19 23<br>Data 19 24......19 31 | 19 | Expansion |
|  | 20 | Not used | — | Expansion |

**Table 18**
**NTMW06 16 ALC Terminal number assignments**

| Card Slot | Card Assignment | First TN......Last TN | Cable | Cabinet |
|---|---|---|---|---|
| 1 & 2 | 1 | 01 00......01 15 | 1 & 2 | Main |
| | 2 | — | | Main |
| 3 & 4 | 3 | 03 00......03 15 | 3 & 4 | Main |
| | 4 | — | | Main |
| 5 & 6 | 5 | 05 00......05 15 | 5 & 6 | Main |
| | 6 | — | | Main |
| 7 | 7 | 07 00......07 15 | 7 | Main |
| 8 | 8 | 08 00......08 15 | 8 | Main |
| 9 | 9 | 09 00......09 15 | 9 | Main |
| 10 | | Meridian Mail | — | Main |
| 11 & 12 | 11 | 11 00......11 15 | 11 & 12 | Expansion |
| | 12 | — | | Expansion |
| 13 & 14 | 13 | 13 00......13 15 | 13 & 14 | Expansion |
| | 14 | — | | Expansion |
| 15 & 16 | 15 | 15 00......15 15 | 15 & 16 | Expansion |
| | 16 | — | | Expansion |
| 17 | 17 | 17 00......17 15 | 17 | Expansion |
| 18 | 18 | 18 00......18 15 | 18 | Expansion |
| 19 | 19 | 19 00......19 15 | 19 | Expansion |
| | 20 | Not used | — | Expansion |

**Table 19**
**NTMW07 Trunk/Line Terminal Number (TN) assignments**

*Note:* The NTMW07 can only be installed in slots 1 & 2, 3 & 4 and 5 & 6 in the main cabinet, and in slots 11 & 12, 13 & 14 and 15 & 16 in the expansion cabinet. The system recognizes the line card portion as even numbered card assignment (cards 2, 4, 6, 12, 14, 16). See Table 17 on page 167 and Table 18 on page 168 for card assignments for slots 7, 8, 9, 17, 18 and 19.

| Card Slot | Card Assignment | First TN......Last TN | Cable | Cabinet |
|---|---|---|---|---|
| 1 & 2 | 1 | — | 1 & 2 | Main |
| 1 & 2 | 2 | 02 00......02 03 | 1 & 2 | Main |
| 3 & 4 | 3 | — | 3 & 4 | Main |
| 3 & 4 | 4 | 04 00......04 03 | 3 & 4 | Main |
| 5 & 6 | 5 | — | 5 & 6 | Main |
| 5 & 6 | 6 | 06 00......06 03 | 5 & 6 | Main |
| 7 | 7 | Note | 7 | Main |
| 8 | 8 | Note | 8 | Main |
| 9 | 9 | Note | 9 | Main |
| 10 | | Meridian Mail | — | Main |
| 11 & 12 | 11 | — | 11 & 12 | Expansion |
| 11 & 12 | 12 | 12 00......12 03 | 11 & 12 | Expansion |
| 13 & 14 | 13 | — | 13 & 14 | Expansion |
| 13 & 14 | 14 | 14 00......14 03 | 13 & 14 | Expansion |
| 15 & 16 | 15 | — | 15 & 16 | Expansion |
| 15 & 16 | 16 | 16 00......16 03 | 15 & 16 | Expansion |
| 17 | 17 | Note | 17 | Expansion |
| 18 | 18 | Note | 18 | Expansion |
| 19 | 19 | Note | 19 | Expansion |
| | 20 | Not used | — | Expansion |

**Table 20**
**Default DN assignments — Main cabinet**

| Slot | | Unit | Default Directory Number (DN) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Note 1 | 0 - 7 | 2200 | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 |
| | | 8 - 15 | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 |
| | Note 2 | 16 - 23 | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 |
| 2 | Note 3 | 0 - 3 | 2224 | 2225 | 2226 | 2227 | | | | |
| 3 | Note 1 | 0 - 7 | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 |
| | | 8 - 15 | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 |
| | Note 2 | 16 - 23 | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 |
| 4 | Note 3 | 0 - 3 | 2272 | 2273 | 2274 | 2275 | | | | |
| 5 & 6 | Note 1 | 0 - 7 | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 |
| | | 8 - 15 | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 |
| | Note 2 | 16 - 23 | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 |
| 6 | Note 3 | 0 - 3 | 2320 | 2321 | 2322 | 2324 | | | | |
| 7 | Note 1 | 0 - 7 | 2344 | 2345 | 2346 | 2347 | 2348 | 2349 | 2350 | 2351 |
| | | 8 - 15 | 2352 | 2353 | 2354 | 2355 | 2356 | 2357 | 2358 | 2359 |
| | Note 2 | 16 - 23 | 2360 | 2361 | 2362 | 2363 | 2364 | 2365 | 2366 | 2367 |
| 8 | Note 1 | 0 - 7 | 2368 | 2369 | 2370 | 2371 | 2372 | 2373 | 2374 | 2375 |
| | | 8 - 15 | 2376 | 2377 | 2378 | 2379 | 2380 | 2381 | 2382 | 2383 |
| | Note 2 | 16 - 23 | 2384 | 2385 | 2386 | 2387 | 2388 | 2389 | 2390 | 2391 |
| 9 | Note 1 | 0 - 7 | 2392 | 2393 | 2394 | 2395 | 2396 | 2397 | 2398 | 2399 |
| | | 8 - 15 | 2400 | 2401 | 2402 | 2403 | 2404 | 2405 | 2406 | 2407 |
| | Note 2 | 16 - 23 | 2408 | 2409 | 2410 | 2411 | 2412 | 2413 | 2414 | 2415 |

**Note 1:** Only units 0 through 15 are available with the NTMW06 Analog Line card.
**Note 2:** All units are available (units 0 through 23) are available with the NTMW05 Digital Line card.
**Note 3:** Only units 0, 1, 2 and 3 are available with the NTMW07 Trunk & Line card.

**Table 21**
**Default DN assignments — Expansion cabinet**

| Slot | | Unit | Default Directory Number (DN) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **11** | Note 1 | **0 - 7** | 2440 | 2441 | 2442 | 2443 | 2444 | 2445 | 2446 | 2447 |
| | | **8 - 15** | 2448 | 2449 | 2450 | 2451 | 2452 | 2453 | 2454 | 2455 |
| | **Note 2** | **16 - 23** | 2456 | 2457 | 2458 | 2459 | 2460 | 2461 | 2462 | 2463 |
| **12** | Note 3 | | 2464 | 2465 | 2466 | 2467 | | | | |
| **13** | Note 1 | **0 - 7** | 2488 | 2489 | 2490 | 2491 | 2492 | 2493 | 2494 | 2495 |
| | | **8 -15** | 2496 | 2497 | 2498 | 2499 | 2500 | 2501 | 2502 | 2503 |
| | **Note 2** | **16 - 23** | 2504 | 2505 | 2506 | 2507 | 2508 | 2509 | 2510 | 2511 |
| **14** | Note 3 | | 2512 | 2513 | 2514 | 2515 | | | | |
| **15** | Note 1 | **0 - 7** | 2536 | 2537 | 2538 | 2539 | 2540 | 2541 | 2542 | 2543 |
| | | **8 - 15** | 2544 | 2545 | 2546 | 2547 | 2548 | 2549 | 2550 | 2551 |
| | **Note 2** | **16 - 23** | 2552 | 2553 | 2554 | 2555 | 2556 | 2557 | 2558 | 2559 |
| **16** | Note 3 | | 2560 | 2561 | 2562 | 2563 | | | | |
| **17** | Note 1 | **0 - 7** | 2584 | 2585 | 2586 | 2587 | 2588 | 2589 | 2590 | 2591 |
| | | **8 - 15** | 2592 | 2593 | 2594 | 2595 | 2596 | 2597 | 2598 | 2599 |
| | **Note 2** | **16 - 23** | 2600 | 2601 | 2602 | 2603 | 2604 | 2605 | 2606 | 2607 |
| **18** | Note 1 | **0 - 7** | 2608 | 2609 | 2610 | 2611 | 2612 | 2613 | 2614 | 2615 |
| | | **8 - 15** | 2616 | 2617 | 2618 | 2619 | 2620 | 2621 | 2622 | 2623 |
| | **Note 2** | **16 - 23** | 2624 | 2625 | 2626 | 2627 | 2628 | 2629 | 2630 | 2631 |
| **19** | Note 1 | **0 - 7** | 2632 | 2633 | 2634 | 2635 | 2636 | 2637 | 2638 | 2639 |
| | | **8 - 15** | 2640 | 2641 | 2642 | 2643 | 2644 | 2645 | 2646 | 2647 |
| | **Note 2** | **16 - 23** | 2648 | 2649 | 2650 | 2651 | 2652 | 2653 | 2654 | 2655 |

**Note 1:** Only units 0 through 15 are available with the NTMW06 Analog Line card.
**Note 2:** All units are available (units 0 through 23) are available with the NTMW05 Digital Line card.
**Note 3:** Only units 0, 1, 2 and 3 are available with the NTMW07 Trunk/Line card.

# Activating telephones

Each telephone is activated by carrying out a procedure on the telephone itself.

*Note:* The data feature cannot be activated using the procedures in this chapter. The data feature must be programmed using LD 11 with Data class of service as described in the *Option 11C Compact Software Guides*.

Procedures for activating the following models of telephones are outlined:

- a default model with default extension number

- a customized model with a customized extension number.

Refer to for a description of available pre-programmed telephone models.

These procedures are presented for telephones with and without character displays.

### Telephone tones

There are a number of different telephone tones. The following list includes tones that are heard during telephone activation:

| | |
|---|---|
| **Dial tone** | A continuous tone. |
| **Special dial tone** | Three beeps followed by continuous dial tone. |
| **Overflow tone** | Similar to a busy tone, except faster and higher. |
| **Relocation tone** | A short high-pitched beep lasting 4 seconds, followed by silence. |

Before activating a telephone, make sure it is in its final location. Note the model number assigned to it and whether or not it is to be customized.

*Note:* Meridian Digital telephones are allowed 128 models for each type of telephone. When activating a Meridian Digital telephone, select the model associated with that telephone type or it will not function.

## Activating default models

### Telephone with a character display

Procedure 24 describes how to activate a default model on a telephone with a character display.

**Procedure 24**
**Activating the telephone**

1   **Plug the telephone set into the jack and wait 20 seconds.**

    *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   **Lift the handset. If dial tone is not present, restore the handset and wait 10 seconds.**
    **Lift the handset and listen for dial tone. (Repeat this procedure until dial tone is heard.)**

    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 the prompt "MODEL X" is not displayed 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 the handset is lifted.

3   **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.

**4     Press the pound key to select the default extension number.**

Relocation tone is heard. The character display shows
"OK".

or

If the extension number is already in use by another telephone, special
dial tone is heard. The character display shows
"MULTI-LINE, EXTENSION?".

**To accept the default extension number press the pound key.**

To select a new extension number, enter an extension number and
press the pound key.

or

If the extension number is not available for use
"ERROR, EXTENSION?"
is displayed and overflow tone is heard. (This happens when the
extension number is entered 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 4 and enter a new extension
number.

*Note:* If other keys require secondary extension numbers, you are
prompted until all the required extension numbers are entered 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 an extension number is being programmed, the lamp
associated with that number on the telephone is lit.

**5     Hang up the telephone handset.**

After approximately 10 seconds, the telephone is configured.

*Note:* If the handset is replaced before completing the prompt
sequence, the installation will automatically fail. This is useful when an
error is made and the procedure is to be repeated.

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

**Telephone without a character display**

Procedure 25 describes how to activate a default model on a telephone with a character display.

**Procedure 25**
**Activating the telephone**

**1**     **Plug the telephone set into the jack and wait 20 seconds.**

*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.**

A short, high-pitched beep lasting four seconds is heard followed by silence (relocation tone). If the extension number is already in use by another telephone, three beeps are heard followed by continuous dial tone (special dial tone).

**To accept the default extension number press the pound key.**

**To select a new extension number, enter an extension number and press the pound key.**

If the extension number is not available for use, a fast, high-pitched broken tone (overflow tone) is heard. (This happens when an extension number is manually chosen 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.

*Note:* If other keys require secondary extension numbers, you are prompted until all the required extension numbers for the model are entered. 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 an extension number is being programmed, the lamp associated with that number on the telephone is lit.

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

## Activating customized models

### Telephone with a character display

Procedure 26 describes how to activate a customized model on a telephone with a character display.

**Procedure 26**
**Activating a customized telephone**

1    **Plug the telephone set into the jack and wait 20 seconds.**

   *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    **Lift the handset. If dial tone is not present, restore the handset and wait 10 seconds.**
   **Lift the handset and listen for dial tone. (Repeat this procedure until dial tone is heard.)**

   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 the prompt "MODEL X" is not displayed 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 the handset is lifted.

3    **Press the digits associated with the customized model and press the pound key (#).**

   Dial tone disappears after the first digit is pressed. Three beeps followed by continuous dial tone (special dial tone) is heard after pressing the pound key.

   If a valid model number is entered, the character display reads
   "OK, EXTENSION?".
   If an invalid model is entered, the previous prompt is reissued and overflow tone is heard.

**4**     **Enter the customized extension number and press the pound key.**

Relocation tone is heard. The character display shows
"OK".

or

If the extension number is already in use by another telephone, special dial tone is heard. The character display shows
"MULTI-LINE, EXTENSION?".

or

If the extension number is not available for use, overflow tone is heard. The character display shows
"ERROR, EXTENSION?"
Repeat this step.

***Note:*** If other keys require secondary extension numbers, you are prompted until all of the required extension numbers are entered 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 programming an extension number, the lamp associated with that number on the telephone is lit.

**5**     **Hang up the telephone handset.**

After approximately 10 seconds, the telephone is configured.

***Note:*** If the handset is replaced before completing the prompt sequence, the installation will automatically fail. This is useful when an error is made and the procedure is to be repeated.

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

### Telephone without a character display

Procedure 27 describes how to activate a customized model on a telephone without a character display.

**Procedure 27**
**Activating a customized telephone**

**1**    **Plug the telephone set into the jack and wait 20 seconds.**

**2**    **Lift the handset. If dial tone is not present, restore the handset and wait 10 seconds.**
       **Lift the handset and listen for dial tone. (Repeat this procedure until dial tone is heard.)**

       ***Note:*** The 20 second time interval is required for the system to determine whether the set is new or is being relocated using the Telephone Relocation feature.

**3**    **Press the digits associated with the customized model and press the pound key (#).**

       Three beeps followed by continuous dial tone (special dial tone) is heard after pressing the pound key.

**4**    **Enter the customized extension number and press the pound key.**

       A short high-pitched beep lasting four seconds is heard, followed by silence (relocation tone).

       If the extension number is already in use by another telephone, special dial tone is heard.

       If the extension number is not available for use, a fast, high-pitched broken tone (overflow tone) is heard. Repeat this step.

**5**    **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 all of the required extension numbers for the model are entered. 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 programming an extension number, the lamp associated with that number on the telephone is lit.

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

# Chapter 18 – Connecting the trunks

## General information

This chapter describes how to connect trunks.

During the initial software installation, the installer has the option of loading a default database containing pre-programmed trunk data into software. If necessary, the default data can be modified at any time to meet the specific needs.

For a complete description of how to modify pre-programmed trunk data, refer to .

---

**WARNING**

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 specifically designed for wet locations. Never touch uninsulated telephone wiring unless the line has been disconnected at the network interface.

---

## Power Failure Transfer

The NTMW07 Trunk/Line card has a built-in Power Failure Transfer (PFT) feature, designed to operate with a loop start trunk. This feature allows the connecting one trunk on the card to an analog telephone on the same card in the event of a commercial power or system failure.

*Note:* Ground start trunks require a telephone set equipped with a ground start button to place outgoing calls when in PFT mode.

The Terminal Numbers (TNs) that are equipped to perform the PFT function vary depending on the slot assignment in the cabinets. When a PFT occurs, the following are connected:

- **In the Main cabinet**

  — When the NTMW07 card is in slot 1 & 2
    TN 01 03 connects to TN 02 03
    (Trunk on Card 01 Unit 03 connects to the telephone on Card 02 Unitþ03)

  — When the NTMW07 card is in slot 3 & 4
    TN 03 03 connects to TN 04 03
    (Trunk on Card 03 Unit 03 connects to the telephone on Card 04 Unitþ03)

  — When the NTMW07 card is in slot 5 & 6
    TN 05 03 connects to TN 06 03
    (Trunk on Card 05 Unit 03 connects to the telephone on Card 06 Unit 03)

- **In the Expansion cabinet**

  — When the NTMW07 card is in slot 11 & 12
    TN 11 03 connects to TN 12 03
    (Trunk on Card 11 Unit 03 connects to the telephone on Card 12 Unit 03)

  — When the NTMW07 card is in slot 13 & 14
    TN 13 03 connects to TN 14 03
    (Trunk on Card 13 Unit 03 connects to the telephone on Card 14 Unit 03)

  — When the NTMW07 card is in slot 15 & 16
    TN 15 03 connects to TN 16 03
    (Trunk on Card 15 Unit 03 connects to the telephone on Card 16 Unit 03)

# Connecting trunks

describes how to connect trunks at the cross-connect terminal.

*Note:* Refer to for trunks requiring the PFT feature.

**Procedure 28**
**Connecting trunks**

**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-connecting wire, connect the trunk to the TN.**

Make sure that the wiring is not reversed and is on the proper
terminals.

The connections for trunks are listed in .

The trunk can now be activated as described in
.


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

## NTMW07 Trunk/Line card

The NTMW07 card provides four analog trunks which can function in the modes shown in Table 22.

**Table 22**
**Jumper Strap Settings**

| Trunk Types | Loop Length | Jumper Strap Settings | | | |
|---|---|---|---|---|---|
| | | **J1 n** | **J2 n** | **J3 n** | **J4 n** |
| **Factory Setting** | | | | | |
| CO/FX/WATS | 0 — 5000 ft (1525 m) | Off | Off | 1-2 | 1-2 |
| 2-way TIE (LDR) | | | | | |
| 2-way TIE (OAID) | | | | | |
| DID | 0 — 600 ohms | | | | |
| RAN: continuous operation mode | Not applicable: RAN and Paging trunks should not leave the premises. | | | | |
| Paging | | | | | |
| **Extended Range** | | **J1 n** | **J2 n** | **J3 n** | **J4 n** |
| CO/FX/WATS | > 5000 ft (1525 m) | Off | Off | 1-2 | 1-2 |
| 2-way TIE (LDR) | | | | | |
| 2-way TIE (OAID) | | | | | |
| DID | > 600 ohms | On | On | 1-2 | 2-3 |
| RAN: pulse start or level start modes | Not applicable: RAN and Paging trunks should not leave the premises. | Off | Off | 2-3 | 1-2 |
| **Note:** Jumper strap settings J1 n, J2 n, J3 n and J4 n apply to all trunk units. 'n' indicates the unit number (0-3). 'Off' means that no jumper strap is installed on a jumper block. Store unused straps by installing them on a single jumper pin. Refer to Figure 41 on page 183. | | | | | |

**Table 23**
**Power fail transfer**

| Power Fail Transfer | J1 |
|---|---|
| Power Fail Transfer On | 1-2 |
| Power fail Transfer Off | 2-3 |

**Figure 41**
**Jumper Strap**
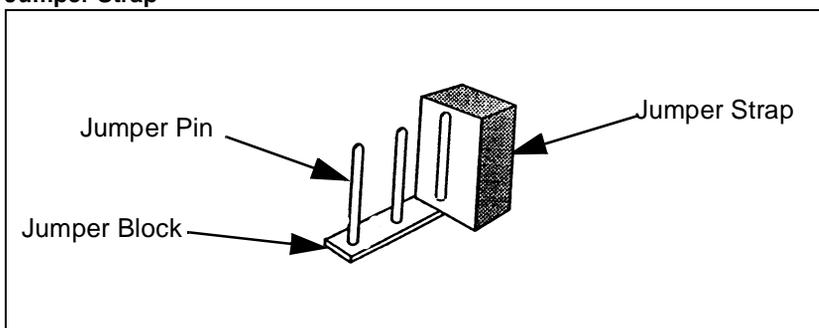


Refer to Table 24 for information about Terminal Number (TN) assignments and to Table 25 for the connections to the NTMW07 Line/Trunk card at the cross-connect terminal.

**Table 24**
**NTMW07 Line/Trunk Terminal Number Assignments (see Note)**

*Note:* The NTMW07 can only be installed in slots 1 & 2, 3 & 4 and 5 & 6 in the main cabinet, and in slots 11 & 12, 13 & 14 and 15 & 16 in the expansion cabinet. The system recognizes the trunk card portion as even numbered card assignment (cards 1, 3, 5, 11, 13, 15).

| Card Slot | Card Assignment | First TN......Last TN | Cable | Cabinet |
|---|---|---|---|---|
| 1 & 2 | 1 | 01 00......01 03 | 1 & 2 | Main |
| | 2 | — | | Main |
| 3 & 4 | 3 | 03 00......03 03 | 3 & 4 | Main |
| | 4 | — | | Main |
| 5 & 6 | 5 | 05 00......05 03 | 5 & 6 | Main |
| | 6 | — | | Main |
| 7 | 7 | Note | 7 | Main |
| 8 | 8 | Note | 8 | Main |
| 9 | 9 | Note | 9 | Main |
| 10 | | Meridian Mail | — | Main |
| 11 & 12 | 11 | 11 00......11 03 | 11 & 12 | Expansion |
| | 12 | — | | Expansion |
| 13 & 14 | 13 | 13 00......13 03 | 13 & 14 | Expansion |
| | 14 | — | | Expansion |
| 15 & 16 | 15 | 15 00......15 03 | 15 & 16 | Expansion |
| | 16 | — | | Expansion |
| 17 | 17 | Note | 17 | Expansion |
| 18 | 18 | Note | 18 | Expansion |
| 19 | 19 | Note | 19 | Expansion |
| | 20 | Not used | — | Expansion |

**Table 25**
**NTMW07 Line/Trunk connections**

| Cable from cabinet | | Unit | RAN mode | Paging mode | All other modes |
|---|---|---|---|---|---|
| **Pair** | **Color** | | **Designations** | | |
| 9T<br>9R | R-BR<br>BR-R | Unit<br>0 | T0<br>R0 | T0<br>R0 | TT0<br>TR0 |
| 10T<br>10R | R-S<br>S-R | | CP<br>MB | A<br>PG | SIG0.B<br>SIG0.A |
| 11T<br>11R | BK-BL<br>BL-BK | Unit<br>1 | T1<br>R1 | T1<br>R1 | TT1<br>TR1 |
| 12T<br>12R | BK-O<br>O-BK | | CP<br>MB | A<br>PG | SIG1.B<br>SIG1.A |
| 13T<br>13R | BK-GR<br>GR-BK | Unit<br>2 | T2<br>R2 | T2<br>R2 | TT2<br>TR2 |
| 14T<br>14R | BK-BR<br>BR-BK | | CP<br>MB | A<br>PG | SIG2.B<br>SIG2.A |
| 15T<br>15R | BK-S<br>S-BK | Unit<br>3 | T3<br>R3 | T3<br>R3 | TT3<br>TR3 |
| 16T<br>16R | Y-BL<br>BL-Y | | CP<br>MB | A<br>PG | SIG3.B<br>SIG3.A |

*Note:* Refer to Table 19 on page 169 for information about the Line portion of the NTMW07 Line/Trunk card.

# Activating trunks

Refer to for a description of available pre-programmed trunk models.

The following procedures describe how to activate trunks.

## Activating a default model trunk

Review the following procedure before starting. Since the administration menu times-out in thirty seconds, note the data that will be required to complete the procedure.

To determine corresponding TNs and trunks, check the location of trunk cards in the cabinet or by using LD 32.

**Procedure 29**
**Activating a default model trunk**

**1**    **Lift the handset of the administration telephone.**

**2**    **Enter the system's administration Flexible Feature Code to access the administration menu.**

The prompt
"PASSWORD?"
appears.

**3**    **Enter the default administration telephone password.**

Special dial tone is heard and the prompt
"TASK?"
appears in the top line of the character display.

The second line of the display reads
"1 ADD TRUNK".

**4**    **Enter "1" to select "1 ADD TRUNK".**

The prompt
"ROUTE ACCESS?"
appears on the character display.

**5**    **Enter the access code of the route to which a trunk is to be added and press the pound key (#).**

If a valid route number is not entered,
"TN?"
does not appear and the screen remains the unchanged. If the type of trunk card does not match the route, the prompt
"ROUTE ACCESS?"
appears again, and overflow tone is heard.

**6**    **Enter the TN in the CCUU format (Card Unit) and press the pound key.**

In response to the prompt
"TN?"
enter a TN (Terminal Number) from one of the installed trunk cards.

The prompt
"MODEL"
appears. If an invalid TN is entered, the display shows "INVALID, TN?" and another TN must be entered.

**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 special dial tone is heard.
The sequence is repeated when the prompt
"TN?"
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, the next TN is automatically entered, and model type is prompted.

By entering "#" again, the previously accepted model is automatically entered.

***Note:*** The model chosen during the first trunk activation sequence will be the default model for all subsequent trunks until the telephone is placed on-hook or a new trunk model number is entered.

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

## Activating a selected model trunk

Review the following procedure before starting. Since the administration menu times-out in thirty seconds, note the data that will be required to complete the procedure.

To determine corresponding TNs and trunks, check the location of trunk cards in the cabinet or by using LD 32.

**Procedure 30**
**Activating a selected model trunk**

**1**    **Lift the handset of the administration telephone.**

**2**    **Enter the system's administration Flexible Feature Code to access the administration menu.**

The prompt
"PASSWORD?"
appears.

**3**    **Enter the default administration telephone password.**

Special dial tone is heard and the prompt
"TASK?"
appears in the top line of the character display.

The second line of the display reads
"1 ADD TRUNK".

**4**    **Enter "1" to select "1 ADD TRUNK".**

The prompt
"ROUTE ACCESS?"
appears on the character display.

**5**    **Enter the access code of the route to which a trunk is to be added and press the pound key (#).**

If a valid route number is not entered,
"TN?"
does not appear and the screen remains the unchanged. If the type of trunk card does not match the route, the prompt
"ROUTE ACCESS?"
appears again, and overflow tone is heard.

**6**     **Enter the TN in the CCUU format (Card Unit) and press the pound key.**

In response to the prompt
"TN?"
enter a TN (Terminal Number) from one of the installed trunk cards.

The prompt
"MODEL"
appears. If an invalid TN is entered, the display shows "INVALID, TN?" and another TN must be entered.

**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 special dial tone is heard and the sequence is repeated when the prompt
"TN?"
appears on the character display.

**8**     **Hang up the receiver or repeat the sequence.**

The sequence ends when the last unit in the card is used and the program is complete, or when telephone receiver is on-hook.

***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 a new trunk model number is entered.

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

# Chapter 19 – Connecting an external alarm

## General information

The Meridian 1 Option 11C Compact system can be equipped with an alarm port using an analog line connected to an Analog (2500/500)-type telephone or other similar type of ringing or alerting device.

The alarm operates when the system generates a message indicating a power fault.

## Alarm port assigned in software

Procedure 31 describes how to connect an external alarm.

**Procedure 31**
**Connecting an alarm using an alarm port**

1   **Install an analog (500/2500)-type line as described in <span style="color:red">"Chapter 17 – Connecting the telephones and attendant console" on page 157</span>.**

2   **Install an analog (500/2500)-type telephone or other similar alerting device used as an alarm to the line.**

3   **Use LD 15 and make the following changes. Only the prompts requiring a response are listed. Press *return* in response to the other prompts.**

   • Enter CHG in response to the prompt REQ

   • Enter CDB in response to the prompt TYPE

   • Enter the customer number (0) in response to the prompt CUST

- Enter the DN of the line assigned as an alarm port in response to the prompt ALDN.

*Note:*  If the assigned DN is inadvertently called the alarm will activate. To avoid false alarms, make sure that the DN is not consistent with the assigned numbering plan.

- Press *return* in response to the remaining prompts.

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

# Chapter 20 — Meridian Mail Compact Option installation and maintenance

## General information

This chapter describes the software procedures you need to know in order to switch between Meridian Mail Compact Option and the Option 11C Compact, to stop and start the Meridian Mail Compact Option system, and to back up and restore a customer's Meridian Mail Compact Option data.

This chapter also describes how to install, upgrade and maintain the Meridian Mail Compact Option voicemail. It is divided into the following sections:

# Installing the Meridian Mail Compact Option hardware

The following procedures describe the installation of the Meridian Mail Compact Option hardware.

## Precautions

If you are installing a Meridian Mail Hospitality Voice Services (HVS) system, you should install the RSM Assembly Module first before installing any other Meridian Mail hardware components.

Before touching any components, ensure that you are properly grounded by putting on the wrist strap connected to the Meridian 1 cabinet. Static electricity can irreparably damage sensitive electronic components.

---

**CAUTION**
**Risk of equipment damage**
Wear an ESD wristband connected to an appropriate ground. The Meridian Mail Compact Option hardware contains components that may be damaged by electro-static discharge.

---

## Installing the RSM Assembly Module (NTMW50AA)

The RSM Assembly Module is a small circuit board contained in a metal case that you mount outside the Option 11C Compact cabinet. It is connected to the Meridian Mail Compact Option by cable to a 25-pair connector on the Option 11C Compact backplane. The RSM Assembly Module allows you to connect the RS-232 devices to Meridian Mail that are required by hospitality systems.

---

**WARNING**
**Shock hazard**
Before installing the RSM Assembly Module, ensure that the Meridian Mail Compact Option CPU card assembly  is not plugged into the back of the Option 11C Compact cabinet

---

If you are installing a new Meridian Mail system, install the RSM Assembly Module before you install the Meridian Mail Compact Option CPU card assembly.

To install the RSM Assembly Module, follow these steps:

1    Mount the RSM Assembly Module on the same wall as the Option 11C Compact cabinet, with the hardware provided. Ensure that the RSM Assembly Module is mounted close enough to the cabinet to make the cable connections decribed below.

2    At the bottom right of the Option 11C Compact backplane, loosen the velcro fastener attached to the 25-pin connector labelled P14. Insert one end of the supplied four-foot RSM cable (NTMW51AA) into P14, and tighten the velcro fastener.

3    On the RSM Assembly Module, loosen the velcro fastener attached to the 25-pin connector labelled P1.  Insert the other end of the RSM cable from the Option 11C Compact backplane into P1, and tighten the velcro fastener.

4    Move the small switch on the RSM Assembly Module to the "Normal" position as indicated on the assembly.

You can now install the Meridian Mail Compact Option CPU card assembly.

You can connect cables to the RSM Assembly Module while the module is connected to the Option 11C Compact backplane and while Meridian Mail is on. For information on connecting peripheral devices to the RSM Assembly Module, refer to .

## Installing the hard drive

The following procedure describes installation of a new hard drive onto the CPU card in a new system. If you need to replace a hard drive see .

**Procedure 32**
**Installing the hard drive**

To install the hard drive, follow these steps.

**Figure 42**
**The mail CPU card and the hard drive**



Hard drive power cable

Hard drive

SCSI cable

Screws

Bracket

Card latch

G100805
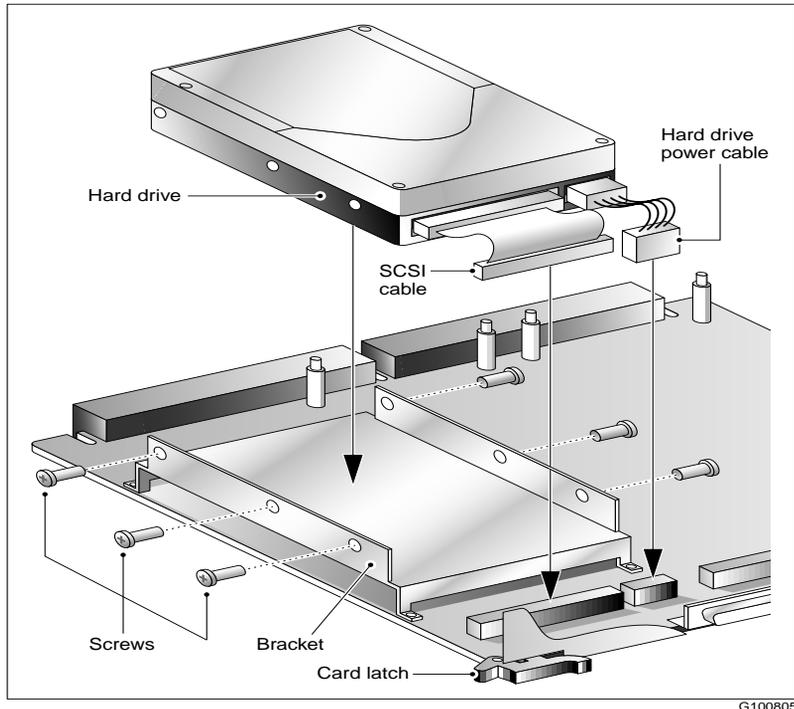
1   Remove the mail CPU card and the hard drive from their protective packaging.

2   Lay the card on a flat surface and place the hard drive in the bracket as shown in Figure 42.

3   Secure the hard drive in the bracket with the screws.

4   Connect the hard drive SCSI cable and the power cable to the connectors in the card.

**5**       To connect the daughterboards go to the next procedure.

# Installing the daughterboards

The following procedure describes installation of the daughterboards on the mail CPU card. To replace a daughterboard see .

**Procedure 33**
**Installing the daughterboards**

To install the daughterboards, follow these steps.

**Figure 43**
**Mail CPU (68K) card assembly**



G100806
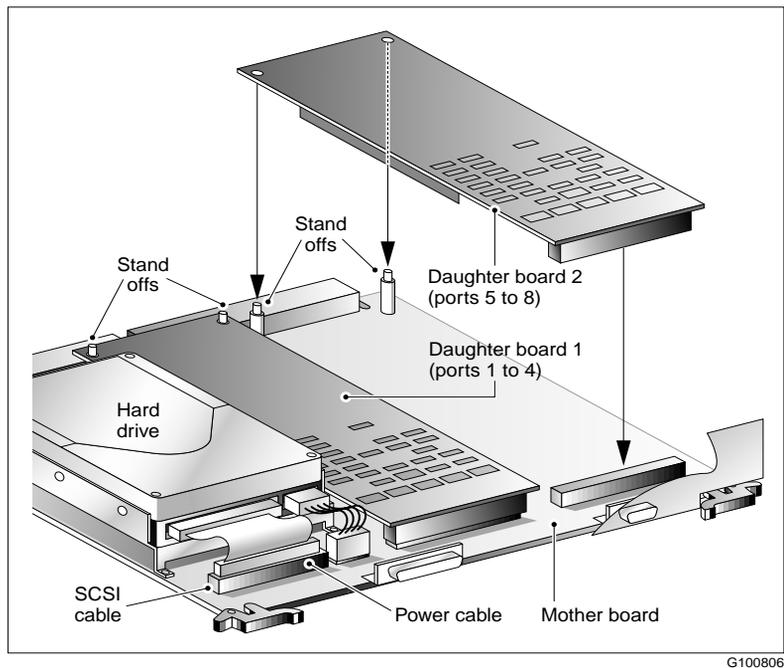
**1**       Remove the daughterboards from their protective packaging.

**2**       Lay the mail CPU card on a flat surface and connect a daughterboard to the stand offs and connector closest to the hard drive. This is daughterboard 1 and is responsible for ports 1 to 4 on the Option Compact.

3    Connect the second daughterboard to the remaining two stand offs and the connector. This is daughterboard 2 and is responsible tor ports 5to 8 on the Option Compact.

## Installing the Meridian Mail Compact Option CPU (68K) card

The following procedure describes installing the Meridian Mail Compact Option CPU (68K) card into the Meridian 1 Option 11C Compact card cage.

**Procedure 34**
**Installing the mail CPU card into the card cage**

> *Note:* Before installing the mail (68K) CPU card, check that all connections on the card are secure.

**Figure 44**
**Installing the mail card assembly**
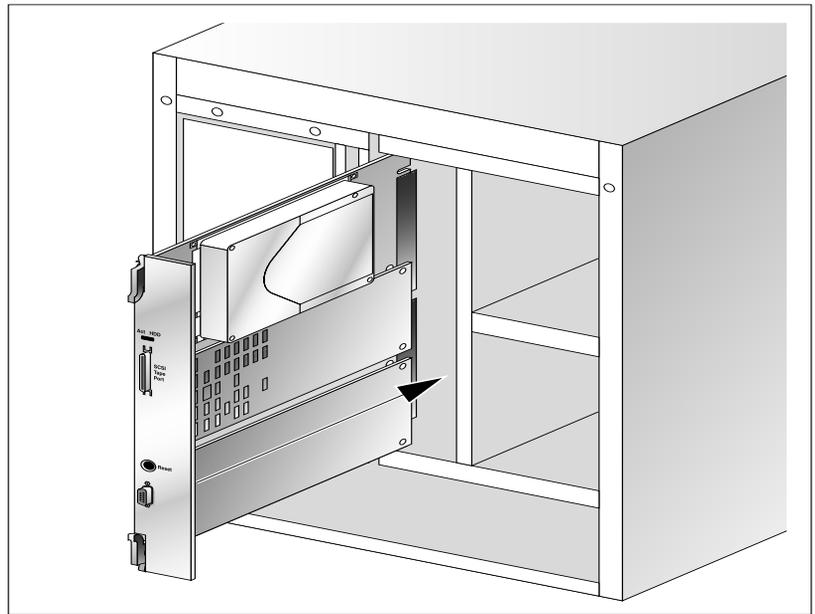


G100807

1    Hold the mail card by the card latches and orient it as shown in Figure 44.

2    Slide the card into slot 10 and push it into the connector at the back of the card cage.

3    Push firmly on the faceplate of the card to make sure you have a positive and secure connection with the connector back of the card cage.

4    Lock the card latches.

5    When the card is installed, connect any cables that are required to be connected to the faceplate connectors.

# Installing Hospitality voice system hardware

The Meridian Mail Compact Option Hospitality system is used by hotels to offer voice messaging services to their staff and guests. It is designed to work with a hotel's property management system (PMS). This section describes the additional hardware installation procedures required in order to take advantage of Meridian Mail's hospitality features. The Option 11C Compact PBX may or may not already be connected to a PMS.

For complete instructions on installing a hospitality system and configuring it for your PMS, refer to the *Hospitality Voice Services Implementation Guide* (NTP 555-7001-221).

Meridian Mail Compact Option Hospitality Package (NTMW53AA/A0740866) contains the following hardware:

- RSM Assembly Module (NTMW50AA/A0735331)

- 25 pair shielded RSM cable, 4 feet, male to male (NTMW51AA)

- DB25 null-modem peripheral cable, 40 feet (NTMW55AA)

- DEC 520 display terminal (AO383526)

Consult the cabling plan in and determine which of the following additional hardware you require:

- DB25 null-modem peripheral peripheral cable, 0.5 feet (NTND93AA)

- DB25 straight-through peripheral cable, 10 feet (NTND91AA or customer-supplied equivalent)

   *Note:* If you choose to use any peripheral cables exceeding 50 feet in length, short haul modems are required. Inmac asynchronous line drivers (#8125) are recommended.

- DB25 null modem adaptor, if required (A0351509)

- DB25 gender changers, female to female, if required (A0351509)

- 25-pair MDF cable, 10 feet male to male, if required (NE-B25C-FS)

- 25-pair MDF cable, 10 feet male to bare wire, if required (NE-A25C-FS)

## Installing the SDI cable

To install the SDI cable, refer to "Connecting SDI ports on the SSC card" on page 129.

## Installing the RSM Assembly Module

To install the RSM Assembly Module refer to page 196.

## Installing hospitality peripherals

A hospitality system requires you to connect two peripherals to the Option 11C Compact cabinet: a guest administration console (GAC) and the hotel's PMS. The RSM Assembly Module offers you two ways of doing this: using RS-232 cables connected to the ports labelled P2, P3, and P4 on the assembly; or using a single MDF cable connecting the port labelled P5 to a BIX or similar modular distribution frame.

---

**CAUTION**
**Potential data loss**
The connections from P5 are duplicates of those on P2, P3, and P4. Do not use both sets of connections at the same time.

---

If you choose to use any peripheral cables exceeding 50 feet in length, short haul modems are required. Inmac asynchronous line drivers (#8125) are recommended.

1   Determine whether the hotel's PMS is configured as data communications equipment (DCE) or data terminal equipment (DTE). Refer to the documentation for the product.

2   Locate the three-port SDI cable connected to the back plane of the Option 11C Compact cabinet. Refer to Figure 45 on page 205.

3   Use a 0.5 ft. null-modem cable (NTND93AA) to connect Port 2 on the three-port SDI cable (NTBK48AA) to P4 on the RSM Assembly Module.

4   Use a 10 ft. straight-through RS-232 cable (NTND91AA or customer-supplied equivalent) to connect P3 on the RSM Assembly Module to the hotel's PMS.

   a   If the PMS is configured as DCE, connect a null modem adaptor (NTND93AA) to one end of the cable.

**a**   If the connector on the PMS is not female, insert a
female-to-female gender changer  (A0351509).

**5**   Use a 40 ft. null-modem cable  (NTMW55AA) to connect P2 on the RSM
Assembly Module to the guest administrative console.

**a**   If the console is configured as DTE, connect a null modem
adaptor (NTND93AA) to one end of the cable.

### Using an MDF cable

From the RSM Assembly Module you can run one of two MDF cables: a male
to male or a male to bare wire. The male to male MDF cable connects the
RSM Assembly Module to a BIX Pack. The male to bare wire voice cable
must be wired to a BIX or similar modular distribution frame.

**1**   Determine whether the hotel's PMS is configured as data
communications equipment (DCE) or data terminal equipment (DTE).
Refer to the documentation for the product.

**2**   Use the appropriate MDF cable to connect P5 on the RSM Assembly
Module to a BIX or similar modular distribution frame, and connect
your peripherals according to the connections described in
.

---

**CAUTION**
**Potential data loss**
If you connect your peripherals using P5, do not connect any
peripherals to P2, P3, or P4 on the RSM Assembly Module.

---

# Using the RSM Assembly Module

On the RSM Assembly Module is an LED which, when lit, indicates that
Meridian Mail is functioning properly and transmitting data to the PMS port.
When Meridian Mail is off or not functioning correctly, the LED turns off,
and the RSM Assembly Module automatically bypasses Meridian Mail and
allows the PMS and the Option 11C Compact system to communicate
directly.

Below the LED is a switch that allows you to manually bypass Meridian Mail.

**Figure 45**
**Hospitality system cables**
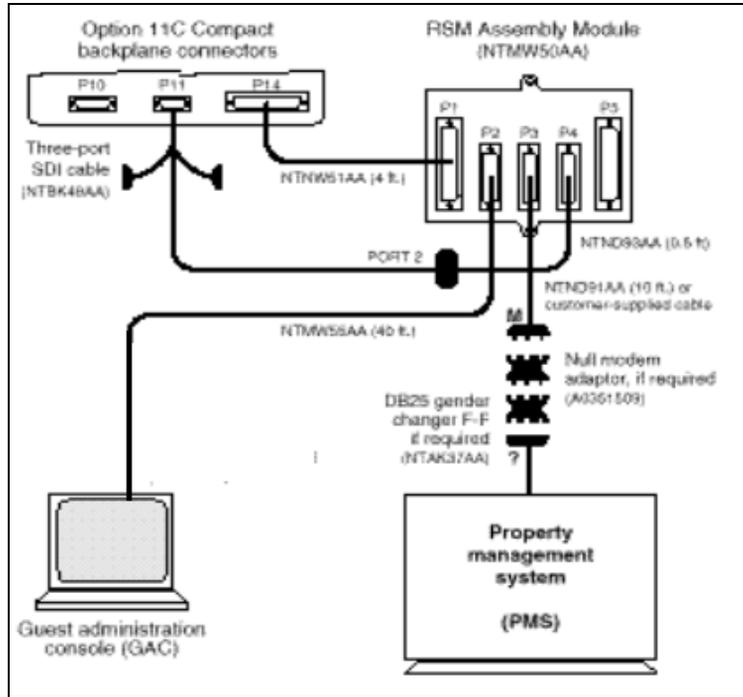


*Note:* The null modem cable or adapter may not be required.

**Table 26**
**P5 connections for hospitality systems**

| Peripheral | Signal name | P5 pin no. |
|------------|-------------|------------|
| GAC | TXD2 | 16 |
| | RTS2 | 15 |
| | TXC2 | 13 |
| | DTR2 | 14 |
| | RXD2 | 42 |
| | CTS2 | 41 |
| | RXC2 | 38 |
| | DSR2 | 40 |
| | DCD2 | 39 |
| | RI2 | 43 |
| | SGND | 17 |
| | FGND | 18 |
| PMS | TXD3 | 10 |
| | RTS3 | 9 |
| | DTR3 | 8 |
| | RXD3 | 35 |
| | CTS3 | 34 |
| | DCD3 | 32 |
| | DSR3 | 33 |
| | SGND | 11 |
| | FGND | 12 |
| SDI | TXD4 | 4 |
| | RTS4 | 3 |
| | DTR4 | 2 |
| | RXD4 | 29 |
| | CTS4 | 28 |
| | DCD4 | 26 |
| | DSR4 | 27 |
| | SGND | 5 |
| | FGND | 6 |

# Meridian Mail Compact Option and the Option 11C Compact

The following procedure describes how to go from Meridian Mail Compact Option to the Option 11C Compact, and how to logon to the switch.

**Procedure 35**
**Logging on to the Option 11C Compact**

To log on to the Option 11C Compact, follow these steps

1       If you are in Meridian Mail Compact Option, press <Control> **].**

2       Press <Return>.

*If the response is* **OVL111 nn TTY** *or* **OVL111 nn SL1** *(where* **nn** *is a two-digit number), then someone else is logged on to the system. Wait until he or she logs off and start again at step 2.*

*If the response is* **OVL000**>*, then you are already logged on.*

*If the response is* **OVL111 nn IDLE** *or* **OVL111 nn BKGD***, then you are ready to log on.*

3       If you do not get any of these responses, enter  * * * * <Return>  and start again at step 2.

*Note:*  If the system does not allow you to enter these four asterisks all in a row, simply enter them one line at a time; the system will automatically move the cursor to the next line.

4       Enter **LOGI** <Return>.

*Depending on the status of the system, you may or may not be prompted for the switch password.*

5       At the prompt, enter the Option 11C Compact password.

*You are presented with the* > *prompt.*

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

**Procedure 36**
**Switching between Meridian Mail Compact Option and the Option 11C Compact**

You use the same terminal to access both Meridian Mail Compact Option and the Option 11C Compact.

**1**    Enter **AX** <Return>  to return to the Meridian Mail Compact Option display.

   *Note 1:*  You are returned to the system administrator screen you were using when you accessed the switch.

**2**    Press <Control> **]** to switch to the Meridian Option 11C Compact display from Meridian Mail Compact Option.

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

# Enabling and disabling the console and AML data ports

Meridian Mail Compact Option uses two data ports on the Option 11C Compact: port 8 is used by the system administration terminal, and port 9 is used as an Application Module Link (AML).

You must enable these ports before turning Meridian Mail Compact Option on, and disable them before turning Meridian Mail Compact Option off. The procedures you follow depend on the release number of the Meridian Mail Compact Option software running on your switch.

**Procedure 37**
**Enabling the console and the AML data ports**

**1**    Log on to the Option 11C Compact. (Refer to .)

**2**    At the > prompt, enter the following:

   **LD 48** <Return>.

   **ENL AML 9 ACMS** <Return> to establish the link on port 9.

**3**    Enter * * * * .

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

**Procedure 38**
**Disabling the console and the AML data ports**

**1**      Log on to the Option 11C Compact. (Refer to <u>Procedure 35</u>.)

**2**      At the > prompt, enter the following:

**LD 37** <Return>.

**DIS TTY 8** <Return> to disable the console's data port

**3**      At the LSL TTY (Y/N) prompt, enter Y.

**4**      Enter * * * *.

**5**      At the > prompt, enter the following:

**LD 48** <Return>.

**DIS AML 9** <Return> to disable the link on port 9.

**6**      Enter * * * * **.**

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

# Stopping Meridian Mail Compact Option

Before working on the Meridian Mail Compact Option hardware or software, you must courtesy down the system. This allows anyone using Meridian Mail Compact Option to finish their session before the system is brought down. During this time, no users are allowed to log on to Meridian Mail Compact Option, and calls are directed to the Meridian Mail Compact Option attendant.

**Procedure 39**
**Courtesying down the system**

**1**      Log on to Meridian Mail Compact Option at the system administrator's terminal.

**2**      From the Main Menu, choose

"5 System Status and Maintenance."→"1 System  Status."

**3**      Press the <Courtesy Down System> softkey.

4       At the prompt, Do you want to courtesy down the system?,
        press the up arrow key to choose Yes, and press <Return>.

        *The display charts the progress of the courtesy down. Hardware
        locations are put out of service as users finish their sessions. System
        Status displays "CourtesyDown" when the process is complete.*

5       Disable the data ports for the console and the AML. (Refer to
        Procedure 38.)

        *Note:* At this point, Meridian Mail Compact Option can be worked
        on, the CPU card can be removed for maintenance or, an external tape
        drive can be attached.

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

# Resetting Meridian Mail Compact Option

The "Reset" button is located on the Meridian Mail Compact Option card
faceplate. Press the Reset button after installing an external tape drive, after
removing an external tape drive, or after performing troubleshooting and
maintenance.

        *Note:* Power up an external tape drive connected to the mail card.

**Procedure 40**
**Resetting mail**

1       Press the reset button on the Meridian Mail Compact Option card.

2       Enable the data ports for the console and the AML. (Refer to "Enabling
        and disabling the console and AML data ports" on page 208.)

3       Enter **AX** <Return> to view the Meridian Mail Compact Option screen.

4       Wait until the system has loaded and the logon screen is displayed
        (approximately four minutes).

5       From the Main Menu, choose

        "5 System Status and Maintenance."→"1 System  Status."

6       Press the [Activate System] softkey.

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

# Installing the external tape drive and printer

The external tape drive is used to install and upgrade software, and to make backups of Meridian Mail Compact Option data. It can be attached permanently to the SCSI connector on the Meridian Mail Compact Option voice mail card or installed only when needed.

## Installing the tape drive

**Procedure 41**
**Installing the external tape drive**

**1**     Unless you are installing Meridian Mail Compact Option for the first time, courtesy down. To courtesy-down follow Procedure 39.

**2**     Set the power selector switch at the back of the tape drive to the correct voltage for your area.

**3**     Plug the tape drive's power cord into the same circuit used by the Option 11C Compact cabinet.

**4**     Set the SCSI address for the appropriate tape drive to 1 as described in Table 27.

**5**     If you have an Archive tape drive, go to step 6. If you have a Tandberg tape drive go to step 7.

**6**     For the Archive tape drive, plug the SCSI cable into either SCSI connector and plug a SCSI terminator (A0379544) into the other connector.

**7**     For the Tandberg tape drive, plug the SCSI cable into the the SCSI connector marked IN on the back of the tape drive.

**Note:** Unlike the Archive drive, the Tandberg drive has internal terminating resistors. You *must not* connect an external SCSI terminator to the SCSI connector marked OUT (see Figure 47) on the back of the Tandberg tape drive. Leave the OUT connector unused.

**8**     For either tape drive, connect the other end of the tape drive cable to the SCSI connector on the faceplate of the Meridian Mail Compact Option card.

**9**     Attach the grounding wire on the tape drive cable to a convenient ground connection on the Option 11C Compact cabinet.

**Table 27**
**Setting the tape drive SCSI ID**

| Tape drive | To set SCSI ID |
|---|---|
| Archive Viper or 2150 ES | Press the up and down buttons until 1 appears in the SCSI ID window. (See Figure 46.) |
| Tandberg TDC4220 | Fit a pen tip into the button above or below the SCSI ID window and push until 1 is displayed in the window. (See Figure 47.) |

**Figure 46**
**SCSI setting for Archive tape drive**
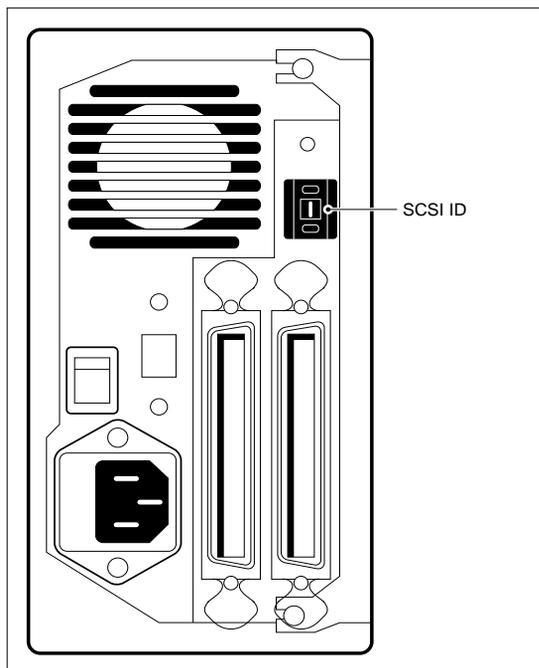
**Figure 47**
**SCSI setting for TandbergTDC 4220 tape drive—Rear view**



**Note:**
**• Leave Out connector unterminated.**
**• Select SCSI address=1 in the window.**
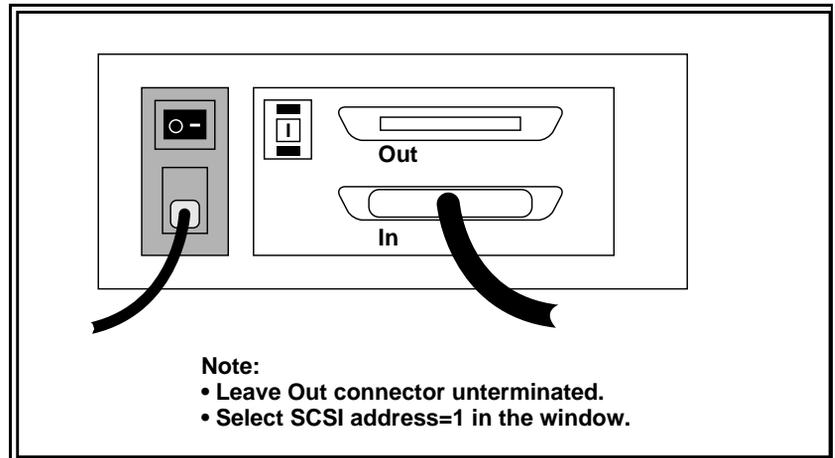
**10**     If desired, mount the external tape drive below and to the right of the
          cabinet, following the instructions in Figure 48. It should be positioned
          so that it does not interfere with the cables that run out of the bottom
          of the Meridian Mail Compact Option cabinet. Avoid mounting the tape
          drive where it will be subjected to continuous shock or vibration.

**11**     Ensure that the tape drive's power is on.

**12**     To reset Meridian Mail Compact Option, follow Procedure 40.

          ***Note:*** If you are installing Meridian Mail Compact Option for the first
          time, refer instead to the installation procedures in "Mail software
          installation" on page 225.

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

**Figure 48**
**Mounting the external tape drive**



Affix the first bracket to the wall with its lips to the left.

With the top of the tape drive facing the wall, slide it into the bracket.

Affix the second bracket to the wall with its lips overlapping the front of the tape drive.

CARD-017
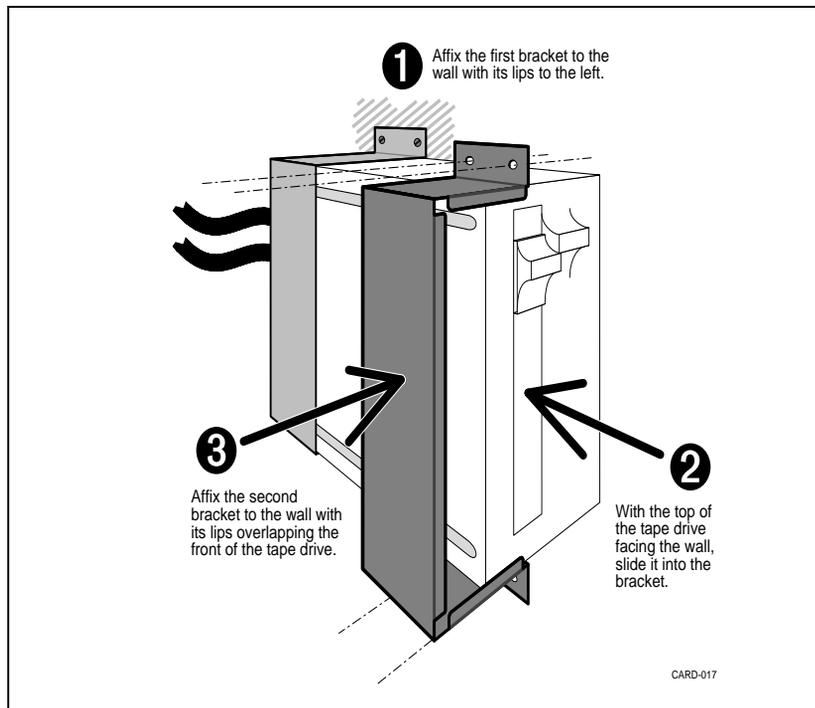
**Procedure 42**
**Inserting a tape**

1    Position tapes with the label side to the top of the tape drive and the opening towards the front of the drive.

*Note:*  This applies to Viper tape drives only. If the tape drive has been mounted correctly on the wall, insert tapes with the label facing the wall and the opening facing upwards.

2    Insert the tape in the appropriate tape drive as described in Table 28.

**Table 28**
**Inserting a tape**

| Tape drive | Directions |
|---|---|
| Archive tape drive | Push the tape all the way into the drive and slide the handle until the tape cartridge locks into place. |
| Tandberg tape drive | Press the Release button to open the door on the tape drive, and insert the tape. A diagram on the inside tape drive door indicates how to orient the tape. |

**3**   Gently close the tape drive door.

> *Note:*  The tapes you receive from Nortel are 3M brand DC6250 tapes (part numberA0368760). Be sure to use this tape format for your backups.

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

**Procedure 43**
**Removing a tape**

Remove the tape from the appropriate tape drive as described in .

---

**CAUTION**
**Risk of damage**
Do not attempt to remove a tape when the drive is running, or the tape drive could be damaged.

---

**Table 29**
**Removing a tape from the tape drive**

| If | then |
|---|---|
| Archive Viper tape drive | slide the handle on the front of the drive until the tape is ejected from the drive. |
| Tandberg tape drive | press the Release button to open the door, and the tape will be ejected from the drive. |

**Table 30**
**Tandberg Panther SE2000 tape drive status**

| Light status | Description |
|---|---|
| Steady | The tape is in and idle. |
| Flashing | The tape is in and spinning. |
| Off | The tape is out or the power is off. |

**Procedure 44**
**Removing the external tape drive**

For systems not equipped with a permanently installed external tape drive, the Meridian Mail Compact Option representative is responsible for all software procedures that require a tape drive and should, therefore, include a tape drive as part of the standard equipment.

To remove the external tape drive, follow these steps:

1    Refer to the procedure "Installing the external tape drive" on page 211 to courtesy down Meridian Mail Compact Option.

2    Turn off the power to the tape drive and unplug it.

3    Detach the grounding wire from the Meridian Mail Compact Option cabinet.

4    Unplug the SCSI cable from the Meridian Mail Compact Option card.

5    To reset Meridian Mail Compact Option, follow Procedure 40.

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

## Installing a printer

Connecting a printer to the system administrator's terminal allows the administrator to print reports using Meridian Mail Compact Option's Operational Measurements function.

You can also configure Meridian Mail Compact Option to print System Error and Event Reports (SEERs) on the same printer as they are generated. Refer to the *Meridian Mail Compact Option System Administration Guide* (NTP 555-7001-333) for more information.

SEERs contain information about every system event and error that occurs on the Meridian Mail Compact Option system. For more information on the content of SEERs, refer to *Maintenance Messages (SEERs) Reference Manual* (NTP 555-7001-510).

Meridian Mail Compact Option supports the printer: the LA75 Plus Companion Printer. If the printer you are installing is a different model, match its settings with those described in , and , and use the setup procedures described in the printer's owner's manual.

**Procedure 45**
**Connecting and configuring the LA75 Plus Companion printer**

**1**    Connect the printer to the appropriate port at the rear of the system administrator's terminal using the following cables:

*For VT220 terminals*   Connect the printer to the H87575-A adapter using a BC16E-10 cable, and connect the adapter to the port labeled "PR" using an A0369499 cable.

*For VT320, VT420, and VT520 terminals*   Connect the printer to the port labeled "Printer Port" using a BC16E-10 cable.

*For NT220 terminals*   Connect the printer to the H87575-A adapter using a BC16E-10 cable, and connect the adapter to the port labeled "Auxiliary" using an NTND82AA/AB cable.

*For HP700/22 terminals*   Connect the printer to the port labeled "Printer" using an A0369499 cable.

*For HP700/32 terminals*   Connect the printer to the H87575-A adapter using a BC16E-10 cable, and connect the adapter to the port labeled "Port 2" using an A0369499 cable.

**2**   Plug the printer's AC power cord into an appropriate outlet, and turn on the power. There is no need for it to be on the same circuit as the Meridian Mail Compact Option cabinet.

**3**   Ensure that the printer is turned off.

**4**   Press and hold the setup button on the front control panel of the printer and, at the same time, power on the printer.

**Figure 49**
**The LA75 Plus Companion printer control panel**
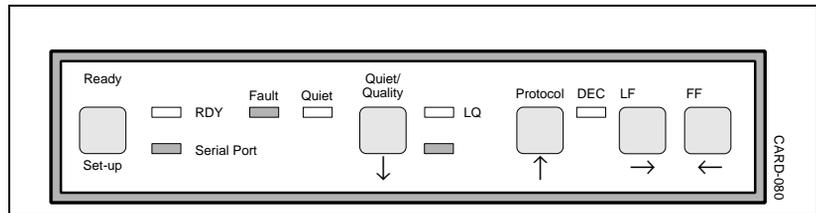
**5**   Release the setup button one to two seconds after powering on.

*The printer prints a list of the default settings. When the list is complete, it goes back to the beginning of the list, reprints the first setting, and stops. (Refer to* *. Additional settings are all defaults.)*

**Table 31**
**LA75 Plus Companion printer default settings**

| Feature number | Name | Value number | Name |
|---|---|---|---|
| Generic 1 | Protocol at power-up | 3 | Port dependent |
| Generic 2 | Form length | 9 | 11 inches (A) |
| Generic 3 | Vertical pitch | 4 | 6 lines per inch |
| Generic 4 | Automatic advance | 1 | Selected |
| Generic 5 | Print quality control | 1 | Software control |
| Generic 6 | Port selection | 1 | Serial port |
| Generic 7 | Baud rate | 7 | 9600 |
| Generic 8 | Data bits and parity | 7 | 8-none |
| Generic 9 | Buffer control | 1 | XON/XOFF |
| Generic 10 | Error beep | 1 | One beep |
| Generic 11 | Typestyle | 1 | Internal |
| Generic 12 | Input buffer size | 1 | 8K |
| Generic 13 | Disconnect on fault | 1 | Not selected |
| DEC 1 | Horizontal pitch | 7 | 10 Char. per in. (80 Col) |
| DEC 2 | GO character pitch | 1 | US ASCII |
| DEC 3 | User pref. char. set | 1 | DEC Supplemental |
| DEC 4 | Printer ID | 4 | Conf. Level 2 (LA75 Plus) |
| DEC 5 | Text mode right margin | 2 | Wrap |

**6**   If you want to change the current setting, press the left arrow key on the control panel.

*The current feature number is printed again with the new setting.*

**7**   If this is not the setting you require, press the left arrow button again and the next setting for that feature number is printed. Refer to the printer's user manual for the list of options available for each feature.

**8**   Repeat 7 until the option you want for this feature is printed.

**9**   Press the down arrow to move to the next feature.

**10**   Repeat 6 to 9 until you have changed all the settings to your satisfaction.

**11**   Press the setup button on the control panel to save the settings.

For more information, consult the printer's owner's manual.

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

# Keycodes

This section describes what keycodes are, and how and why they are used.

The keycode in Meridian Mail Compact Option contains information about the features and hardware configuration purchased by the customer. If the system needs to be changed or expanded, a new keycode can be obtained from Nortel.

## Keycode composition

A keycode consists of 20 alphanumeric characters divided into 5 groups of 4 characters. Keycodes do not contain information about which languages are to be enabled, or the type of cards you have installed.

**Example**

You may obtain a keycode that will enable you to add features and increase storage capacity.

## What is a keycode used for?

A keycode will permit you to do certain system operations. These system operations are:

- software installation

- comprehensive upgrade, which can combine any one or more of the following:

    — language expansion

    — feature expansion

    — hardware modification

    — conversion

## How the keycode works with the system

For each system operation that requires a keycode, the software prompts you to enter each of the five groups of characters that make up a 20-character keycode.

Once the keycode is entered, the system software compares the information in the keycode with the present hardware/software configuration or the desired configuration, or both, to make sure the proposed operation is valid.

**Example**

This is an example of a keycode:

D2G8 ESYM YCE6 7705 0J1U

*Note:* Case does not matter when entering keycodes, however, certain letters cannot be used because of their similarity to numbers. These letters are: B, I, O, and Z because they resemble the numbers: 8, 1, 0, and 2.

## Defining the system with keycodes

Keycodes define the system by

- the maximum number of storage hours permitted

- the maximum number of full service voice ports

This is the number of full service voice ports that has been purchased with the keycode. This means, for instance, that you can only configure your system up to this number of full service voice ports without purchasing a new keycode.

- number of physical DSP ports (= hardware locations)

- number of languages permitted

- features permitted

## What to do if your keycode is rejected

### Process

If the keycode is rejected, either reenter the keycode (it may have been entered incorrectly), or abort the procedure and reboot the system into service.

*Note:* At this point, your system has not been altered because the operation was stopped when the keycode was rejected.

### Using the keycode

The keycode on the keycode label can be used to perform either a software installation or a comprehensive upgrade, which includes any one or combination of conversion, feature expansion, hardware modification, and language expansion. For the procedure on comprehensive upgrade, see . For the procedure on software installation, see .

### Errors

If an error is made during entry of a keycode, you have two opportunities to correct it.

1) If you realize you made a typing error during the entry of a particular group of four alphanumeric characters, you may simply backspace and enter the correct characters.

2) If you have already pressed <Return> following the entry of a wrong group of characters, you can start again after entering the remainder of the keycode.

## Understanding the keycode label

### Definition

Keycode labels identify the keycode that you purchased with your system. A set of these labels is attached to your tapes and a second set is provided as a loose item with your shipped system. Store the second set in a safe location.

### Keycode label

The following illustrates a typical keycode label.



### Reading the keycode label

The following table provides descriptions for the label headings that you will find on the keycode label.

| Label Heading | Description |
|---|---|
| MM Serial NBR | This is the serial number for the platform you have purchased. |
| PBX Serial NBR | This is the serial number for your PBX. |
| NTI | Customer order number. |
| Languages | The number of languages that can be installed on the system. |
| Hours | The number of hours of storage the system can have. |
| Features | The types of features supported. |
| Universal Keycode | The keycode. Note the five blocks of alphanumeric code. |

*Note:* Also available on the keycode label is a count of how many physical ports and voice ports are available with the keycode, and the type of system with which the keycode will be used.

# Mail software installation

This section explains how the Release 11 software is installed on the Meridian Mail Compact Option system. These procedures are most often performed during a new equipment installation, but can also be performed after a disk crash, or when you do not have backup tapes.

## What to do before you begin

### Checklist

This list of points should be followed when you are installing the Meridian Mail Compact Option software.

- Determine the port capacity of your Meridian Mail Compact Option system.

- Make sure that there is paper in the printer. (If your printer runs out of paper during the procedure, your screen will freeze.)

- Enable your terminal's autoprint mode (<Control><W> followed by <P>) in order to capture everything that appears on your screen. If you have to reboot the system for any reason, you will have to reenable the auto-print mode.

- Obtain a Meridian Mail Compact Option Install/data tape.

- Obtain the keycode from Nortel.

- Verify that all the appropriate hardware is installed.

## Performing a software installation

This section provides information about installing Meridian Mail Compact Option software.

The intent of the procedure is to provide a general look at the installation and may not cover your specific configuration.

### Beginning the software installation

It is assumed the following has been done:

- all hardware has been installed

- the tapedrive is attached to the mail card

Use the following procedure to install a Compact Option mail.

| Step | Action |
|------|--------|
| 1 | Insert the Meridian Mail Compact Option Install/data tape into the tape drive and make sure the tape drive is powered up. |
| | *Note:*  Refer to Procedure 42 of this guide for tape insertion instructions. |
| 2 | Press the reset button on the mail card. |
| 3 | Login to the Option 11C Compact switch and enable AML 9. Refer to Procedure 37. |
| 4 | Wait for the Meridian Mail Compact Option system to boot. Type AX to view the MMI screen. |
| | *Result*  Once loaded, the System Installation and Modification Menu is displayed. |

```
    System Installation & Modification Menu
    ---------------------------------------


            1  Install an MM11 system
            2  Comprehensive Upgrade
            3  More Utilities








Please enter the operation number:
```

| Step | Action |
|------|--------|
| 5 | To choose installation, press the up or down arrow keys until a "1" appears after the following prompt. |

```
Please enter the operation number:

Type "1", then press <Return>. The following
     statement appears.

You have chosen to install an MM11system.

Do you wish to continue? No (Yes)
```

| Step | Action |
|------|--------|
| 6 | Do you wish to continue? |
|  | If No, go to step 9. |
|  | If Yes, go to steps 7 and 8. |
| 7 | Press the up or down arrow key to select Yes, then press <Return>. The following message appears. |

```
Install the MM11 system
```

| Step | Action |
|------|--------|
| 8 | Go to the next procedure for entry of the keycode number. |
| 9 | Press the up or down arrow key to select No, then press <Return>. |
|  | *Result* You are returned to the main menu. |

### Entering the keycode

To enter the keycode, follow these steps.

| Step | Action |
| --- | --- |
| 1 | Start entering the 20-character keycode four letters at a time, as prompted, pressing <Return> after each four-character entry. |

Example:  The following shows character block prompts.

**Enter 4 character Block 1:D2G8**

**Enter 4 character Block 2:ESYM**

and so on.

The following cases are considered.

| IF you enter | THEN the system responds with |
| --- | --- |
| the wrong number of characters | Please enter 4 characters |
| | Enter 4 Character Block 1: |
| invalid characters | That Block contains invalid Characters - Please Enter Again |
| the wrong keycode | That Keycode was invalid. |
| | Would you like to try again? Yes (No) |

| Step | Action |
|------|--------|

**2**  Once the keycode is entered, the system displays the first keycode screen listing your system configuration.

*Result*  The following screen is displayed.

```
    System Configuration
                               Old System        New System
             Software Release :                  11.19.4
             Serial Number    :                  10000027
             Platform         :                  Compact Option
             Nodes            :                  1
             Storage Hours    :                  10
             Max Languages    :                  1

             CHANNELS:
             Max Full Service :                  4
             Min Multimedia   :                  0
             Max Voice        :                  8
             Total Physical   :                  8
             Basic Service    :                  4
             NMS Locations    :                  0
--------------------------------------------------------------------------------
Enter the Keycode for the serial number 10000027 :
Enter 4 Character Block 1 : YQKF
Enter 4 Character Block 2 : 7W3S
Enter 4 Character Block 3 : 3OJR
Enter 4 Character Block 4 : DFJG
Enter 4 Character Block 5 : 6TPC
Is this correct ?  Yes█
```

*Note:*  The displayt above is intended only as an example of this screen. Your keycode screen may differ.

**3**  Is this correct?

If Yes, go to .

If No, go to .

| Step | Action |
|------|--------|

**4**    Press the up or down arrow keys to select Yes, and press <Return>.

*Result*  A second keycode screen listing the system features is displayed.

```
   Feature          Old  New      Feature          Old  New
   SMDI              :            Voiceforms          :
   Meridian Access   :            VMUIF               :
   AdminPlus         :            Multiple Admin      :
   ANIS              :            Meridian Connections :

   HVS               :            Fax On Demand       :
   Networking        :     X      Multiple Customer   :
   NMS               :            Bilingual Prompting :
   Outcalling        :            Voice Menus         :      X

   Multi SMDI        :
------------------------------------------------------------------------
Is this correct ?  Yes
```

*Note:*  The figure above is intended only as an example of this screen. Your keycode screen may differ in feature specifications.

**5**    Is this correct?

If Yes, go to step 6.

If No, go to step 7.

**6**    Press the up or down arrow keys to select Yes, and press <Return>.

Go to .

**7**    If the system configuration is not correct, contact your Nortel representative to obtain another keycode.

### Entering your customer name

To change the customer name follow these steps.

| Step | Action |
|------|--------|
| 1 | When you confirm that your system features are correct, the system prompts:<br><br>**`Customer Name: MeridianMail`**<br><br>This name is assigned by you and may be an alpha-numeric string up to 30 characters long. |
| 2 | Press backspace to delete the default customer name (MeridianMail). |
| 3 | Type in the desired name and press <Return>. |
| 4 | Once the customer name is entered, go to |

### Selecting languages

To select languages for your system, follow these steps.

| Step | Action |
|------|--------|
| 1 | When the languages screen appears, with the prompt:<br><br>**`Select operation: AddLanguage`**<br><br>press <Return> to select a language(s) for your voice prompts.<br><br>*Result*  The following screen is displayed. |

**Step**                                    **Action**

```
          Installed Languages          Selected Languages




                You may include 1 more languages
-------------------------------------------------------------------------------
Select operation : AddLanguage

Languages Available from this tape are:
1 - American English
2 - Canadian French
3 - Latin American Spanish
4 - Brazilian Portuguese
5 - German
6 - Japanese
7 - From Another Tape

Enter the number of the language you require: 1
```

*Note:* Your languages display may allow you to include more than one language depending on your keycode, and may have a different selection of languages.

2    Press the up or down arrow key until the desired number of the language you require is displayed on the screen (or press backspace and type a number), then press <Return>.

     The following prompt is displayed.

     **You have chosen (language name).**

     *Note:* At this point, if you choose either "0" or the number for the **From Another Tape** option without selecting a language, you are advised that you must choose at least one language from this menu and the selection prompt is repeated. If you choose **From Another Tape**, you will be prompted to insert the other tape at the end of the installation. .

     **Is this correct? No (Yes)**

3    Is this correct?

     If No, go to step 4.

     If Yes, go to .

4    If you select No, the language prompt is repeated.

| Step | Action |
|------|--------|
| **5** | Select Yes, then press <Return>. |
| | ***Note:*** If your keycode calls for more than one language, the prompt is repeated until the number of languages specified in the keycode has been selected. |
| | When you have finished your language selection(s), select Done, and press <Return>. |
| | ***Result*** The Call Progress Tone Detection (CPTD) screen is displayed. |
| **6** | Go to . |

### Selecting call progress tone detection

To select the Call Progress Tone Detection (CPTD) number for your country, follow these steps.

| Step | Action |
|------|--------|
| **1** | You are provided with the current CPTD selection and the following prompt: |
| | `Select operation: Done (Change)` |
| **2** | Select operation: |
| | If you select Done, go to . |
| | If you select Change, go to . |

| Step | Action |
| --- | --- |

**3** Select Change, then press <Return>.

*Result* The following CPTD screen is displayed.

```
   The current CPTD Selection is :  Generic - Ver. Fe94
--------------------------------------------------------------------------------
Select operation : Change
  1 : Generic - Ver. Fe94     2 : Australia          3 : Austria
  4 : Belgium                 5 : Canada             6 : Denmark
  7 : Finland                 8 : France             9 : Germany
 10 : Hong Kong              11 : India             12 : Ireland
 13 : Italy                  14 : Japan             15 : Korea
 16 : Malaysia               17 : Netherlands       18 : New Zealand
 19 : Norway                 20 : Portugal          21 : Russia
 22 : Saudi Arabia           23 : Singapore         24 : Sweden
 25 : Switzerland            26 : Taiwan            27 : Turkey
 28 : United Kingdom         29 : United States     30 : China
Please enter the CPTD country index number : 1
```

Press the up or down arrow key until the desired country number is displayed on the screen (or press backspace and enter the number), then press <Return>.

**4** Go to .

### Entering DSP parameters

To review or change the DSP parameters on your system, follow these steps

| Step | Action |
|------|--------|

**1**   From the previous procedure, press <Return>.

*Result*  The following DSP parameters screen is displayed.

```
DSP Encoding Type          : MuLaw
Disable Silence Compression : No

Transmit Level        : 0          Disable AGC        : No
Receive  Level        : 0          AGC Center         : -20
DTR Reject Level      : -36        Hook Flash Pulse   : 320
DTR Max Accept Level  : 1          TeleScan Debounce  : 128
                                   TeleScan Ring Time : 1024
-------------------------------------------------------------------------
Select operation : Change
```

You have four selections at the "Select operations" prompt which are revealed each time you press the up or down arrow keys. Select

- "Done" if you are satisfied with the default values or after you have completed all the parameter changes

- "Change" if any of the parameters require changing. You will be stepped through each parameter

- "Redraw" if your screen becomes overwritten with errant characters and you need to clear them from your DSP screen

- "Reset" if you decide to go back to the default settings after you have changed them

**2**   At the "Select operation: " prompt,

if Done, go to .

If Change, go to .

| Step | Action |
|------|--------|
| **3** | Select Change, and press <Return>. The following prompts are displayed. |

`DSP Encoding Type: MuLaw (Alaw)`

---

### ATTENTION

If the above DSP encoding parameter is set incorrectly, severely degraded voice quality may result.

---

***Note:*** Do not change DSP parameters unless you are instructed to by Nortel.

Example: The following screen is provided as an example of how your display may look.

```
    DSP Encoding Type          : MuLaw
    Disable Silence Compression : No

    Transmit Level        : 0        Disable AGC         : No
    Receive  Level        : 0        AGC Center          : -20
    DTR Reject Level      : -36      Hook Flash Pulse    : 320
    DTR Max Accept Level  : 1        TeleScan Debounce   : 128
                                     TeleScan Ring Time  : 1024
--------------------------------------------------------------------------------
Select operation : Change
DSP Encoding Type          : MuLaw
Disable Silence Compression : No
Do you wish to change other DSP parameters ? Yes
Transmit Level            : 0
Receive  Level            : 0
DTR Reject Level          : (-36)
DTR Max Accept Level      : (1)
Disable AGC               : No
AGC   Center              : -20
Hook Flash Pulse          : 320
TeleScan Debounce         : (128)
TeleScan Ring Time        : 1024
Select operation : Change
```

***Note:*** For a list of DSP parameters, Table 32.

| Step | Action |
|------|--------|

**4**   At the prompt "Select operation:"

| IF you select | THEN go to |
|---------------|------------|
| Done | next procedure. |
| Change or Reset | . |

**Table 32 DSP parameters**

| DSP parameter name | Default value | Range |
|--------------------|---------------|-------|
| DSP encoding type | Mulaw | Mulaw, Alaw |
| Disable silence compression | No | No, Yes |
| Transmit level | 0 | -10 to +10 dBm |
| Receive level | 0 | -10 to +10 dBm |
| DTR reject level | -57 | -60 to -30 dB (increments of 3 dB) |
| *DTR Max accept level | 1 | -11, -8, -5, -2, 1, or 4 dBm |
| Disable AGC | No | No, Yes |
| *AGC center | -20 | -20 to -10 dBm |
| Hook flash pulse | 320 | 304, 320, 336, . . . 1024 (increments of 16) |
| Telescan debounce | 128 | 96, 112, 128, . . . 512 (increments of 16) |
| Telescan ring time | 1024 | 224 to 1024 (increments of 16) |

*Note:* DSP parameters marked with an "*" cannot be modified. They are reserved for future use.

### Defining voice port hardware locations

To define your voice channels for entries into the Voice Port Hardware Location table, follow these steps.

| Step | Action |
|------|--------|

**1**    Select Done on the DSP parameters.

*Result*  The following voice port screen is displayed.

*Note:*  The table below depends on your system configuration as defined by your keycode and the installed system hardware. Your display may differ.

```
Node  -------- Voice Port Hardware Location ---------
      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
  1  Vf Vf Vf Vf Vb Vb Vb Vb
-------------------------------------------------------------------------------
Select operation : DetailedDisplay
```

You have four selections at the "Select operations" prompt which are revealed each time you press the up or down arrow keys. Select

- "Detailed Display" if you need to see a detailed display of all the hardware locations on a particular node or range of nodes.
- "Change" if you want to change the port definition on a range of hardware locations on or across nodes and to modify default values to the switch agent configuration.
- "Done" if you are satisfied with the default values or your changes.
- "Reset" if you decide to go back to the default settings after you have changed them.

**2**    Press the up or down arrow key until the desired choice is displayed on the screen, then press <Return>.

Example: Select Change, then press <Return>.

*Note:*  Choices are Voice_Full and Voice_Basic. All entries are changed by pressing the up or down arrow keys, and then pressing <Return> which moves you on to the next value.

*Note:*  Meridian Mail Compact Option systems have only 1 node, so enter 1 after the First and Last Node in the screen in .

| Step | Action |
|------|--------|

**3** When you select your ACDDN and press <Return>, the table will change to display your changes, as in the following example.

```
Node  --------- Voice Port Hardware Location ---------
        1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
   1  Vf Vf Vf Vb Vb Vb Vb Vb
--------------------------------------------------------------------------------
Select operation : Change
Port Type     : Voice_Basic
First Node     : 1
First Location : 4
Last Node      : 1
Last Location  : 4
ACDDN         : 7000
Select operation : DetailedDisplay
```

**Result**   Notice that one more Vb port has been added at port 3.

**4** Select DetailedDisplay, then press <Return>.

**Note:**  You are asked to provide node ranges and location ranges to view the hardware locations on a particular node or range of nodes.

**Result**  The following example shows that node 1 (only one node can be specified for Meridian Mail Compact Option) and locations 1 to 8 have been specified.

```
Num  VP Locn  Type    ACD     SECDN  Loop Shlf Crd Unit Density  Switch
-----  -------  ----  --------  --------  ---- ---- --- ---- -------  --------------
1- 1  1-2-1-1  Vf     7000     7800               10   0   Octal    Meridian_1
1- 2  1-2-1-2  Vf     7000     7801               10   8   Octal    Meridian_1
1- 3  1-2-2-1  Vf     7000     7802               10   1   Octal    Meridian_1
1- 4  1-2-2-2  Vb     7000     7803               10   9   Octal    Meridian_1
1- 5  1-3-1-1  Vb     7000     7804               10   2   Octal    Meridian_1
1- 6  1-3-1-2  Vb     7000     7805               10  10   Octal    Meridian_1
1- 7  1-3-2-1  Vb     7000     7806               10   3   Octal    Meridian_1
1- 8  1-3-2-2  Vb     7000     7807               10  11   Octal    Meridian_1
Press RETURN to continue:
```

| Step | Action |
|------|--------|

**5**    Press <Return>.

*Result*  The Voice Port Hardware Location table (see below) is displayed again.

```
Node  -------- Voice Port Hardware Location ---------
      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
   1  Vf Vf Vf Vb Vb Vb Vb Vb
----------------------------------------------------------------------
Select operation : Done
Is this correct?  Yes█
```

If you are satisfied with the changes, select Done. The following prompt is displayed.

**Is this correct? No (Yes)**

*Note:*  At this point in the procedure, Reset and Change are still available as choices if you wish to do anything to the settings.

> **ATTENTION**
>
> If after selecting Change again, or Done you receive an error, there may be an incorrect assignment of the voice ports to the link. The error must be corrected before the user may proceed.

**6**    Is this correct?

If No, go to step 7.

If Yes, go to step 8.

**7**    Select No, then press <Return>

*Result*   You are returned to the Select Operation mode at step 1.

**8**    Go to "Assigning the dataport locations" on page 241.

### Assigning the dataport locations

To assign dataport locations to your system, follow these steps.

| Step | Action |
| --- | --- |

**1** From the previous procedure.

Select Yes, then press <Return>.

***Result*** The dataport configuration table is displayed. The following shows the default settings for a basic Meridian Mail Compact Option system.

```
Node  Card  Type     Port 1     Port 2     Port 3     Port 4
  1    1    ESBC     CONSOLE    CLS1       DIAGNOST
-------------------------------------------------------------

Please assign the data port locations.


Select operation : Display
```

The following shows the default settings for a Meridian Mail Compact Option system running HVS.

```
Node  Card  Type     Port 1     Port 2     Port 3     Port 4
  1    1    ESBC     CONSOLE    CLS1
  1    4    RSM      MOD0131    PRT0132    PMS0143    PMS0143
-------------------------------------------------------------

Please assign the data port locations.


Select operation : Display
```

Meridian Mail Compact Option systems can have up to six data ports: the first two are reserved for the system administration terminal and the link to the Meridian 1 switch, the third is reserved for the RS-232 port on the faceplate of the Meridian Mail Compact Option CPU card, and the remaining three are the three ports available on the RSM Assembly Module, if one is installed.

On basic systems, the RS-232 port on  the faceplate of the Meridian Mail Compact Option CPU card is generally used to connect a diagnostic terminal to Meridian Mail. On HVS systems, the software considers this port  a virtual port on the RSM Assembly Module and allows you to configure it for a second GAC terminal.

| Step | Action |
|------|--------|
| **2** | Select operation: |
| | If you are installing an HVS system, go to step 3. |
| | If you are installing a basic system, there is no need to change the default dataport settings shown in <u>Step 1</u>. Go to step 7. |
| **3** | Select Change, then press <Return>. |
| | ***Result*** You are prompted to specify a range of nodes for which to configure dataports. |
| **4** | For Starting Node Number, enter 1. |
| | For Ending Node Number, enter 1. |
| | For Node 1 Card 4 Port 1, select the default MOD0131. |
| | For Node 1 Card 4 Port 2, select GAC. |
| | ***Result*** You are returned to the Operation prompt. |
| **5** | Select Display to confirm your changes, then press <Return>. |
| | ***Result*** The following detailed dataport configuration table is displayed. |

```
The following dataports are on this system :

Node 1, Type  ESBC, Port 1: Dataport Name = CONSOLE
Node 1, Type  ESBC, Port 2: Datapart Name = CSL1
Node 1, Type   RSM, Port 1: Dataport Name = MOD0131
Node 1, Type   RSM, Port 2: Dataport Name = GAC
Node 1, Type   RSM, Port 3: Dataport Name = PMS0143
Node 1, Type   RSM, Port 4: Dataport Name = PMS0144
```

| Step | Action |
|------|--------|
| **6** | Press <Return> to continue. |
| | ***Result*** You are returned to the dataport locations table. |
| **7** | Select Done, then press <Return>. |
| **8** | Go to <u>"Default datafill" on page 243</u>. |

### Default datafill

To default datafill your system, follow these steps.

| Step | Action |
|---|---|

**1** The following screen appears after selecting Done from the previous procedure

```
Default Datafill includes any combination of the following:
Default Users, Default Voice Services, and Default Voice Service DN Table.

Do you want Default Data fill? No▮
```

**2** **Do you want Default Data fill?**

If No, go to

If Yes, go to step 3.

**3** Select Yes, then press <Return>.

*Result* The following screen is displayed.

```
Default Datafill includes any combination of the following:
Default Users, Default Voice Services, and Default Voice Service DN Table.

Do you want Default Data fill? Yes
Do you want Default Users Created? Yes
Number of Default Users to be Created? 1▮
```

**Do you want default users created?**

If No, go to .

If Yes, go to step 4.

**4** Select Yes, and press <Return>.

| Step | Action |
|------|--------|

5   The following line is displayed:

**Number of Default Users to be Created?**

Respond by entering a number between 1 and 192 (inclusive) and press <Return>.

*Note:* If you respond outside the range, the message "Enter the number in the range 1 to 192.

6   The following line is displayed:

**What is the Starting DN of the Default Users?**
    **2200**

Respond by entering a valid value for the starting DN (in this case, between 2000 and 2200).

7   Once you have selected the DN, the following line is displayed:

**Do you want Default Voice Services?**

If Yes, go to step 8.

8   Select Yes, the following line is displayed:

**Do you want Default Voice Services DN table**
    **Entries Created?**

### Continuing the software installation

To continue the software installation, reenter information, or to abort the installation, follow these steps.

| Step | Action |
|------|--------|
| 1 | After selecting the starting DN , and pressing <Return>. |
| | The following prompt is displayed. |
| | **All required information has been input.** |
| | **Do you wish to continue, re-enter information, or abort? Continue** |
| 2 | Do you wish to continue, re-enter information, or abort? |
| | If Continue, go to steps 3, 4, and 5. |
| | If Re-enter, go to step 6. |
| | If Abort, go to step 7. |
| 3 | Select Continue, then press <Return>. |
| | *Result*   The system runs various routines. |
| | When these routines are completed, the following message is displayed. |
| | **The operation successfully completed.** |
| | **Remove the tape when it finishes rewinding and boot into Service.** |
| | **Shutting down tape server** |
| | **#TAPE:MMTAPE1>** |

| Step | Action |
|------|--------|
| 4 | Remove the tape and press the reset button on the Meridian Mail Compact Option card. |

**Result** Various system routines are displayed and the Meridian Mail Compact Option logon screen appears. Normal system administration operations may begin.

> **ATTENTION**
> Store the Install/data tape in a safe place. This will ensure that if you need to reinstall or modify the system, you will have quick access to the tape.

| | |
|------|--------|
| 5 | Logon using the system default password ADMINPWD (not case sensitive), then change the password immediately. |
| 6 | Select Re-enter, then press <Return>. |

**Result** You are returned to the beginning of the installation procedure.

**Note:** All the data you have entered is lost and must be entered again.

| | |
|------|--------|
| 7 | Select Abort, then press <Return>. |

**Result** The installation is terminated.

**Note:** Press the reset button on the mail card with the Install/data tape in the tape drive, and try the installation again (), or call your Nortel representative.

## Defining Mail in the customer data block - overlay 15

Once the voicemail software is installed (see ), the voice mail service must be defined in the customer data block using Overlay 15. Use the following procedure to define the customer data block.

**Procedure 46**
**Defining Mail in the customer data block**

1    Load Overlay 15 at the switch administration terminal.

2    Respond to the prompts as shown in .

3    Press <Return> after each prompt until you get to the next one you need.

4    When the configuration is complete, enter **\*\*\*\***, or type **END** followed by <Return> in response to the prompt REQ.

The two sets of prompts in Overlay 15 affect the routing of unanswered or busy calls:

•    Flexible Call Forward (FNAD/FNAN/FNAL) is set on a per customer basis. The call forward DN is derfined in the user's telephone data.

•    Call Forward No Answer/Busy (MDID/NDID/MWFB) is set on a per customer basis. All no answer/busy calls are routed to the flexible call forward DN (provided the called set has message waiting allowed [MWA] class of service).

Normally, non-Direct Inward Dialling (DID) calls are routed to Mail when a no answer or a busy condition is encountered. As an option, DID calls can be routed to attendant's or user's Hunt DN.

**Table 33**
**Overlay 15 - Customer data block**

| Prompts | Responses | Description |
|---------|-----------|-------------|
| REQ | NEW or CHG | |
| TYPE | CDB | |
| CUST | | |
| FTR_DATA | YES | |
| OPT | MCI | Message center is included for the customer. |
| IMS_DATA | YES | |
| IMS | YES | Integrated Voice Messaging feature |
| IMA | YES | Enable Integrated Voice Messaging attendant for the customer |
| RDR_DATA | | |
| FNAD | FDN | Call forward no - answer DID calls are routed to the flexible CFNA DN. |
| **continued** | | |

| Prompts | Responses | Description |
|---|---|---|
| FNAN (or FNAT) | FDN | Call forward no - answer non-DID calls are routed to the flexible CFNA DN. |
| FNAL | FDN | Call forward no - answer local calls(with CFCT enabled) are routed to the flexible CFNA DN |
| CFTA | YES | The CFNA prompt appears only if you respond YES to this prompt. |
| CFNA | | Number of ring cycles before the call is forwarded (the default is 4). |
| MDID | NO/YES | NO (recommended) - No-answer DID calls are routed to wherever the user wants (including Mail). YES - No-answer DID calls are routed to Mail. |
| NDID | NO/YES | NO (recommended) - No-answer DID calls are routed to wherever the user wants (including Mail). YES - No-answer DID calls are routed to Mail. |
| MWFB | NO/YES | NO (recommended) - No-answer DID calls are routed to wherever the user wants (including Mail). YES - No-answer DID calls are routed to Mail. |
| | **** | Exits the overlay. |

The flexible call forware DN is the Mail DN. It is entered in the telephone set data block for each Mail user.
The other options for FNAD, FNAL, and FNAN are:
att - route to attendant
hnt - route to hunt DN
no - do not route unanswered calls

**end**

### Continuing the configuration

To provide minimum voice mail administration to your Meridian Mail Compact Option system, once the customer data block has been defined (see Procedure 46), you have to perform the following:

- On the switch, define the primary and secondary ACD queues using Overlay 23 and Overlay 11 (see Chapter 22 in the *Meridian Mail Compact Option System Administration Guide* - NTP 555-7001-333)

- On the mail side, add VSDNs to the VSDN table for voice messaging (VM) and express messaging (EM) (see Chapter 23 - Section B in the *Meridian Mail Compact Option System Administration Guide* - NTP 555-7001-333)

- on the mail side, to modify the Channel Allocation Table (see Chapter 27 - Section D in the *Meridian Mail Compact Option System Administration Guide* - NTP 555-7001-333)

# Meridian Mail Compact Option upgrade

This section explains how to perform a comprehensive upgrade on your Meridian Mail Compact Option system. This operation is performed when an Meridian Mail Compact Option system requires upgrading because of a new internal upgrade of the software release (for instance, from xx.05 to xx.06), features, hardware, or storage during a new equipment installation.

## What to do before you begin

### Checklist

Review the following points before installation of the software:

- Determine the port capacity of your Meridian Mail Compact Option system.

- Make sure that there is paper in the printer. (If your printer runs out of paper during the procedure, your screen will freeze.)

- Enable your terminal's autoprint mode (<Control><W> followed by <P>) in order to capture everything that appears on your screen. If you have to reboot the system for any reason, you will have to reenable the auto-print mode.

- Have your Meridian Mail Compact Option Install/data tape available.

- Have the keycode available. For information on keycodes, see .

- Verify that all the appropriate hardware is installed, particularly the hardware associated with the features defined in your keycode. If additional hardware needs to be added, obtain the hardware. Refer to this guide for more details on hardware and hardware installation.

## Performing a comprehensive upgrade

The procedures that follow provide information about performing a comprehensive upgrade on the Meridian Mail Compact Option system. It is intended to be as general as possible so that customers with varying platforms can use it.

The procedure has several parts. The first part is common to all platforms and must be performed for all comprehensive upgrades.

Following the common procedure are procedures broken into tasks that, in general, all platforms use. Where there are deviations because of platform specifics, these are remarked on within the procedure or broken out and given their own procedure.

The intent of the procedures is to provide a general look at the comprehensive upgrade on each platform and, therefore, may not cover your specific configuration.

### When to use the procedures

Use the setup procedure when

• you are planning to do a comprehensive upgrade

Use the main upgrade procedures when

• you are comprehensively upgrading your specific platform

*Note:* If you are planning to do a simple upgrade, , and perform steps 1 through 11.

### Setting up for a comprehensive upgrade

When beginning a comprehensive upgrade, follow these steps.

Starting Point: Meridian Mail System Status and Maintenance Menu.

| Step | Action |
|------|--------|
| **1** | Select the "System Status" screen and perform a courtesy-down procedure before starting on any of the following steps.<br><br>***Note:*** Do this prior to starting any of the procedures described in this guide to prevent calls from being abruptly terminated when the operation begins. For more information, refer to the section "Disabling/Activating the system" in the chapter "System Status and Maintenance" in the *System Administration Guide.* |
| **2** | Insert the Meridian Mail Compact Option Install/data tape into the tape drive.<br><br>***Note:*** Refer to Procedure 42 in this guide for tape insertion instructions. |
| **3** | Press the reset button on the Meridian Mail Compact Option card.<br><br>***Result*** Diagnostic routines are shown followed by a pause of approximately five minutes while the tape is automatically retensioned. |
| **4** | When retensioning begins, the following message is displayed.<br><br>`Tape retension`<br><br>***Note:*** Tape retension takes about 5 minutes, and it takes between 5 and 10 minutes to load the software.<br><br>***Result*** Once loaded, the System Installation and Modification Menu is displayed. |

| **Step** | **Action** |
|---|---|

```
   System Installation & Modification Menu
   ---------------------------------------


         1   Install an MM11 system
         2   Comprehensive Upgrade
         3   More Utilities








Please enter the operation number:
```

5    To choose comprehensive upgrade, press the up or down arrow keys
until a 2 appears beside the following prompt:

**Please enter the operation number:**

or type 2, then press <Return>. The following message appears:

**You have chosen to run comprehensive upgrade
(SW/HW).**

**Do you wish to continue? No (Yes)**

***Note:*** To reenable auto-print mode, use the <Control><W> and then <P>. See
"Checklist" on page 251 for more information on using this command.

6    Do you wish to continue?

If No, go to step 7.

If Yes, go to step 8.

7    Press the up or down arrow key to select No, then press <Return>.

***Result*** You are returned to the main menu.

8    Press the up or down arrow key to select Yes, then press <Return>.

***Result*** Various system messages appear on screen.

| Step | Action |
|------|--------|

**9**    The following text is displayed.

```
Do you wish to continue ? Yes

Program Resource Manager [Arg=""]  Node 1 Ver. 1.5 (MM11)
PRM: Resetting all possible nodes
PRM: Waiting for Seer Server to register
PRM InitSystem: MaxProgs calculated to be 100
PRM Audit: Audit task is up
PRM : OS Version - HP060595 for Fox:Tue Sep  9 17:01:04 1997:FTAPE-REL:11.19.4:
Ensuring that all volume servers are running
Starting SCSI utility on all nodes

Your MM11.19.4 system will be comprehensively upgraded to the MM11.19.4 release.

Comprehensive Upgrade provides you with the means to simultaneously upgrade
the software on a system while also adding new hardware, storage hours,
features, or converting the system from a previous release.

If you only want to upgrade the software to MM11.19.4 select Software Upgrade.
This operation does not require a keycode or any user input.

Otherwise select Comprehensive to perform any other combination of operations.

Select operation : Comprehensive
```

| IF the Select Operation prompt is | THEN  go to |
|-----------------------------------|-------------|
| Comprehensive | step 10 |
| Upgrade | step 11 |

*Note:*  Use the up or down arrow keys to toggle between Comprehensive and Upgrade.

**10**    Select "Comprehensive," then press <Return>.

**Result**  Various system operation messages scroll on the screen.

Go to

**11**    Select "Upgrade," then press <Return>.

**Result**  Various system messages are displayed and the system is upgraded to the latest Meridian Mail Compact Option release with no further user intervention.

### Keycode procedure

To enter the keycode, follow these steps. This procedure also indicates your system configuration and features.

| Step | Action |
|------|--------|

**1**   Start entering the 20-character keycode, four letters at a time, as prompted, pressing <Return> after each four-character entry.

*Example:* The following shows character block prompts:

```
Enter 4 character Block 1:D2G8

Enter 4 character Block 2:ESYM
```

and so on.

The following cases are considered:

| IF you enter | THEN the system responds with |
|--------------|-------------------------------|
| the wrong number of characters | Please enter 4 characters |
| | Enter 4 Character Block 1: |
| invalid characters | That Block contains invalid Characters - Please Enter Again |
| the wrong keycode | That Keycode was invalid. |
| | Would you like to try again? Yes (No) |

**2**   Once the keycode is entered, the system displays the first keycode screen listing your system configuration.

*Result*   The following screen is displayed.

| Step | Action |
|------|--------|

```
        System Configuration
                                Old System          New System
            Software Release : 11.19.4              11.19.4
            Serial Number    : 10000027             10000027
            Platform         : Compact Option       Compact Option
            Nodes            : 1                     1
            Storage Hours    : 10                    24
            Max Languages    : 1                     2

            CHANNELS:
            Max Full Service : 4                     6
            Min Multimedia   : 0                     0
            Max Voice        : 8                     8
            Total Physical   : 8                     8
            Basic Service    : 4                     2
            NMS Locations    : 0                     0
------------------------------------------------------------------------------
Enter the Keycode for the serial number 10000027 :
Enter 4 Character Block 1 : P88W
Enter 4 Character Block 2 : UXQE
Enter 4 Character Block 3 : 7PX2
Enter 4 Character Block 4 : J9U6
Enter 4 Character Block 5 : S2H2
Is this correct ?  Yes█
```

*Note:* The display above is intended only as an example of this screen. Your keycode screen may differ .

**3**  Is this correct?

If Yes, go to step 4.

If No, go to .

**4**  Press the up or down arrow keys to select Yes and press <Return>.

*Result*  A second keycode screen listing the system features is displayed.

```
   Feature          Old  New        Feature              Old  New
SMDI             :              Voiceforms           :
Meridian Access  :              VMUIF                :
AdminPlus        :              Multiple Admin       :
AMIS             :              Meridian Connections :

HVS              :              Fax On Demand        :
Networking       :  X    X      Multiple Customer    :
NMS              :              Bilingual Prompting  :       X
Outcalling       :              Voice Menus          :  X    X

   Multi SMDI    :
------------------------------------------------------------------------------
Is this correct ?  Yes
```

*Note:* The display above is intended only as an example of this screen. Your keycode screen may differ in feature specifications.

| Step | Action |
| --- | --- |
| **5** | Is this correct? |
| | If Yes, go to step 6. |
| | If No, go to step 7. |
| **6** | Press the up or down arrow keys to select Yes and press <Return>. |
| | Go to the next procedure. |
| **7** | If the system configuration is not correct, contact your Nortel representative to obtain another keycode. |

### Hardware configuration

Use the following procedure describes the hardware configuration.

| Step | Action |
|------|--------|
| **1** | When you confirm that your system features are correct, the system begins a rules check. |

*Result* The following screen is displayed.

```
Comprehensive Upgrade
--------------------------------------------------------------------------------
Checking node rules
Checking storage hours rules
Checking language rules
Checking feature rules

Press RETURN to continue:

```

*Note:* If the rules check fails, the procedure is aborted. Check your keycode. If the rules check continues to fail even after checking your keycode, contact your Nortel representative.

**2**  Press <Return>.

*Result* The following system messages are displayed.

**Reading Hardware Database for Miscellaneous Info**

**Reading Hardware Database for a Component Type**

**3**  Go to .

### Selecting call progress tone detection

To select the Call Progress Tone Detection (CPTD) number for your country, follow these steps.

| Step | Action |
| --- | --- |

**1** You are provided with the current CPTD selection and the following prompt:

**`Select operation: Done (Change)`**

**2** Select operation:

If you select Done, go to step 4.

If you select Change, go to step 3.

**3** Select Change, then press <Return>.

*Result* The following CPTD screen is displayed.

```
   The current CPTD Selection is :  Generic - Ver. Fe94
------------------------------------------------------------------------------
Select operation : Change
  1 : Generic - Ver. Fe94     2 : Australia           3 : Austria
  4 : Belgium                 5 : Canada              6 : Denmark
  7 : Finland                 8 : France              9 : Germany
 10 : Hong Kong              11 : India              12 : Ireland
 13 : Italy                  14 : Japan              15 : Korea
 16 : Malaysia               17 : Netherlands        18 : New Zealand
 19 : Norway                 20 : Portugal           21 : Russia
 22 : Saudi Arabia           23 : Singapore          24 : Sweden
 25 : Switzerland            26 : Taiwan             27 : Turkey
 28 : United Kingdom         29 : United States      30 : China
Please enter the CPTD country index number : 1
```

Press the up or down arrow key until the desired country number is displayed on the screen (or press backspace and enter the number), then press <Return>.

**4** Go to .

### Entering DSP parameters

To review or change the DSP parameters on your system, follow these steps.

| Step | Action |
|------|--------|

**1** From the previous procedure, press <Return>.

The following DSP parameters screen is displayed.

```
    DSP Encoding Type          : MuLaw
    Disable Silence Compression : No

    Transmit Level       : 0      Disable AGC        : No
    Receive  Level       : 0      AGC Center         : -20
    DTR Reject Level     : -36    Hook Flash Pulse   : 320
    DTR Max Accept Level : 1      TeleScan Debounce  : 128
                                  TeleScan Ring Time : 1024
-------------------------------------------------------------------------------
Select operation : Change
```

You have four selections at the "Select operations" prompt which are revealed each time you press the up or down arrow keys. Select

- "Done" if you are satisfied with the default values or after you have completed all the parameter changes.
- "Change" if any of the parameters require changing. You will be stepped through each parameter.
- "Redraw" if your screen becomes overwritten with errant characters and you need to clear them from your DSP screen.
- "Reset" if you decide to go back to the default settings after you have changed them.

**2** At the "Select operation: " prompt,

if Done, go to <span style="color:red">step 5</span>.

If Change, go to <span style="color:red">step 3</span>.

| Step | Action |
|------|--------|

**3**    Select Change and press <Return>. The following prompts are displayed.

DSP Encoding Type: MuLaw (Alaw)

> # ATTENTION
>
> If the above DSP encoding parameter is set incorrectly, severely degraded voice quality may result.

*Note:* Do not change DSP parameters unless you are instructed to do so by Nortel.

Example: The following screen is provided as an example of how your display may look.

```
    DSP Encoding Type          : MuLaw
    Disable Silence Compression : No

    Transmit Level      : 0        Disable AGC        : No
    Receive  Level      : 0        AGC Center         : -20
    DTR Reject Level    : -36      Hook Flash Pulse   : 320
    DTR Max Accept Level : 1       TeleScan Debounce  : 128
                                   TeleScan Ring Time : 1024
------------------------------------------------------------------------
Select operation : Change
DSP Encoding Type          : MuLaw
Disable Silence Compression : No
Do you wish to change other DSP parameters ? Yes
Transmit Level                : 0
Receive  Level                : 0
DTR Reject Level              : (-36)
DTR Max Accept Level          : (1)
Disable AGC                   : No
AGC   Center                  : -20
Hook Flash Pulse              : 320
TeleScan Debounce             : (128)
TeleScan Ring Time            : 1024
Select operation : Change
```

*Note:* For a list of DSP parameters, see Table 32.

| Step | Action |
|------|--------|

**4**   At the "Select operation:" prompt,

If Change or Reset, go to .

If Done, go to step 5.

**5**   When you select Done, go to the next procedure.

### Defining voice port hardware locations

To define your voice channel entries for the Voice Port Hardware Location table, follow these steps.

| Step | Action |
|------|--------|

**1**   Select Done on the DSP parameters.

*Result*   The following voice port screen is displayed.

*Note:*   The table below depends on your system configuration as defined by your keycode and the installed system hardware. Your display may differ.

```
Node  -------- Voice Port Hardware Location ---------
       1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
   1  Vf Vf Vf Vb Vb Vb Vb Vb
-------------------------------------------------------------------------------
Select operation : Change
```

| Step | Action |
|------|--------|
|      |        |

You have four selections at the Select operations prompt which are revealed each time you press the up or down arrow keys. Select

- "Detailed Display" if you need to see a detailed display of all the hardware locations on the node.

- "Change" if you want to change the port definition on a range of hardware locations on the node and to modify default values to the switch agent configuration.

- "Done" if you are satisfied with the default values or your changes.

- "Reset" if you decide to go back to the default settings after you have changed them.

2 Press the up or down arrow key until the desired choice is displayed on the screen, then press <Return>.

Example: Select Change, then press <Return>.

**Note:** In the display in step 3, Port Type required is Voice_Full. The other choice is Voice_Basic. All entries are changed by pressing the up or down arrow keys, and then pressing <Return> which moves you on to the next value.

3 When you select your ACDDN and press <Return>, the table will change to display your changes, as in the following example.

```
Node  -------- Voice Port Hardware Location ---------
       1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
    1  Vf Vf Vf Vf Vf Vf Vb Vb
-------------------------------------------------------------------
Select operation : Change
Port Type      : Voice_Full
First Node     : 1
First Location : 4
Last Node      : 1
Last Location  : 6
ACDDN          : 7000
Select operation : DetailedDisplay
First Node     : 1
First Location : 1
Last Node      : 1
Last Location  : 8
```

**Result**   Notice that three more Voice_Full port has been added at ports 3, 4, and 5.

| Step | Action |
|------|--------|

**4**   Select DetailedDisplay, then press <Return>.

*Note:*  You are asked to provide the node range (which is 1 for Meridian Mail Compact Option) and location ranges to view the hardware locations on the node.

*Result*  The following example shows that node1and locations 1 to 8 have been specified.

```
Num  VP Locn  Type  ACD       SECDN   Loop Shlf Crd Unit Density  Switch
----- -------- ---- -------- -------- ---- ---- --- ---- ------- --------------
1- 1  1-2-1-1  Vf    7000      7800               10   0   Octal   Meridian_1
1- 2  1-2-1-2  Vf    7000      7801               10   8   Octal   Meridian_1
1- 3  1-2-2-1  Vf    7000      7802               10   1   Octal   Meridian_1
1- 4  1-2-2-2  Vf    7000      7803               10   9   Octal   Meridian_1
1- 5  1-3-1-1  Vf    7000      7804               10   2   Octal   Meridian_1
1- 6  1-3-1-2  Vf    7000      7805               10  10   Octal   Meridian_1
1- 7  1-3-2-1  Vb    7000      7806               10   3   Octal   Meridian_1
1- 8  1-3-2-2  Vb    7000      7807               10  11   Octal   Meridian_1
Press RETURN to continue: █
```

| Step | Action |
|------|--------|

**5**   Press <Return>.

*Result*  The Voice Port Hardware Location table (see below) is displayed again.

```
Node  -------- Voice Port Hardware Location ---------
       1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
   1  Vf Vf Vf Vf Vf Vf Vb Vb
------------------------------------------------------------------------------
Select operation : Done
Is this correct?  Yes
```

If you are satisfied with the changes, select Done. The following prompt is displayed:

**Is this correct? No (Yes)**

*Note:*  At this point in the procedure, Reset and Change are still available as choices if you wish to do anything to the settings.

---

### ATTENTION

If, after selecting Change again or Done, you receive an error, there may be an incorrect assignment of the voice ports to the link. The error must be corrected before you can proceed.

---

**6**   Is this correct?

If No, go to step 7.

If Yes, go to step 8.

**7**   Select No, then press <Return>

*Result*   You are returned to the Select Operation mode at step 1.

**8**   Go to "Assigning the dataport locations" on page 267.

### Assigning the dataport locations

To assign dataport locations to your system, follow these steps.

| Step | Action |
| --- | --- |

**1**  From the previous procedure.

Select Yes, then press <Return>.

***Result*** The dataport configuration table is displayed. The following shows the default settings for a basic Meridian Mail Compact Option system.

```
Node   Card   Type      Port 1      Port 2      Port 3      Port 4
  1      1    ESBC      CONSOLE     CLS1        DIAGNOST
------------------------------------------------------------

Please assign the data port locations.


Select operation : Display
```

The following shows the default settings for a Meridian Mail Compact Option system running HVS.

```
Node   Card   Type      Port 1      Port 2      Port 3      Port 4
  1      1    ESBC      CONSOLE     CLS1
  1      4    RSM       MOD0131     PRT0132     PMS0143     PMS0143
------------------------------------------------------------

Please assign the data port locations.


Select operation : Display
```

Meridian Mail Compact Option systems can have up to six data ports: the first two are reserved for the system administration terminal and the link to the Meridian 1 switch, the third is reserved for the RS-232 port on the faceplate of the Meridian Mail Compact Option CPU card, and the remaining three are the three ports available on the RSM Assembly Module, if one is installed.

On basic systems, the RS-232 port on the faceplate of the Meridian Mail Compact Option CPU card is generally used to connect a diagnostic terminal to Meridian mail. On HVS systems, the software considers this port a virtual port on the RSM Assembly Module and allows you to configure it for a second GAC terminal.

| Step | Action |
|------|--------|
| **2** | Select operation: |
| | If you are installing an HVS system, go to step 3. |
| | If you are installing a basic system, there is no need to change the default dataport settings sjown in . Go to step 7. |
| **3** | Select Change, then press <Return>. |
| | ***Result*** You are prompted to specify a range of nodes for which to configure dataports. |
| **4** | For Starting Node Number, enter 1. |
| | For Ending Node Number, enter 1. |
| | For Node 1 Card 4 Port 1, select the default MOD0131. |
| | For Node 1 Card 4 Port 1, select GAC. |
| | ***Result*** You are returned to the Operation prompt. |
| **5** | Select Display to confirm your changes, then press <Return>. |
| | ***Result*** The following detailed dataport configuration table is displayed. |

```
   The following dataports are on this system :

   Node 1, Type  ESBC, Port 1: Dataport Name = CONSOLE
   Node 1, Type  ESBC, Port 2: Datapart Name = CSL1
   Node 1, Type   RSM, Port 1: Dataport Name = MOD0131
   Node 1, Type   RSM, Port 2: Dataport Name = GAC
   Node 1, Type   RSM, Port 3: Dataport Name = PMS0143
   Node 1, Type   RSM, Port 4: Dataport Name = PMS0144
```

| Step | Action |
|------|--------|
| **6** | Press <Return> to continue. |
| | ***Result*** You are returned to the dataport locations table. |
| **7** | Select Done, then press <Return>. |
| **8** | Go to . |

### Adding languages

To select more languages in a comprehensive upgrade/conversion, follow these steps.

| Step | Action |
|------|--------|

1   From the previous procedure,

   select Done then press <Return>.

   *Result*  The following screen is displayed (your display may differ).

```
         Installed Languages              Selected Languages
         American English


                  You may include 1 more languages
--------------------------------------------------------------------------------
Select operation : AddLanguage




```

2   Select operation:

   If AddLanguage, go to <span style="color:red">step 3</span>.

   If Done go to <span style="color:red">step 8</span>.

| Step | Action |
|------|--------|

**3**  Select AddLanguage, then press <Return>.

*Result*  The following screen is displayed.

```
          Installed Languages           Selected Languages
          American English


                  You may include 1 more languages
--------------------------------------------------------------------------------
Select operation : AddLanguage

Languages Available from this tape are:
1 - American English
2 - Canadian French
3 - Latin American Spanish
4 - Brazilian Portuguese
5 - German
6 - Japanese
7 - From Another Tape

Enter the number of the language you require: 3█
```

**4**  Press the up or down arrow key until the desired number of the language you require is displayed on the screen (or press backspace and type a number), then press <Return>.

The following prompt is displayed:

**You have chosen (language name).**

*Note:*  At this point, if you choose either 0 or the number for the **From Another Tape** option without selecting a language, you are advised that you must choose at least one language from this menu and the selection prompt is repeated. If you choose **From Another Tape**, you will be prompted to insert the other tape (see "Continuing the software installation" on page 245) at the end of the comprehensive upgrade.

**Is this correct? No (Yes)**

**5**  Is this correct?

If No, go to step 6.

If Yes, go to step 7.

**6**  If you select No, the language prompt is repeated.

| Step | Action |
|------|--------|

**7**   *Note:*  If you select Yes and your keycode calls for more than one language, the prompt is repeated until the number of languages specified in the keycode has been selected.

When you have finished your language selections, select Done and press <Return>.

**8**   Go to .

**Continuing the comprehensive upgrade**

To continue the comprehensive upgrade, to reenter information, or to abort, follow these steps.

| Step | Action |
|------|--------|
| **1** | Select Done, then press <Return>. |

**Result**  The following prompt is displayed.

```
All required information has been input.

Do you wish to continue, re-enter information,
    or abort? Continue
```

**2**  Do you wish to continue, re-enter information, or abort?

If Continue, go to steps 3 to 6.

If Re-enter, go to step 7.

If Abort, go to step 8.

**3**  Select Continue, then press <Return>.

**Note:**  If you selected From Another Tape for your languages, you are prompted to remove the current tape and insert the other tape. See "Adding languages" on page 269 for the procedure.

**Result**  The add languages screen does not appear because you did not require another tape; the system runs various routines. When these routines are completed, the following message is displayed.

```
The operation successfully completed.

Remove the tape when it finishes rewinding and
    boot into Service.

Shutting down tape server
```

**4**  The system finally responds with

```
#TAPE:MMTAPE1>
```

| Step | Action |
|------|--------|

**5**   Remove the Install/data tape and press the reset button on the mail card.

**Result**  Various system routines are displayed and the Meridian Mail logon screen appears. Normal system administration operations may begin.

---

### ATTENTION
Store the Install/data tape in a safe place. This will ensure that if you need to reinstall or modify the system, you will have quick access to the tape.

---

**6**   Log on using the system default password ADMINPWD (not case sensitive), then change the password immediately.

**7**   Select Re-enter, then press <Return>.

**Result**  You are returned to the beginning of the comprehensive upgrade procedure.

**Note:**  All the data you have entered is lost and must be entered again.

**8**   Select Abort, then press <Return>.

**Result**  The comprehensive upgrade is terminated.

**Note:**  Press the reset button on the Meridian Mail Compact Option card with the Install/data tape in the tape drive, and try the comprehensive upgrade again (<u>see "Setting up for a comprehensive upgrade" on page 252</u>), or call your Nortel representative.

# Backing up the system

Before you perform any significant hardware or software procedures, you should back up the Meridian Mail Compact Option system from disk to tape so that, in the event that something goes wrong, the customer's data will not be lost.

If an external tape drive is already installed, there is no need to courtesy down. The Meridian Mail Compact Option system can remain active during a backup. Any changes to the system's data that occur during the backup are recorded at the very end of the backup process. However, since the backup procedure may slow down the system, we recommend you only perform backups when your system is not busy.

The tapes you receive from Nortel are 3M brand DC6250 tapes. Be sure to use this tape format for your backups.

If you encounter any problems with the following procedure, refer to "Tape drive problems" on .

**Procedure 47**
**Backing up the system**

1    If one is not already connected, connect an external tape drive to the Meridian Mail Compact Option voice mail card. (Refer to .)

2    Log on to the Meridian Mail Compact Option system at the system administrator's terminal.

3    From the Main Menu, choose "2 General Administration."→ "2 Volume Administration."

4    Choose the disk volume you wish to back up. (The Meridian Mail Compact Option has only one disk volume, but you still must select it by pressing the space bar.)

5    Press [Backup To Tape].

6    The Disk to Tape Backup screen appears.

7    Press [Immediate Backup].

**8**   At the prompt, insert an appropriate tape into the tape drive.

   ***Note:***  You may refer to for more information about how to insert a tape.

**9**   Press [OK To Start Backup].

   *The Backup Status screen appears. From here, you can follow the progress of the backup. You have the option of aborting the backup or exiting to the Volume Administration screen.*

   *The backup should take about 30 to 60 minutes, and requires only a single tape of the appropriate size for your system.*

**10**   When the backup is complete, remove the tape and label it clearly. Include the date and time of the backup.

**11**   Press [Exit] to return to the Volume Administration screen.

**12**   Remove the external tape drive if required.

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

## Scheduling backups

Permanently installing an external tape drive allows regular backups to be scheduled. In this way, should anything go wrong with the system, there will always be a recent backup on hand.

**Procedure 48**
**Scheduling system backups**

**1**   Log on to the Meridian Mail Compact Option system at the system administrator's terminal.

**2**   From the Main Menu, choose "2 General Administration."→
   "2 Volume Administration and Selective Backup."

**3**   Choose the disk volume you wish to schedule for backup. (Meridian Mail Compact Option has only one disk volume, but you still must select it by pressing the space bar.)

**4**   Press [Backup To Tape].

**5**   The Disk to Tape Backup screen appears.

**6**   Complete a tape label and attach it to the tape cartridge.

**7**   Press [Schedule Backup].

**8**   The Schedule Backup screen appears.

9    Fill out the appropriate fields.

10   Press [Save Schedule].

*You are returned to the Volume Administration screen. From here you can press [View Backup Schedule] to display the schedule you just entered. To edit the schedule, you must begin again at <u>step 3</u>.*

11   Turn on the power to the external tape drive and ensure that it is never turned off.

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

Once you have entered a schedule, backups proceed automatically. You may choose to leave the same tape in the drive at all times. New backup data will overwrite the old backup data.

*Note:* A backup tape will wear out over time. Please ensure that you replace it regularly with a new tape, according to the manufacturer's recommendations.

Scheduled backups are useful in the event of emergencies, but you should still perform an immediate full-system backup before proceeding with any significant hardware or software procedures to ensure that no data is lost.

# Restoring the system

Should the system fail, a recent backup tape allows you to restore the system to the point at which the backup was made.

**Procedure 49**
**Restoring the system**

1    Refer to the "Restore from backup" chapter in the *System Installation and Modification Guide* (NTP 555-7001-215) to run the System Installation and Modification from the Meridian Mail Compact Option Install/data tape.

*Note:* Always use the same software release that was used to create the backup.

2    From the System Installation and Modification Menu, choose "3 More Utilities" → "3 Restore System from Backup."

**3**     At the prompt, insert the most recent full-system backup tape you have into the tape drive and press <Return>.

*Note:*  The restore process takes approximately 40 to 80 minutes to complete.

**4**     When the prompt:

The operation successfully completed.
Please remove the tape and boot into service.

appears, do the following:

  a.   Refer to to remove the tape from the drive.

  b.   At the switch, disable AML 9 in LD 48 and press <Return>.

  c.   Hold down the reset button located on the faceplate of the voice mail card.

**5**     At the switch, enable AML 9 ACMS and press <Return>.

**6**     Disconnect the external tape drive cable from the connector if required. (Refer to .)

**7**     Release the reset button to start Meridian Mail Compact Option.

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

# The Tools Menu

The Meridian Mail Compact Option Tools Menu contains several useful functions which are not used as frequently as those contained in the system administrator's Main Menu. To access the Tools Menu, follow these steps.

**Procedure 50**
**Accessing the TOOLS menu**

**1**     From the Meridian Mail Compact Option logon screen, press [Logon].

**2**     At the password prompt, enter **TOOLS** <Return>.

**3**     At the password prompt, enter the system administrator's password and press <Return>.

*You are presented with the Tools Menu.*

> **CAUTION**
> **Risk of service interruptions**
>
> Do not attempt to use any TOOLS function until you have reviewed it in the *System Administration Tools Guide* (NTP 555-7001-305) **.**

The following Tools options apply to Meridian Mail Compact Option.

**Figure 50**
**TOOLS level access menu**



```
                      Special Tools Package
                      TOOLS Level Access

        1   Move user                - moves user cabinets, one at a time
        2   Modify hardware          - modify hardware database
        3   Set silence compression  - compress out/leave in recorded silence
        4   Control volume           - increase/decrease voice volume
        5   Update MWI               - update Message Waiting Indicators
        6   Block Meridian Mail      - block access to Meridian Mail
        7   Session Trace            - View session trace data
        8   Audit all volumes        - audit all volumes on the system
        9   Rebalance directory      - rebalance the organization directory
       10   COS conversion           - convert users to COS
       11   Display system record    - show features and configuration
       12   Universal Link Monitor   - monitor system links
       13   Other                    - other system/feature dependent options



    Select an item >

        Logoff          Redraw          Help          Release
                                                       Version
```

**Figure 51**
**System/feature dependent tools menu**

```
                                        Special  To
                                           TOOLS Le
                                  System/Feature


          1    Change  local  site  ID         -  s
          2    Add/Delete  Many  Users         -  A
```

For full descriptions of every function, refer to *System Administration Tools*.
(NTP 555-7001-305).

# Troubleshooting and maintenance

This section describes the procedures you can follow should anything go wrong with Meridian Mail Compact Option, and the procedures you should follow to make these problems less likely.

The troubleshooting procedures assume that you are completely familiar with the Meridian Mail Compact Option hardware and software installation procedures.

## Troubleshooting

For any problems with Meridian Mail Compact Option you should first consult *Maintenance Messages (SEERs) Reference Manual* (NTP 555-7001-510). This book contains a comprehensive list of the events and errors recorded on the SEER printer.

Troubleshooting Meridian Mail Compact Option hardware is a simple process of determining the component that is causing the problem and replacing it. The components cannot be repaired in the field; return them to your Northern Telecom (Nortel) distributor for repair.

Problems with the switch often cause problems with Meridian Mail Compact Option.

Unless otherwise stated, an instruction that tells you to replace a component implies that you should then reinstall and restart Meridian Mail Compact Option to see if the problem has cleared. If replacing the component does not clear the problem, you should reinstall the old component and proceed to the next step in the troubleshooting procedure.

### Precautions

You must not remove or handle any of the Meridian Mail Compact Option hardware while Meridian Mail Compact Option is on and running. If the Meridian Mail Compact Option is running, follow the procedure for stopping Meridian Mail Compact Option on .

Failing to do so can result in damage to the components or injury to yourself.

---

> **CAUTION**
> **Risk of data error**
> Before removing or handling any Meridian Mail Compact Option
> hardware, ensure that you courtesy down the system. Refer to
> Procedure 39 on page 209.

> **CAUTION**
> **Risk of equipment damage**
> Use extreme care and wear a grounding strap when handling the
> PCBs. They are susceptible to electrostatic damage and to damage
> from rough or improper handling.

### Replacing components

Refer to the appropriate sections in this guide.

### Problems during startup

The 68K card (mail CPU) has two LEDs. The left LED which is green is the
card status LED. The right LED which is yellow is the HDD status LED. The
following text and procedures are concerned with the card status green LED.

When the system is first turned on, the LED lights briefly and Compact
Option proceeds with its internal diagnostics and start-up procedures. The
LED should remain unlit during the entire process which takes approximately
four minutes.

When start-up is complete, the green LED lights and stays lit. A flashing LED
indicates a problem with the start-up procedure.

Refer to Table 34 to determine the appropriate procedure to follow based on
the LED indicator.

---

**Table 34**
**LED problem indicators**

| LED Indicator | Refer to |
|---|---|
| does not light at start-up | Procedure 51 |
| lights at start-up but does not go out | Procedure 52 |
| flashes rapidly or does not come back on after four minutes, | Procedure 53 |
| flashes slowly | Procedure 54 |

**Procedure 51**
**LED does not light at start-up**

**1**      Ensure that the main Option 11C Compact power supply is on.

**2**      Check the card connections, as follows:

  **a)**   Ensure that the mail CPU (68K) card is firmly pushed into the connector at the back of the Option 11C Compact cabinet.

  **b)**   Ensure that none of the pins on the backplane connector of the Mail card is bent.

  **c)**   Ensure that the daughterboard (DVP4) connectors are properly seated, or the connector pins are not bent.

**3**      If the LED still does not light, follow these steps:

  **a)**   Remove the mail card (68K with daughterboard).

  **b)**   Reinstall all the cards, including the 68K card. Push it all the way to the back of the cabinet and lock the latch levers.

  **c)**   If the LED still will not light, remove the 68K card with the duaughterboard attached, disconnect the daughterboard, and reinsert the 68K card only.

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

**Procedure 52**
**LED lights at start-up but does not go out**

**1**      Ensure that you have not installed an older 68Kcard (NTMW02AA)and
        an older DVP4 (daughterboard) card (NTMW03AA) in slot 10.

**2**      Remove the DVP4 cards and reinstall Meridian Mail Compact Option
        without them. If the LED goes out, one of the DVP4 cards is defective.

  **a)**    Replace each DVP4 card individually to determine which is
          defective.

  **b)**    Replace the defective card. Retain any DVP4 card and attach them
          to the 68K card.

**3**      Replace the 68K card.

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

**Procedure 53**
**LED flashes rapidly or does not come back on after four minutes**

The LED flashes rapidly (approximately one second on and one second off)
or does not come back on after four minutes when either the 68K card or the
SCSI diagnostics have failed.

**1**      Test the 68K card, as follows:

  **a)**    Disconnect the SCSI cable to the disk drive and the SCSI cable to
          the tape drive, if one is connected. Remove the DVP4 cards and
          reinstall the 68K card without them.

        *The LED should flash slowly.*

  **b)**    If the LED still flashes rapidly, replace the 68K card.

**2**      Test the DVP4 card as follows:

  **a)**    Reconnect the SCSI cables that were disconnected in step 1 but do
          not reinstall the DVP4 cards.

  **b)**    If the Meridian Mail Compact Option now starts correctly, one of
          the DVP4 cards is defective. Reinstall each card, one at a time, until
          the problem reappears. Replace the defective card.

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

**Procedure 54**
**LED flashes slowly**

The LED flashes slowly (approximately five seconds on and five seconds off) when the software fails to load.

**1**    If a tape drive is connected, ensure that it is turned on and that its SCSI address is set to 1.

**2**    Turn the tape drive off and then on again.

**3**    Check that the power and SCSI connections to the disk drive on the 68K card are properly secured and correctly oriented.

**4**    Replace the 68K card.

**5**    Replace the hard disk on the 68K card (see <span style="color:red">Procedure 58</span>) and restore the system from the most recent backup tape (see <span style="color:red">Procedure 49</span>).

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

## Problems during comprehensive upgrade

Problems can occur while reading from the software tape and writing to the disk during comprehensive upgrade (storage expansion, software expansion, or software upgrade). They may be the result of a defective tape, a defective disk, or a problem with the SCSI link between the tape drive and the disk drive.

**Procedure 55**
**Restoring and retrying system expansion or comprehensive upgrade**

**1**    Restore the system to its original state, as follows:

    **a)**    If you added a new mail card or any other new cards, remove them.

    **b)**    If you installed a new disk drive, replace it with the old disk drive.

    **c)**    Ensure that all cable connections are secure, that the connector board is seated, and that the cards are firmly in place in the cabinet.

    **d)**    Restore the system from the backup tape (refer to <span style="color:red">page 276</span>) and attempt to start Meridian Mail Compact Option. (Refer to <span style="color:red">"Resetting mail" on page 210</span>.)

**2**     If Meridian Mail Compact Option starts, attempt the comprehensive upgrade procedure again. If it fails a second time, restore the system and attempt the procedure again but with a different software tape.

or

If Meridian Mail Compact Option does not start correctly, follow the trouble-shooting procedures beginning on .

**3**     Replace the disk drive on the mail card, restore the system, and attempt the expansion or upgrade procedure again.

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

### Meridian Mail Compact Option card and hard drive replacement

The following procedures describe mail card and hard drive replacement.

**Procedure 56**
**Replacing the CPU card assembly**

> *Note:* Before proceeding, follow .

---

**CAUTION**
**Risk of equipment damage**

Wear an ESD wristband connected to an appropriate ground. The voicemail card assembly contains components that can be damaged by electro-static discharge.

---

**1**   If necessary, remove any cables attached to the front of the voice mail card.

**2**   Push down on the card latches to disconnect the card from the connector at the back of the cardcage.

**3**   Pull the card out of its slot in the switch cardcage and lay the card on a flat surface.

**Figure 52**
**Mail CPU card assembly**



G100806
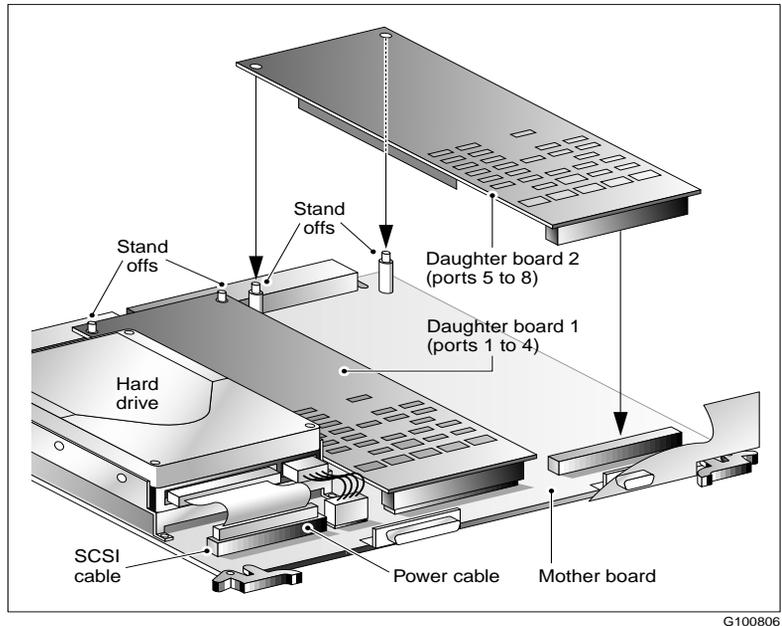
4   If you are replacing the mail CPU card, remove the daughterboards (see Procedure 57 on page 288) and the hard drive (see Procedure 58 on page 288), and add them to the replacement mail CPU card.

5   When all work on the mail CPU card has been completed, slide the mail CPU card assembly back in its slot and firmly seat it into the rear connector.

6   Reattach any cables and follow Procedure 40 on page 210 to reset the voicemail.

*Note:*  If you are replacing the complete mail CPU card assembly which includes a new hard drive and daughterboards, once you insert the new card assembly into the cardcage, you will have to perform a restore from backup to put the latest backup information from your system backup tape onto the new hard drive. To accomplish this, refer to Procedure 49 on page 276.

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

**Procedure 57**
**Replacing a daughterboard**

> *Note:* Before proceeding, follow up to step 2.

1    Pull up the end of the daughterboard to detach it from the stand-offs (see ), then detach the board from its connector.

2    Fit the replacement board over the stand-offs and the connector and press down firmly.

3    Return the mail CPU card assembly to its slot in the switch.

4    Refer to to reset the voicemail.

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

**Procedure 58**
**Replacing a hard drive**

> *Note:* Before proceeding, follow up to step 2.

1    Remove the daughterboard closest to the hard drive. This allows easier access to the screws attaching the hard drive to the bracket.

2    Remove the four to six screws (see ) that attach the hard drive to the bracket.

**Figure 53**
**The mail CPU card and the hard drive**



G100805
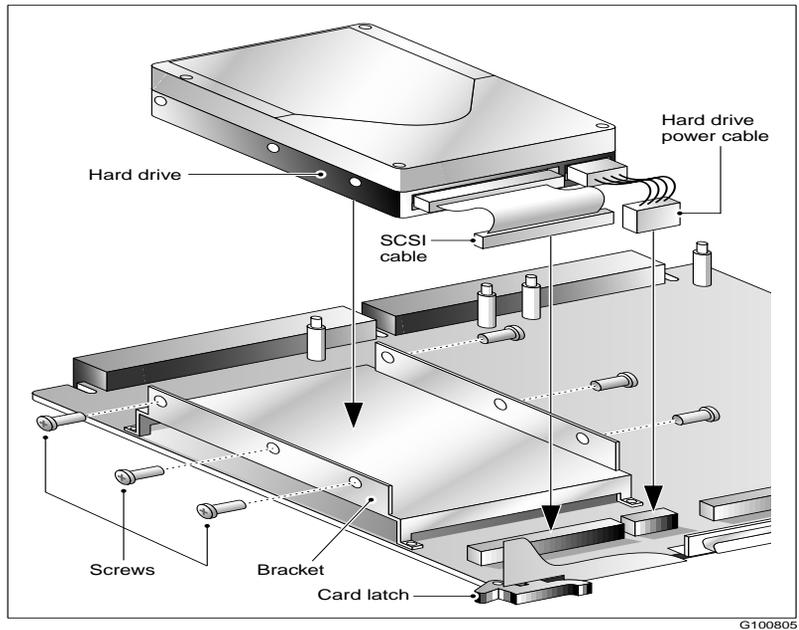
**3**    Remove the power cable and SCSI cable from the connectors on the CPU (see Figure 53) and lift out the hard drive.

**4**    Make sure you have the correct hard drive replacement and then set the jumper settings to those in Figure 54.

**5**    Place the hard drive in the bracket in the same orientation as the previous hard drive.

**6**    Secure the hard drive to the bracket with the screws.

**7**    Connect the SCSI cable and the power cable to their respective connectors.

**8**    Replace the mail CPUcard assembly in the switch.

**9**    Refer to to reset the voicemail.

**10**    To restore your latest system, you need to attach the external tape drive cable to the connection on the voicemail card faceplate.

**11**    Insert the mail install/data tape into the tape drive and press the reset button located on the voicecard faceplate.

**12**    Wait for the system installation and modification main menu to appear on the terminal, then follow .

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

**Figure 54**
**Jumper settings for the ST52160N hard drive**
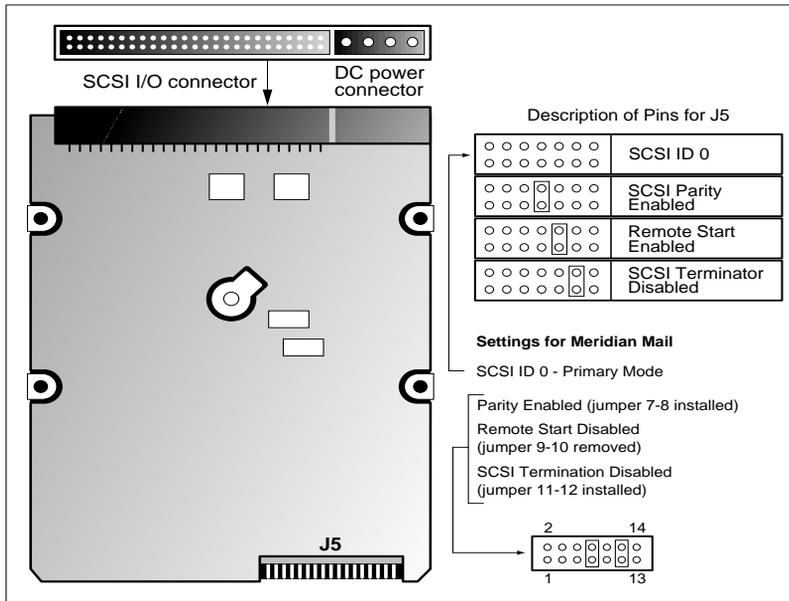
### Tape drive problems
**Procedure 59**
**Tape is not recognized by the system**

If the tape does not seem to be recognized by Meridian Mail Compact Option, try some or all of the following measures:

**1**     If you are performing a restore, ensure that you have inserted the correct tape.

**2**     Ensure that you have inserted the tape correctly. (Refer to page 214.)

**3**     Ensure that the tape is of the correct format. (Refer to Procedure 42.)

**4**     Ensure that the tape is not write-protected.

**5**     Turn the tape drive off and then on again.

**6**     Clean the tape drive. (Refer to page 296.)

**7**     Ensure that the tape drive has been correctly installed. (Refer to page 214.)

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

**Procedure 60**
**Tape drive failure**

**1**     If the tape fails or you receive a read-write error, turn the tape drive off and then on again.

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

**Procedure 61**
**Starting a backup before inserting a tape**

If, while attempting to manually back up the system, you inadvertently press OK *before* inserting a tape

**1**     Insert a tape into the tape drive.

*An error message is displayed indicating that the backup has failed.*

**2**     Press [Exit].

**3**     Retry the backup procedure.

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

**Procedure 62**
**Defective tape during backup**

If, while attempting to manually back up the system, you insert a defective tape

1    Retry the backup procedure with a different tape. If the backup is successful, discard the defective tape.

2    Clean the tape drive (refer to page 296) and attempt the backup again.

3    Restart the system and retry the backup procedure.

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

**Procedure 63**
**Defective tape during restore**

If, while attempting to restore the system, you are informed that the tape is defective

1    Clean the tape drive (refer to page 296) and attempt the restore again.

2    If the second attempt is not successful, the tape is unusable. Do one of the following:

—    Restore from an earlier backup tape, if one is available.

*Note:* Use the most recent backup you can find. Any changes that you've made to the system since that backup will have to be recreated.

—    Install a new system and redefine your users.

*Note:* This should be your last resort; and should never have to be done if you make sure to make frequent backups.

Once you have successfully restored the system

a)    Perform a new system backup with a different tape.

b)    Discard the tape that caused the error.

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

**Terminal problems**

Under most circumstances, the Meridian Mail Compact Option system should start up automatically and display the Meridian Mail Compact Option logon screen on the system administrator's terminal. You may notice problems at start-up or the terminal may become disabled during normal operation.

First, try to clear the problem as you would with the system administrator's terminal, then follow the steps for auxiliary terminals.

**Procedure 64**
**The terminal does not display Meridian Mail Compact Option screens**

**1**     The system administrator may have inadvertently switched to the Option 11C Compact software. If you see the > prompt, enter **AX** <Return>.

**2**     Press <Control> **]** to switch to Option 11C Compact software and, at the
> prompt, enter **AX** <Return>.

**3**     Reset the console port (port 8) by disabling it and reenabling it, as follows:

**a)**     Follow the procedures described in <u>"Enabling and disabling the console and AML data ports" on page 208</u>. Reset the console port only; do not reset the AML (port 9).

**b)**     Enter **AX** <Return> to return to Meridian Mail Compact Option.

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

**The terminal displays the Meridian Mail Compact Option screens incorrectly**

Occasionally, the connection between Meridian Mail Compact Option and the system administrator's terminal may generate extraneous characters that cause the terminal to display the Meridian Mail Compact Option screens incorrectly.

**Procedure 65**
**The terminal displays the Meridian Mail Compact Option screens incorrectly**

To redraw the screen press <Control> **R**.

If the screen is incorrectly displaying the lines on the Meridian Mail Compact Option screens as a string of "q"s, follow these steps

**1** Press <Control> **W**.

*You are presented with a small pop-up menu.*

**2** Enter IF <Return>.

*The screen redraws correctly.*

**Procedure 66**
**The keyboard does not respond**

**1** If there is a printer attached to your system, ensure that the printer is ready and online. (Refer to page 217)

**2** Press <Control> **]** to switch to Option 11C Compact software. At the > prompt, enter **AX** <Return>.

**3** Reset the console port (port 8) by disabling it and reenabling it, as follows:

**a)** Follow the procedures described in "Enabling and disabling the console and AML data ports" on page 208. Reset the console port only; do not reset the AML (port 9).

**b)** Enter **AX** <Return> to return to Meridian Mail Compact Option.

**4** Turn the terminal off and on again.

**5** Check the connection between the keyboard and the terminal.

**6** Ensure that the terminal settings are correct.

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

## System event and error reports (SEERs)

System event and error reports contain information about every system event and error that occurs on the Meridian Mail Compact Option system. To configure Meridian Mail Compact Option to print SEERs as they occur, refer to the *Meridian Mail Compact OptionSystem Administration Guide* (NTP 555-7001-333).

Follow Procedure 67 to view the SEERs for a given period

**Procedure 67**
**View SEERs for a given period**

**1**     From the Main Menu on the system administrator's terminal, choose "5 System Status and Maintenance"→ "5 System Event and Error Reports".

**2**     On the System Event and Error Reports form, enter the appropriate dates and times in *Report Period Start* and *Report Period End.*

**3**     Press the [View Reports] softkey.

The reports provide you with a brief description of the system event or error and when it occurred. For a more detailed description consult *Maintenance Messages (SEERs) Reference Manual* (NTP 555-7001-510).

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

# Maintaining the external tape drive

To ensure reliable tape drive performance, you should establish a regular cleaning schedule and observe the following precautions:

• Avoid mounting the tape drive where it is subjected to continuous shocks or vibrations.

• Maintain a clean, dust-free environment within the temperature and humidity limits listed in the specifications of the Option 11C Compact system.

• Keep all liquids away from the drive and tapes to prevent spills into the equipment.

• Exercise reasonable care when using and storing tape cartridges. Do not place cartridges on the Option 11C Compact cabinet or the monitor of the system administrator's terminal.

• When a stored tape is moved to an environment with a greatly different temperature, allow the tape to slowly reach room temperature before using it.

• Do not open the cartridge access door or touch the tape.

• Keep the tape drive turned on when it is connected to Meridian Mail Compact Option.

### Cleaning the tape drive

To clean the tape drive, you need the following supplies:

- Low pressure aerosol air.

- Tape head cleaning fluid or reagent grade chemically-pure isopropyl alcohol.

- Tape head cleaning pads, lint-free cotton swabs, or any industry-acceptable head-cleaning swabs, six inches or longer.

You should clean the head assembly after an initial pass with a new tape cartridge and after eight hours of normal use. You should clean the sensor hole and tape cartridge cavity whenever dust is visible.

**Procedure 68**
**Cleaning the tape drive with swabs and fluid**

**1**    If there is a tape cartridge in the tape drive, remove it.

**2**    If the power to the tape drive is on, turn it off.

**3**    Push the head loading lever to the load position.

**4**    Carefully blow out dust from the sensor hole and tape cartridge cavity with aerosol air.

**5**    Moisten a pad or swab with the head-cleaning fluid until it is saturated but not dripping.

**6**    Carefully wipe the head in the direction that the tape travels. (Refer to Table 35, "Tape drive cleaning kits," on page 298.) Do not wipe perpendicularly or use a circular scrubbing motion.

**Figure 55**
**Cleaning the tape head**
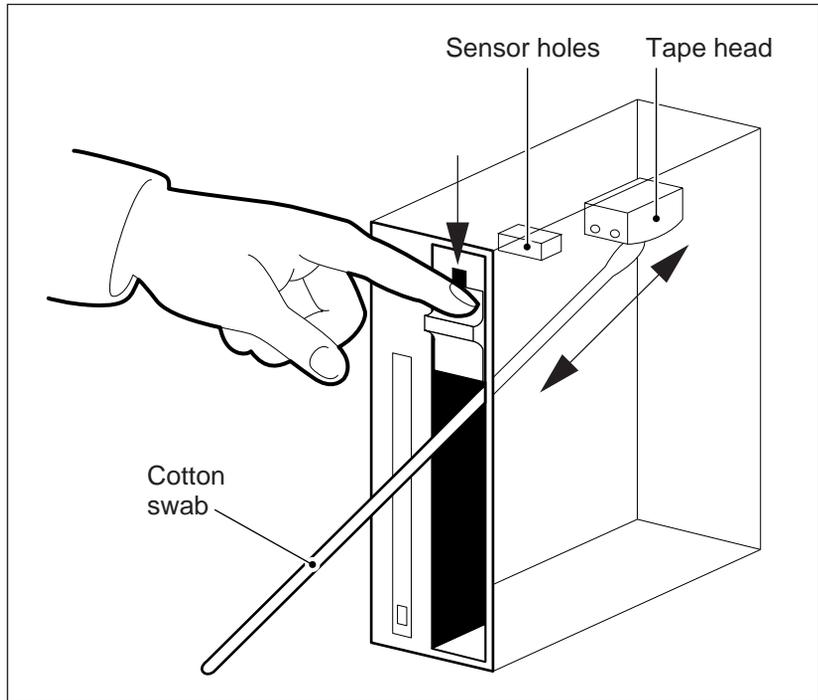


7       Discard the used swab and repeat steps 5 and 6 with new swabs until the swab shows no signs of dirt.

8       Use a new, dry swab to remove any remaining cleaning fluid from the head.

9       Push the head loading lever away from the load position.

10      If there was a tape cartridge in the tape drive, replace it.

11      If the power to the tape drive was on at the start of this procedure, turn it back on.

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

**Procedure 69**
**Using a tape drive cleaning kit**

**1**    If there is a tape cartridge in the tape drive, remove it.

**2**    Push the head loading lever down into the load position (for an Archive tape drive) or press the release button to open the tape drive (on the Tandberg tape drive).

**3**    Carefully blow out dust from the sensor hole and tape cartridge cavity with aerosol air.

**4**    Depending on your tape drive, release the head loading lever or press the release button to open the tape drive.

**5**    Obtain the appropriate tape drive kit for your tape drive. Refer to Table 35 for the correct CPC code.

**Table 35**
**Tape drive cleaning kits**

| Type of tape drive | Cleaning kit CPC code |
|---|---|
| Archive Viper | A9378220 |
| Tandberg TDC 4220 | A0622896 |

**6**    Moisten the flexible pad of the cleaning cartridge with four drops of the Streaming Tape Head Cleaning Fluid.

**7**    Insert the cleaning cartridge into the tape drive in the same way as a normal tape cartridge and lock into position.

**8**    Move the moistened pad using four strokes of the guide rod, moving the rod as far as it will go each time.

**9**    Remove the cleaning cartridge from the tape drive.

**10**    Remove the flexible pad by sliding it out of the holder, then discard the pad.

**11** Insert a new, dry pad into the holder by sliding it into place.

**12** Insert the cleaning cartridge into the tape drive and lock into place.

**13** Move the dry pad using four strokes of the guide rod, moving the rod as far as it will go each time.

**14** Remove the cleaning cartridge. Store it with the dry pad in its original carton until next use.

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

# References

The following Meridian Mail 11 manuals may be referenced for the Meridian Mail Compact Option system:

• *System Administration Tools Guide* (NTP 555-7001-305)

• *Maintenance Messages (SEERs) Reference Manual* (NTP 555-7001-510)

• *System Installation and Modification Guide* (NTP 555-7001-215)

# Chapter 21 — Installing Hospitality

## An overview

This chapter discusses the installation of the software and hardware needed to support Hospitality features.

## Installing hardware connections between the telephone system and the Hospitality PC

The Hospitality applications run on a dedicated PC, typically located at the front desk of the hotel. The PC is connected to the telephone switch using two links: one for the Registrar application, and one for Journal. A third link may be needed if MAT is being run on the same PC.

For information about connecting the PC's COM ports, and about setting up the COM ports, refer to the *Journal Adminitration and User Guide*.

## Installing Hospitality software on the PC

The Hospitality Applications Installation Kit installs all required software. The software installed depends on the activation key you enter at the beginning of the installation process. The installer places the applications in the appropriate areas and ensures that the default information is properly configured.

A brief installation procedure is provided here. For detailed software installation instructions, see the *Registrar Administration and User Guide*, or the *Journal Administration and User Guide*.

**Procedure 70**
**Installing Hospitality software**

1    **Place the Hospitality CDROM in the PC's CDROM drive.**

2    **Run the SETUP.EXE file on the CDROM, using Windows File Manager or the RUN command in the Start menu.**



3    **When you run the installer (setup) program, you see screens that ask you to confirm the installation, and to identify a destination directory. Unless you have a good reason to do otherwise, install using the default directory.**

4    **At the activation key screen, enter the client name, telephone number and activation key. Be sure to enter the client name and telephone number precisely.**
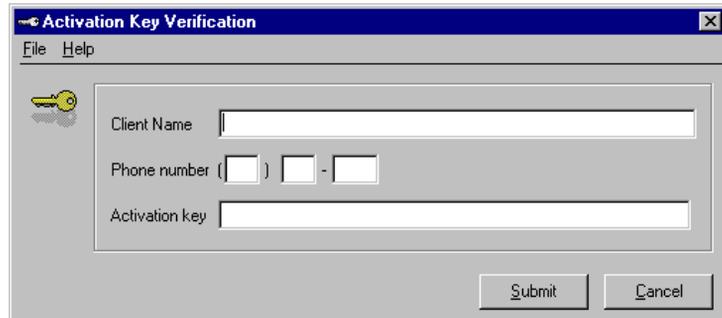


**If the client name, telephone number or activation key are incorrect, installation cannot continue.**

**5**    **Once the activation key is accepted, complete the installation and restart the PC.**

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

# Chapter 22 — Upgrading software

## An overview

### Introduction

This chapter describes how to use the Software Installation Program to perform a software upgrade on the Meridian 1 Option 11C Compact system.

For more information on the Software Installation Program, refer to .

## Software upgrade to a new release or issue

### Introduction

This chapter contains two procedures.

The first procedure on describes how to upgrade the software on an existing Meridian 1 Option 11C Compact to a new release or issue using the Software Delivery (PCMCIA) card.

The second procedure on describes how to revert to the previous software version.

---

**CAUTION**

A new Keycode Data Sheet and Software Delivery (PCMCIA) card programmed with the new software release are required to complete the upgrade.
Refer to the keycode data sheet when entering the ISM parameters, adding packages or changing the AUX ID.

---

## How to upgrade software on an existing Option 11C Compact

### Summary of steps

The Software Upgrading and Installation steps are summarized in the following list. They consist of:

- Making sure that the Software Delivery (PCMCIA) card is installed.

- Selecting the System Upgrade function.

- Selecting Feature Set and packages.

- Selecting a database to install.

- Selecting Incremental Software Management (ISM) parameters.

- Validating keycodes.

- Loading the software.

- Upgrading the Software Daughterboard from NTDK21 to NTDK81 (when upgrading from X27 Release 1 software to X27 Release 2 software).

### Upgrading to the new release of software

The following procedure describes how to upgrade and install the software using Software Delivery (PCMCIA) card.

---

**WARNING**

This procedure includes a SYSLOAD operation. A SYSLOAD will interrupt service on the Compact system for up to 30 minutes.

---

**Procedure 71**
**Software Upgrading Procedure**

**1**    Perform a Data Dump (EDD).

To perform an EDD:

- Load overlay program 43 (LD 43).

- Enter command EDD.

**2**     If not previously done, install the Software Delivery (PCMCIA) card in the socket labeled A in the faceplate of the SSC Card in the Option 11C Compact.

To install the Software Delivery (PCMCIA) card, insert the PCMCIA card in slot A in the PCMCIA socket located in the faceplate of the NTMW01 SSC card. Gently press on the PCMCIA card until it is firmly seated.

**3**     Initiate a SYSLOAD by pressing the 'control' and 'I' keys on the keyboard when prompted. (The prompt appears after you install the Software Delivery card.)

---

**WARNING**

This procedure includes a SYSLOAD operation. A SYSLOAD will interrupt service on the Compact system for up to 30 minutes.

---

During SYSLOAD, the following prompt will appear:

```
FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE
INSTALLATION PROGRAM
```

```
Press and hold 'control' key and press 'I'
```

**4**     Invoke the Software Installation Program during the SYSLOAD by holding down the 'control' key and pressing 'I".

*Note:* When the `FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM` message appears, you must respond. If you fail to invoke the Software Installation Program, you will have to perform a SYSLOAD again.

**5**     Select item 2 from the Main Menu.

```
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
```

**6**    Select the type of upgrade to be performed.

```
Select type of upgrade to be performed:
1. New Software Upgrade
2. Feature/parameter Upgrade
[q]uit, <cr> current menu, [m]ain menu, [h]elp or
[?],[p]revious menu
```

Enter Selection:

2<cr>

**7**    Select the Feature Set to be enabled.

*Note:* The Feature Set selected must match the ones provided with key codes. The Feature Set names shown below are examples only.

```
*** NOTE: The following questions require
information
on the Keycode Data Sheet.
Please have it available.***

*** NOTE: If an External Data Card is being used for
this system, please insert it into drive b: Now.***

(The following feature sets are examples)

Select Feature Set You Wish to Enable:

1. Office Communications (NTMW30CA)
2. Interoffice Communications (NTMW30DA)
3. Hospitality Communications (NTMW30EA)
4. Advanced Hospitality Communications (NTMW30FA)

[q]uit, [p]revious, [m]ain menu, [h]elp or [?],
<cr> redisplay


Enter Selection:

2<cr> (Inter-Office Communications)
```

**8**    Indicate whether or not packages are to be added.

```
Feature Set Selection: Inter-Office Communications
```

```
Do you wish to add packages? (y/n/[a]bort) :
```

n<cr> (no)
y<cr> (yes)

If the response was **n**
go to Step 11

the response was **y**
go to Step 9

**9**    Select the Feature packages to be added.

```
Summary of Packages selected is:
0-1 7-14 16-25 32-36 70-76 79-83 90 95 98 107-108
113-116 125-127
```

(example)

```
Enter packages (s) to be added, blank line to end:
```

```
256-259<cr>
```
**<cr>** (ends selection entry or if no packages are to be added)

**10**    Confirm Feature Set and added packages.

```
Your Feature Set Selection is "Inter-Office
Communications":
Additional Packages selected: 256-259
Summary of Packages selected is:
0-1 7-14 16-25 32-36 70-76 79-83 90 95 98 107-108
113-116 125-127
...
...
256-259
```

```
Is this correct?
```

**n<cr>** (no)
**y<cr>** (yes)

If the response was **n**
go to Step 7

If the response was **y**
go to Step 11

**11**    Review ISM parameters.

*Note:* The ISM parameters displayed on the terminal screen are the default settings associated with the Feature Set selection. These settings can be accepted without changes or changed to suit the requirements of the system.

```
Current ISM Parameters:
TNS (0048)(number of terminal numbers)
AGNT (0128)(number of ACD agents)
ACDN (0100)(number of ACD DNs)
AST (0000)(number of associate Sets)
DSL (0000)(number of Digital Subscriber Loops)
LTID (0000)(number of Logical Terminal IDs)
MOPT (0000)(Meridian Mail option)

Do you wish to change ISM parameters?
```

n<cr> (no change)
y<cr> (change)

If the response was **n**
go to

If the response was **y**
go to Step 12

**12**    Select ISM parameters.

(example)

```
Enter new ISM parameters, <cr> to leave as is:
TNS (0048)                64<cr> (change)
AGNT (0128)               <cr> (no change)
ACDN (0100)               <cr> (no change)
AST (0000)                <cr> (no change)
DSL (0000)                <cr> (no change)
LTID (0000)               <cr> (no change)
MOPT (0000)               <cr> (no change)
```

**13**    Confirm ISM parameters.

```
New ISM parameters are:
TNS (0064)
AGNT (0128)
ACDN (0100)
AST (0000)
DSL (0000)
LTID (0000)
MOPT (0000)

Is this correct?
```

**n<cr>** (no)
**y<cr>** (yes)
**a<cr>** (abort, return to main menu)

If the response was **n**
go to Step 11

If the response was **y**
go to Step 14

**14**    Define the AUX ID.

*Note:* The default AUX ID is the system ID provided with the Option 11C Compact.

(example)

```
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 **n**
go to Step 16

the response was **y**
go to Step 15

**15**    Enter the AUX ID.

**Enter the new AUX ID,**
**<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 **n**
go to Step 14

If the response was **y**
go to Step 16

**16**     Review and confirm information entered.

```
Software Upgrade Summary:
System ID    :     20000326
Aux ID       :     12121212
Added Pkgs   :            none
Feature Set  :            Inter-Office
Communications
Database     :     Company.ABC
                   OLD     NEW
S/W Release  :     0100    0100
ISM Parameters     OLD     NEW
    TSN      :     0048    0064
    AGNT     :     0128    0128
    ACDN     :     0100    0100
    AST      :     0000    0000
    DSL      :     0000    0100
    LTID     :     0000    0000
    MOPT     :     0000    0000

Is this correct?
```

**y<cr>** (yes)
**n<cr>** (no)
**a<cr>** (abort, return to main menu)

If the response was **n**
go to

If the response was **y**
go to

**17**    Enter the keycodes

*Note:* Enter keycodes in place of **x, y, z**, as shown.

```
Enter new Keycodes:
Key 1:              xxxxxxxx<cr>
Key 2:              yyyyyyyy<cr>
Key 3:              zzzzzzzz<cr>
```

If after the last keycode is entered,
`'Keycode validation successful"`
`***WARNING*** A system restart will be invoked as`
`part of the software installation process"`
message appears go to Step 18

after the last keycode is entered,
`'Keycode validation unsuccessful'`
message appears go to Step 17 again to re-enter correct keycodes

*Note:* After three unsuccessful keycode validation attempts, the following message appears.

```
Keycode validation unsuccessful.
Installation aborted...returning to main menu.
```

**18**    Complete the software installation.

```
Are you sure you wish to perform the installation?
```

**y<cr>** (yes)
**n<cr>** (no)

If response was **y**
—End—

If response was n
go to

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

## How to revert to the previous release of software

The following procedure describes how to revert to the previous release of software, Feature Set, Customer data and ISM Parameters using the Undo Installation option.

This option requires that the same Software Delivery (PCMCIA) card that was used to upgrade this Option 11C Compact be installed and used to revert it to its former database. The Software Delivery (PCMCIA) card must not have been used to upgrade a subsequent Option 11C Compact, since the Security ID will no longer match this system.

*Note:* When upgrading, the existing Option 11C Compact database is saved (backed-up) on the Software Delivery (PCMCIA) card. The card contains only the backed-up database and Security ID of the last Option 11C Compact with which it was used.

### Summary of steps

The steps to revert to the previous database are summarized in the following list. They consist of:

- Checking to make sure the correct Software Delivery (PCMCIA) card is installed.

- Selecting the Utilities menu.

- Selecting Undo Installation option.

- Reverting to the previous database.

### Reverting to previous release of software

The following procedure describes how to revert to the previous release of software using PCMCIA card.

**Procedure 72**
**Reverting to Previous Software Procedure**

**1**    If not previously done, install the Software Delivery (PCMCIA) card in the socket in the faceplate of the SSC Card.

*Note:* This Software Delivery card must be the same one that was used to upgrade this Option 11C Compact. It must not have been used to upgrade a subsequent Option 11C Compact because the Security ID will no longer match and the "undo" function will fail.

To install the Software Delivery card:

- Insert the card in slot A in the PCMCIA socket located in the faceplate of the NTMW01 Small System Controller (SSC) card. Gently press on the Software Delivery card until it is firmly seated.

**2**    Select the method of invoking the Software Installation Program.

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD).

—or—

- By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD).

If you wish to invoke the program using Overlay 143
go to

If you wish to wish to invoke the program when prompted
go to

**3**   Invoke the Software Installation Program using Overlay 143.

*Note:* Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do .

Login to the system by entering **LOGI<cr>** then enter the pass word in response to **PASS?**.

*Note:* The response to **PASS?** is unique to each system.

Once logged in, enter:

LD 143<cr>

UPGRADE<cr>

If
**SOFTWARE INSTALLATION PROGRAM**
message appears go to

If
**SOFTWARE INSTALLATION PROGRAM**
message does not appear repeat Step 3 (this step) and make sure correct information is entered

**4**   Invoke the Software Installation Program when prompted.

*Note:* Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do Step 3 instead.

Start system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply to OFF then to ON.

*Note:* When the **FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM** message appears a response must be entered within 5 seconds to invoke the program.

During SYSLOAD, the following prompt will appear:

**FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM**

Press and hold 'control' key and press 'I'

**5**    Select Utilities from the Main Menu.

```
SOFTWARE INSTALLATION PROGRAM
********************************
Verify Security ID: 12345678
********************************
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:
3<cr>

**6**    Select item 6 from the Utilities Menu.

```
Utilities Menu:
1. Restore backed Up database
2. Archive Database Utilities
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary
```

[q]uit, [p]revious, [m]ain, [h]elp [?], <cr> redisplay

Enter Selection:
**6<cr>** (Undo Installation)

**7**      Complete the software installation.

**\*\*\* WARNING \*\*\* A system restart will be invoked as part of the Undo Installation process.**
**Are you sure you wish to undo the installation?**

**y<cr>** (yes)
**n<cr>** (no)

If response was **y**
—End—

If response was **n**
go to <u>Step 6</u>

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

# Feature Set and ISM Parameters upgrade

## Introduction

This section describes how to upgrade the Feature set and ISM Parameters on a Option 11C Compact when the software is not being upgraded to a new release (same release upgrade). The Software Delivery (PCMCIA) card is not required to perform this type of upgrade.

## How to upgrade Feature Set and ISM Parameters

### Summary of steps

The Upgrading and Installation steps are summarized in the following list. They consist of:

- Invoking the Software Installation Program.

- Selecting the System Upgrade function.

- Selecting Feature Set and packages (optional).

- Selecting Incremental Software Management (ISM) parameters (optional).

- Validating keycodes.

- Loading the software.

### Upgrading Feature Set and ISM Parameters

The following procedure describes how to upgrade the Feature Set and ISM Parameters without upgrading the software release.

**Procedure 73**
**Upgrading Feature Set and ISM Parameter Procedure**

**1**      Invoke the Software Installation Program using Overlay 143.

Login to the system by entering **LOGI<cr>** then entering the password.

*Note:* The response to **PASS?** is unique to each system.

Once logged in, enter:
LD 143<cr>
UPGRADE<cr>

If
**SOFTWARE INSTALLATION PROGRAM**
message appears go to Step 2

If
**SOFTWARE INSTALLATION PROGRAM**
message does not appear repeat Step 1 (this step) make sure correct
information is entered

**2**      Select item 2 from the Main Menu.

```
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:

2<cr>

**3**      Select item 3 from the Select Upgrade to be Performed menu.

```
Select type of upgrade to be performed:
1. New Software Upgrade
3. Feature/parameter Upgrade
[q]uit, <cr> current menu, [m]ain menu, [p]revious
menu
```

Enter Selection:

1<cr>

**4**    Indicate whether the current Feature Set will or will not be retained.

```
Do you wish to change the Feature Sets?
```

n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)

If the response was **n**
go to

the response was **y**
go to Step 5

**5**    Select the Feature Set to be enabled.

*Note:* The Feature Set selected must match the ones provided with key codes. The Feature Set names shown below are examples only.

```
*** NOTE: The following questions require
information
on the Keycode Data Sheet.
Please have it available.***
```

```
*** NOTE: If an External Data Card is being used for
this system, please insert it into drive b: Now.***
```

(The following feature sets are examples)

```
Select Feature Set You Wish to Enable:
1. Office Communications (NTMW30CA)
2. Interoffice Communications (NTMW30DA)
3. Hospitality Communications (NTMW30EA)
4. Advanced Hospitality Communications (NTMW30FA)
```

*Note:* Item 3 retains existing ISM parameters.

(example)

Enter Selection:

2<cr> (**Inter-Office Communications**)

6    Indicate whether or not packages are to be added.

(example)

**Feature Set Selection: Inter-Office Communications**

**Do you wish to add packages? (y/n/[a]bort) :**

n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)

If the response was **n**
go to

If the response was **y**
go to Step 7

7    Select the Feature packages to be added.

(example)

**Summary of Packages selected is:**
**0-1 7-14 16-21 23-25 32-36 70-76 79-83 90 95 98**
**107-108 113-116 125-127**

**Enter packages (s) to be added, blank line to end:**

**22<cr>**
**<cr>** (ends selection entry or if no packages are to be added)

8    Confirm Feature Set and added packages.

**Your Feature Set Selection is "Inter-Office**
**Communications":**
**Additional Packages selected: 22**
**Summary of Packages selected is:**
**0-1 7-14 16-25 32-36 70-76 79-83 90 95 98 107-108**
**113-116 125-127**
**...**
**...**

**Is this correct?**

**n<cr>** (no)
**y<cr>** (yes)
**a<cr>** (abort, return to main menu)

If the response was **n**
go to and enter the correct Feature set and packages

If the response was **y**
go to Step 5

**9**  Review ISM parameters.

*Note:*  The ISM parameters displayed on the terminal screen are the
default settings associated with the Feature Set selection. If Feature
Set is not changed, the parameters displayed remain as the current
ISM parameters. These settings can be accepted without changes or
changed to suit the requirements of the system.

```
Current ISM Parameters:
TNS (0048)(number of terminal numbers)
AGNT (0128)(number of ACD agents)
ACDN (300)(number of ACD DNs)
AST (0000)(number of associate Sets)
DSL (0000)(number of Digital Subscriber Loops)
LTID (0000)(number of Logical Terminal IDs)
MOPT (0000)(Meridian Mail option)

Do you wish to change ISM parameters?
```

n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)

If the response was **n**
go to Step 12

If the response was **y**
go to Step 10

**10**  Select ISM parameters.

(example)

```
Enter new ISM parameters, <cr> to leave as is:
TNS (0048)64<cr> (change)
AGNT (0128)<cr> (no change)
ACDN (300)<cr> (no change)
AST (0000)<cr> (no change)
DSL (0000)<cr> (no change)
LTID (0000)<cr> (no change)
MOPT (0000)<cr> (no change)
```

**11**   Confirm ISM parameters.

```
New ISM parameters are:
TNS (0064)
AGNT (0128)
ACDN (0100)
AST (0000)
DSL (0000)
LTID (0000)
MOPT (0000)

Is this correct?
```

**n<cr>** (no)
**y<cr>** (yes)
**a<cr>** (abort, return to main menu)

If the response was **n**
go to

If the response was **y**
go to Step 12

**12**   Define the AUX ID.

*Note:* The default AUX ID is the system ID provided with the Option 11C Compact.

(example)

```
Security ID: 12121212
Current AUX ID: 02020202
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 **n**
go to

If the response was **y**
go to

**13**     Enter the AUX ID.

**Enter the new AUX ID,**
**<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 **n**
go to

If the response was **y**
go to Step 14

**14**     Review and confirm information entered.

```
Same Release Upgrade Summary:
Security ID:     12121212
AUX ID   :       12121212
                 OLD      NEW
Software Release
Feature Set:              Inter-Office Communications
Added Pkgs:               none
ISM Parameters
    TSN   :      0048     0064
    AGNT  :      0128     0128
    ACDN  :      0100     0100
    AST   :      0000     0000
    DSL   :      0000     0000
    LTID  :      0000     0000
    MOPT  :      0000     0000
```

**Is this correct?**

**n<cr>** (no)
**y<cr>** (yes)
**a<cr>** (abort, return to main menu)

If the response was **n**
go to Step 4 to make changes

If the response was **y**
go to Step 15 to enter keycodes

**15**   Enter the keycodes

*Note:*  Enter keycodes in place of **x, y, z**, as shown.

```
Enter new Keycodes:
Key 1:             xxxxxxxx<cr>
Key 2:             yyyyyyyy<cr>
Key 3:             zzzzzzzz<cr>
```

If after the last keycode is entered,
**'Keycode validation successful"**
**\*\*\*WARNING\*\*\* A system restart will be invoked as**
**part of the software installation process"**
message appears go to Step 16

If after the last keycode is entered,
**'Keycode validation unsuccessful'**
message appears go to Step 15 again to re-enter correct keycodes

*Note:*  After three unsuccessful keycode validation attempts, the
following message appears.

```
Keycode validation unsuccessful.
Installation aborted...returning to main menu.
```

**16**    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 response was **y**
—End— See Note

If response was **n**
go to

*Note:*  A system reload (SYSLOAD) must be invoked for the changes to take effect. However, it need not be invoked immediately since the information is stored in the Option 11C Compact until the SYSLOAD is performed. Since a SYSLOAD interrupts service on the system, it may be preferable to invoke it later when a service interruption is less inconvenient.

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

# Restoring a backed up database

## Introduction

This section describes how to use the Restore Backed Up database utility to restore a database from any of the following sources:

- the backup Flash Drive (using LD 143)

- a Software Delivery (PCMCIA) card (using LD 143)

- a Customer Configuration Backup and Restore (CCBR) file (using LD 143)

The procedures in this section are used to restore a backed up database from an Option 11C Compact system with a different security ID, Key code and/or feature set. The database must be from an Option 11C Compact system with X27 software and must be from the same or a previous version of the software.

*Note:* Restoring a backed up database from X11 software is not supported.

## How to restore a backed up database

### Summary of steps

The steps to restore a backed up database are summarized in the following list. They consist of:

- Selecting the Utilities function.

- Selecting the database source

- Restoring the database

### Restoring the database

The following procedure describes how to restore the database.

**Procedure 74**
**Database Restoration Procedure**

**1**     Invoke the Install Setup Program using Overlay 143.

Login to the system by entering **LOGI<cr>** and enter the password in response to `PASS?`.

*Note:*  The response to `PASS?` is unique to each system. The response shown below is an example.

Enter the following:

LD 143<cr>

UPGRADE<cr>

If
**SOFTWARE INSTALLATION PROGRAM**
message appears go to Step 2

If
**SOFTWARE INSTALLATION PROGRAM**
message does not appear repeat Step 1 (this step) and make sure correct information is entered

**2**     Select Utilities from the Main Menu.

```
Software Installation Main Menu
1. New Install - 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:
```

3<cr>

**3**    Select item 1 from the Utilities Menu.

```
Utilities Menu:
1. Restore backed Up Database
2. Archive Database Utilities
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, [p]revious, [m]ain, [h]elp [?], <cr>
redisplay

Enter Selection:
```

**1<cr>** (Restore Backed Up Database)

**4**    Select source of database.

```
Select Restore Database Source:
1. Backup Flash Drive
2. External Drive
3. Option 11C Compact CCBR File
[q]uit, [p]revious, [m]ain menu, [h]elp or [?],
<cr> - redisplay

Enter Selection:
```

3<cr> (CCBR Restore file)

```
WARNING: You must have an Option 11C Compact CCBR
file backed up.
WARNING: Your internal backup will be erased.

Entering RECEIVE mode for data transfer.
Please commence XMODEM file transfer of the CCBR
file.
Are you sure you wish to perform the Restore?
(y/n/[a]bort)
```

**y** (yes)

```
Wait -- Erasing internal backup
```

**R>CCC** (Commence upload from host machine)

If
**Restore successful**
message is displayed go to Step 15

If
**Restore unsuccessful**
BKP011 message is displayed go to Step 1

*Note:* Definition of BKP011 message is:
Restore successful but site ID in backup image differs from that of the switch. This is expected if the restored database is of a system with a different site ID.

**5**    Confirm Restore Database from the Backup Flash Drive.

*Note:* Perform this step only when restoring a database from the flash drive. If restoring from another source, return to Step 3.

**Backup file on Flash Drive from 95/04/01 will be restored to the Primary Drive**

**Are you sure you wish to perform the Restore?**

**n<cr>** (no)
**y<cr>** (yes)
**a<cr>** (abort, return to main menu)

If response was **y**
go to Step 6

If response was **n**
go to Step 2

**6**    Complete restore from Flash Drive

*Note:* Perform this step only when restoring a database from the flash drive. If restoring from another source, return to Step 3.

If
**Restore successful**
message is displayed
—End—

If
**Restore unsuccessful**
message is displayed go to Step 2

*Note:* The **Restore successful** message indicates that the database has been successfully restored and no further action is required.

**7**    Confirm Restore Database from the External Drive (PCMCIA card).

*Note:* Perform this step only when restoring a database from an external drive source (PCMCIA). If restoring from another source, return to Step 3.

Restoring primary drive from External Drive. FRI OCT 20 15:56:22 1995
System Restart required to activate restored database

Are you sure you wish to perform the Restore?

**n<cr>** (no)
**y<cr>** (yes)
**a<cr>** (abort, return to main menu)

If response was **y**
go to Step 15

If response was **n**
go to Step 2

**8**    Restore Database from the CCBR Restore file.

*Note:* Perform this step only when restoring a database from a CCBR Restore file. If restoring from another source, return to Step 3.

```
WARNING: You must have an Option 11C Compact CCBR
file backed up.
WARNING: Your internal backup will be erased.
Are you sure you wish to Restore?
```

**n<cr>** (no)
**y<cr>** (yes)
**a<cr>** (abort, return to main menu)

```
Entering receive mode for data transfer...

Escape back to host machine and commence upload...

Database transfer complete...

Restoring Primary drive from CCBR file...

Restore successful.

System Restart required to activate restored
database.
```

If
**Restore successful**
message is displayed go to <u>Step 15</u>

If
**Restore unsuccessful**
BKP011 message is displayed go to <u>Step 1</u>

If
**Restore unsuccessful**
message other than BKP011 is displayed go to <u>Step 2</u>

*Note:* Definition of BKP011 message is:
Restore successful but site ID in backup image differs from that of the switch. This is expected if the restored database is of a system with a different site ID.

**9**   Load Install Setup Program Overlay 143.

Enter

LD 143

UPGRADE

If
**SOFTWARE INSTALLATION PROGRAM**
message appears go to <u>Step 2</u>

If
**SOFTWARE INSTALLATION PROGRAM**
message does not appear go to Step 1

10  Select Utilities from the Main Menu.

```
Software Installation Main Menu
1. New Install - 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:

3<cr>
```

11  Select item 1 from the Utilities Menu.

Utilities Menu:
1. Restore backed Up Database
2. Archive Database Utilities
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

```
[q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> -
redisplay

Enter Selection:

1<cr> (Backup Flash Drive)
```

**12**      Select 1 to Backup flash drive.

```
Select Restore Database Source:
1. Backup Flash Drive
2. External Drive
3. Option 11C Compact CCBR File

q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> -
redisplay

Enter Selection:
```

**1<cr>** (Backup Flash Drive)

**13**      Confirm Restore Database from the Backup Flash Drive.

*Note:* Perform this step only when restoring a database from the flash drive. If restoring from another source, return to <u>Step 3</u>.

```
Backup file on Flash Drive from WED JUL 19:44:36 1997
will be restored to the Primary Drive

Are you sure you wish to perform the Restore?
```

**n<cr>** (no)
**y<cr>** (yes)
**a<cr>** (abort, return to main menu)

If
response was **y**
go to <u>Step 15</u>

If
response was **n**
go to <u>Step 2</u>

**14**    Complete restore from Flash Drive.

*Note:* Perform this step only when restoring a database from the flash drive. If restoring from another source, return to Step 3.

```
Restore successful.
```

If
```
Restore successful
```
message is displayed go to Step 15

If
```
Restore unsuccessful
```
message is displayed go to Step 2

**15**    Invoke a system restart (SYSLOAD).

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply in the main cabinet to OFF then to ON.

If SYSLOAD was successful
—End—

If SYSLOAD was unsuccessful go to Step 1

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

# Archiving and removing databases

## Introduction

This section describes how to use the Archive feature to:

- archive a new customer database

- list the databases that are archived

- remove existing archived databases.

The database can be defined in an off-site lab environment and saved (archived) on a Software Delivery (PCMCIA) card until it is required. It can then be loaded in the customer's system using the Software Delivery card.

## How to use archive feature

The customer database must first be defined and loaded into the flash ROM on the NTMW01 Small System Controller (SSC) card before it can be archived on the Software Delivery card.

Methods used to define and load customer databases are described in the following sections:

### Summary of steps

The steps to archive a customer database are summarized in the following list. They consist of:

- Checking to make sure the correct Software Delivery card is installed.

- Selecting the Utilities function.

- Selecting Archive option.

### Using the archive feature

The following procedure describes how to use the archive feature to list, add and remove customer databases.

**Procedure 75**
**Using the archive feature**

1    If not previously done, install the Software Delivery card in the socket in the faceplate of the SSC Card.

*Note:* When adding a customer database to the archive, it must first be loaded in the SSC card of this system. Only a customer database that is already defined and loaded in the SSC card can be added to the archive. Make sure that the desired database is defined and loaded before attempting to archive it. However, archived databases can be listed and removed from the archive directly from the Software Delivery card without being loaded in the SSC card.

Methods used to define and load customer databases are described in the following sections:

"Software upgrade to a new release or issue" on page 305

Feature Set and ISM Parameters upgrade

To install the Software Delivery (PCMCIA) card:

- Insert the PCMCIA card in slot A in the PCMCIA socket in the faceplate of the NTMW01 SSC card. Gently press on the PCMCIA card until it is firmly seated.

2    Select the method of invoking the Software Installation Program.

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD).

—or—

- By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD).

If you wish to invoke the program using Overlay 143 go to <span style="color:red">Step 3</span>

If you wish to wish to invoke the program when prompted go to <span style="color:red">Step 4</span>

**3**      Invoke the Software Installation Program using Overlay 143.

*Note:* Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 4.

Login to the system by entering **LOGI<cr>** and entering the password in response to **PASS?**.

*Note:* The response to **PASS?** is unique to each system. The response shown below is an example.

Enter the following:

LD 143<cr>

UPGRADE<cr>

If
**SOFTWARE INSTALLATION PROGRAM**
message appears go to <span style="color:red">Step 5</span>

If
**SOFTWARE INSTALLATION PROGRAM**
message does not appear repeat Step 3 (this step) and make sure correct information is entered

**4**      Invoke the Software Installation Program when prompted.

*Note:* Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do Step 3 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply to OFF then to ON.

*Note:* When the **FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM** message appears a response must be entered within 5 seconds to invoke the Installer Setup Program.

During SYSLOAD, the following prompt will appear:

**FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM**

Press and hold '**control**' key and press '**I**'

**5**     Select Utilities from the Main Menu.

```
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:

```
3<cr>
```

**6**     Select item 2 from the Utilities Menu.

```
Utilities Menu:
1. Restore Backed Up database
2. Archive Database Utilities
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,
```

Enter Selection:

**2<cr>** (Archive Customer defined databases)

**7**      Select archive function.

```
Customer Database Archives:
1. List customer databases
2. Remove customer database
3. Archive a customer database

[q]uit, [p]revious, [m]ain, [h]elp or [?] <cr> -
redisplay
```

Enter Selection:

**1<cr>** (List Customer databases)
**2<cr>** (Remove Customer database)
**3<cr>** (Archive a Customer database)

If the response was **1** go to Step 8

If the response was **2** go to

If the response was **3** go to

**8**      Review list of archived databases.

```
1. Company.ABC
2. XYZ.Offices
3. Green.Packaging

Customer Database Archives:
1. List customer databases
2. Remove customer database
3. Archive a customer database

[q]uit, [p]revious, [m]ain, [h]elp or [?] <cr> -
redisplay
```

If a database is to be removed from the archive go to

If a database is to be added to the archive go to

If end of activity **q<cr>** — End—

**9**    Remove the desired customer database from the archive.

*Note:* Perform this step only when removing a customer database from the archive. To add a database to the archive, do Step 10.

```
1. Company.ABC
2. XYZ.Offices
3. Green.Packaging
```

```
q]uit, <cr>current menu, [m]ain, [p]revious menu,
```

(example)

Enter selection 3<cr>

```
Remove database Green.Packaging database?
```

**y<cr>** (yes)
**n<cr>** (no)

If a database is to be added to the archive **m<cr>** <u>Step 5</u>

If end of activity **q<cr>** — End—

**10**    Add the customer database to the archive.

*Note:* Perform this step only when adding a customer database to the archive.

(example)

Enter a Customer name for your customized data:

```
250SidneySt<cr>
```

```
Customer database 250SidneySt created.
```

```
Copying database from primary drive to 250SidneySt.
```

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

# Installing an archived database

## Introduction

This section describes how to install an archived Customer Database in a designated Meridian 1 Option 11C Compact using the Software Delivery (PCMCIA) card.

## How to install an archived database

### Summary of steps

The archived customer database installation steps are summarized in the following list. They consist of:

- Checking to make sure the Software Delivery card is installed.

- Selecting the Utilities menu.

- Selecting Install Archived database option.

- Loading the database.

### Installing the database

The following procedure describes how to install an archived database using Software Delivery card.

**Procedure 76**
**Customer Database Installation Procedure (Continued)**

**1**     If not previously done, install the Software Delivery card in the socket in the faceplate of the System Core Card.

To install the Software Delivery card:

- Insert the Software Delivery card in slot A of the PCMCIA socket located in the faceplate of the NTMW01 System Core card. Gently press on the Software Delivery card until it is firmly seated.

**2**    Select the method of invoking the Software Installation Program.

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD).

—or—

- By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD).

If you wish to invoke the program using Overlay 143 go to Step 4

If you wish to wish to invoke the program when prompted go to Step 6

**3**    Invoke the Software Installation Program using Overlay 143.

*Note:*  Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 6.

Login to the system by entering **LOGI<cr>** and entering the password in response to **PASS?**.

*Note:*  The response to **PASS?** is unique to each system.

Then enter the following:

LD 143<cr>

UPGRADE<cr>

If
**SOFTWARE INSTALLATION PROGRAM**
message appears go to Step 8

If
**SOFTWARE INSTALLATION PROGRAM**
message does not appear repeat Step 3 (this step) and make sure correct information is entered

**4**      Invoke the Software Installation Program when prompted.

*Note:* Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do 3 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply in the main cabinet to OFF then to ON.

*Note:* When the `FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM` message appears a response must be entered within 5 seconds to invoke the Installer Setup Program.

During SYSLOAD, the following prompt will appear:

`FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM`

Press and hold 'control' key and press 'I'

**5**      Select Utilities from the Main Menu.

```
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:
3<cr>

6    Select item 6 from the Utilities Menu.

```
Utilities Menu:
1. Restore Backed Up database
2. Archive Customer defined databases
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,
```

Enter Selection:
3<cr> (Install Archived database)

7    Select the Customer Database.

```
Customer Database Archives available:
1. Company.ABC
2. XYZ.Offices
3. Green.Packaging
[q]uit, [m]ain, [p]revious menu, <cr> - redisplay
```

(example)

Enter Selection:
**3<cr>** (Install Green.Packaging database)

8    Confirm database selection.

(example)

```
Green.Packaging database selected for restore?
```

**y<cr>** (yes)
**n<cr>** (no)

If response was **y** go to

If response was **n** go to Step 7

**9**      Restore the archived database.

```
Restoring Archived database to Primary drive...
Restore successful.
System Restart required to activate database.
```

If restore was successful —End—

If restore was not successful go to Step 5

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

# Reviewing and clearing upgrade information

## Introduction

This section describes how to use the Review Upgrade Information and Clear Upgrade Information options.

These options provide a means of reviewing the upgrade information that was entered and, if required, a means of clearing the upgrade information from the Software Installation Program.

## How to review and clear upgrade information

### Summary of steps

The steps to review and clear upgrade information are summarized in the following list. They consist of:

- Checking to make sure the Software Delivery (PCMCIA) card is installed.

- Selecting the Utilities menu.

- Selecting Review Upgrade Information option.

- Selecting Clear Upgrade Information option (if required).

### Reviewing and clearing upgrade information

The following procedure describes how to review and, if desired, clear the upgrade information.

**Procedure 77**
**Review and Clear Upgrade Information**

**1**   If not previously done, install the Software Delivery card in the socket in the faceplate of the NTMW01 Small System Controller (SSC) card.

*Note:* This Software Delivery card must be the same one that was used to upgrade this Option 11C Compact system. It must not have been used to upgrade a subsequent Option 11C Compact because the Security ID will no longer match and the "undo" function will fail.

To install the Software Delivery card:

• Insert the Software Delivery card in slot A in the PCMCIA socket located in the faceplate of the NTMW01 Small System Controller (SSC) card. Gently press on the Software Delivery card until it is firmly seated.

**2**   Select the method of invoking the Software Installation Program.

There are two methods of invoking the Software Installation Program:

• By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD).

—or—

• By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD).

If you wish to invoke the program using Overlay 143 go to

If you wish to invoke the program when prompted go to

**3**     Invoke the Software Installation Program using Overlay 143.

*Note:* Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 4.

Login to the system by entering **LOGI<cr>** then enter the password in response to `PASS?`.

*Note:* The response to `PASS?` is unique to each system.

Then enter the following:

LD 143<cr>

UPGRADE<cr>

If
`SOFTWARE INSTALLATION PROGRAM`
message appears go to Step 5

If
`SOFTWARE INSTALLATION PROGRAM`
message does not appear repeat Step 3 (this step) and make sure correct information is entered

**4**     Invoke the Software Installation Program when prompted.

*Note:* Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do Step 3 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply in the main cabinet to OFF then to ON.

*Note:* When the FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM message appears a response must be entered within 5 seconds to invoke the Installer Setup Program.

During SYSLOAD, the following prompt will appear:

`FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM`

Press and hold 'control' key and press 'I'

**5**   Select Utilities from the Main Menu.

```
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:
3<cr>

**6**   Select the Review or Clear option from the Utilities Menu.

```
Utilities Menu:
1. Restore Backed Up database
2. Archive Customer defined databases
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,
```

Enter Selection:

**4<cr>** (Review Upgrade Information)
**5<cr>** (Clear Upgrade Information)

If response was **4<cr>** go to

If response was **5<cr>** go to

**7**    Review summary of upgrade information.

```
Software Upgrade Summary:

Security ID:      12345678
Aux ID    :       12345678
Database  :       Retain current
                  NEW
S/W Release:      0100
ISM Parameters    NEW
   TSN   :        064
   AGNT  :        0128
   ACDN  :        0100
   AST   :        0000
   DSL   :        0100
   LTID  :        0000
   MOPT  :        0000
```

**Return to **

**8**    Review and clear or retain upgrade information.

```
Software Upgrade Summary:

Security ID:      12345678
Aux ID    :       12345678
Database  :       Retain current
                  NEW
S/W Release:      0100
ISM Parameters    NEW
   TSN   :        064
   AGNT  :        0128
   ACDN  :        0100
   AST   :        0000
   DSL   :        0100
   LTID  :        0000
   MOPT  :        0000

Do you wish to clear the Upgrade information?
```

**y<cr>** (yes)
**n<cr>** (no)
**a<cr>** (abort, return to main menu)

If response was **y** —End—
———————————— *End of Procedure* ————————————

# Using the flash boot ROM utility

## Introduction

This section describes how to use the Flash Boot ROM utility to:

- display a list showing the status and version of the Flash Boot ROMs installed in the system and on the Software Delivery (PCMCIA) card (if it is present)

- upgrade the Flash Boot ROM (the Flash Boot ROM is not automatically upgraded when the software is upgraded)

- restore a Flash Boot ROM

## How to use the flash boot ROM utility

### Summary of steps

The steps to follow to perform the Flash Boot ROM functions are summarized in the following list. They consist of:

- Checking to make sure the Software Delivery (PCMCIA) card is installed, if one is provided.

- Invoking the Software Installation program.

- Selecting the Utilities function.

- Selecting Flash Boot ROM utility.

- Selecting the desired Flash Boot ROM option.

- Invoking the selected Flash Boot ROM function

### Using the Flash Boot ROM Utility

The following procedure describes how to use the Flash Boot ROM utility.

**Procedure 78**
**Using Flash Boot ROM Utility**

**1**    If not previously done, install the Software Delivery (PCMCIA) card in the socket in the faceplate of the System Core Card.

To install the Software Delivery card:

- Insert the Software Delivery card in slot A of the PCMCIA socket located in the faceplate of the NTMW01 System Core card. Gently press on the Software Delivery card until it is firmly seated.

**2**    Select the method of invoking the Software Installation Program.

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD).

—or—

- By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD).

If you wish to invoke the program using Overlay 143 go to

If you wish to invoke the program when prompted go to

**3**    Invoke the Software Installation Program using Overlay 143.

*Note:* Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 4.

Login to the system by entering **LOGI\<cr>** then enter the password in response to **PASS?**.

*Note:* The response to **PASS?** is unique to each system.

Then enter:

LD 143\<cr>

UPGRADE\<cr>

If
**SOFTWARE INSTALLATION PROGRAM**
message appears go to <span style="color:red">Step 5</span>

If
**SOFTWARE INSTALLATION PROGRAM**
message does not appear repeat Step 3 (this step) and make sure correct information is entered

**4**    Invoke the Software Installation Program when prompted.

*Note:* Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do Step 3 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply in the main cabinet to OFF then to ON.

*Note:* When the **FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM** message appears a response must be entered within 5 seconds to invoke the Installer Setup Program.

During SYSLOAD, the following prompt will appear:

**FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM**

Press and hold 'control' key and press 'I'

**5**   Select Utilities from the Main Menu.

```
SOFTWARE INSTALLATION PROGRAM
********************************
Verify Security ID: 12345678
********************************


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:
3<cr>

**6**   Select item 7 from the Utilities Menu.

```
Utilities Menu:
1. Restore Backed Up database
2. Archive Customer defined databases
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,
```

Enter Selection:
7<cr>

**7**      Select an option from the Flash Boot ROM Utilities menu.

```
Flash Boot ROM Utilities Menu:
1. List Flash Boot ROM
2. Upgrade Flash Boot ROM
3. Restore Flash Boot ROM

[q]uit, <cr>current menu, [m]ain, [p]revious menu,
```

Enter Selection:

**1<cr>**(List Flash)
**2<cr>**(Upgrade Flash Boot ROM)
**3<cr>**(Restore Flash Boot ROM)

If response was **1<cr>** go to Step 8

If response was **2<cr>** go to

If response was **3<cr>** go to

**8**      Review the Flash Boot ROM summary.

The following information is displayed when the 'List Flash Boot ROM' utility is selected in Step 7.

- the version of the active Flash Boot ROM
- the version of the backup Flash Boot ROM (if it exists)
- the version of the Flash Boot ROM residing on the Software Delivery (PCMCIA) card (if it exists)

The following are four examples of what might be displayed on the screen.

*Note:*  The NTDK34 product code used for the Flash Boot ROM in the following examples is for illustration purposes only. The actual code may be different.

### Example 1

The Software Delivery Card (PCMCIA) contains a new version of the Flash Boot ROM. There is also an older backed-up version of the Flash Boot ROM.

```
Flash Boot ROM Summary:
Active -- NTDK34AA REL 09 (the version which is active)
Backup -- NTDK34AA REL 01 (the previous active version)
Software Delivery Card -- NTDK34AA REL 10 a.ab06 (a
```
newer version)

(Return to Step 7)

### Example 2

The Software Delivery Card (PCMCIA) is not installed.

```
Flash Boot ROM Summary:
Active -- NTDK34AA REL 09  (the version which is active)
Backup -- NTDK34AA REL 01 (the previous active version)
Software Delivery Card -- card not installed (Software
```
Delivery not installed)

(Return to Step 7)

### Example 3

There is no Flash Boot ROM on the Software Delivery Card (PCMCIA).

```
Flash Boot ROM Summary:
Active -- NTDK34AA REL 09  (the version which is active)
Backup -- NTDK34AA REL 01 (the previous active version)
Software Delivery Card -- no Flash Boot ROM on card
```
(no Flash Boot ROM on Software Delivery card)

(Return to Step 7)

### Example 4

The Software Delivery Card (PCMCIA) has the same version as the current active Flash Boot ROM.

```
Flash Boot ROM Summary:
Active -- NTDK34AA REL 10 (the version which is active)
Backup -- NTDK34AA REL 02 (the previous active version)
Software Delivery Card -- NTDK34AA REL 10 a.ab06
```
(same version as on Software Delivery)

(Return to Step 7)

**9**      Perform or terminate Flash Boot ROM upgrade.

`Upgrading Active Boot ROM to NTDK34AA REL 03`

`System Restart required to activate Flash Boot ROM upgrade.`

`*** WARNING *** A system restart will be invoked as part of the Flash Boot ROM Upgrade.`

`Are you sure you wish to perform the Flash Boot Upgrade?`

**n<cr>** (no)
**y<cr>** (yes)

If response was **y<cr>** — End —

If response was **n<cr>** go to

**10**     Perform or terminate Flash Boot ROM restore.

`Restoring Flash Boot ROM to NTDK34AA REL 01`

`System Restart required to activate restored Flash Boot ROM.`

`*** WARNING *** A system restart will be invoked as part of the Flash Boot ROM Restore.`

`Are you sure you wish to perform the Flash Boot Restore?`

**n<cr>** (no)
**y<cr>** (yes)

If response was **y<cr>** go to — End —

If response was **n<cr>** go to

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

# Installation summary

## Introduction

This section describes how to obtain an installation summary using the Utilities menu.

## How to use the Installation Summary utility

### Summary of steps

The steps to follow to obtain an installation summary are summarized in the following list. They consist of:

- Selecting the Utilities function.

- Selecting Current Installation Summary utility.

### Using the Installation Summary Utility

The following procedure describes how to use the Current Installation Summary utility.

**Procedure 79**
**Using Current Installation Summary Utility**

**1**    Invoke the Software Installation Program using Overlay 143.

Login to the system by entering **LOGI<cr>** then the password in response to **PASS?**.

***Note:*** The response to **PASS?** is unique to each system.

Once logged in, enter:
LD 143<cr>
UPGRADE<cr>

If
**SOFTWARE INSTALLATION PROGRAM**
message appears go to

If
**SOFTWARE INSTALLATION PROGRAM**
message does not appear repeat Step 1 (this step) and make sure correct information is entered

**2**    Select Utilities from the Main Menu.

```
SOFTWARE INSTALLATION PROGRAM
********************************
Verify Security ID: 12345678
********************************


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:

3<cr>

**3**    Select item 7 from the Utilities Menu.

```
Utilities Menu:
1. Restore Backed Up database
2. Archive Customer defined databases
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,
```

Enter Selection:
8<cr>

**4**    Review the Installation summary.

The following is an example of what might be displayed on the screen.

```
Security ID     :  20000132
Aux ID          :  20000132
Feature Set     :  Inter-Office Communications
Additional Pkgs :  none
Database        :  Inter-Office Communications
                   OLD        NEW
S/W Release     :  0100       0100
ISM Parameters     OLD        NEW
        TSN     :  0048       0064
        AGNT    :  0128       0128
        ACDN    :  0          0
        AST     :  0          0
        DSL     :  0          0
        LTID    :  0          0
        MOPT    :  0          0
Press Enter to Continue.
```

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

# Chapter 23 – Pre-programmed data

## Introduction

When a Meridian 1 Option 11C Compact system is initially installed, customer data must be entered into the system software. Telephones, for example, must be assigned features on their keys to allow them to function properly.

However, the Software Daughterboard can be pre-programmed with the customer data. If pre-programmed data is loaded into the system during the Installation programs, some overlay entries will be 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 numerous types of telephone models must be assigned.

Pre-programmed data is not mandatory for software installation. In fact, the Software Daughterboard can be programmed with the minimum number of files to allow the system to operate.

# Passwords and codes

Table 1 lists the various passwords and codes that are used when working with pre-programmed data.

**Table 1**
**Passwords and codes**

| Function | Code or extension(s) |
|---|---|
| TTY password<br>(For access to TTY Option 11C Compact overlays) | 0000 |
| Meridian Mail administration password | adminpwd |
| Administration telephone FFC | *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 Compact 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 in the system. Any secondary extension numbers use numbers outside this range. This arrangement allows the system 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 cabinet.

- The Central Answering Position has an extension of 7700. This extension can be changed in LD 15.

## First digits

Table 2 shows the default numbering plan for the first digit.

**Table 2**
**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 in configuring the system. 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 system.

## Key Directory Numbers numbers

Table 3 lists the key Directory Numbers (DN) and their function that are assigned by the default numbering plan.

**Table 3**
**Default numbering plan—key DNs**

| DN | Function |
|---|---|
| 0 | Attendant extension |
| 2200 | First number in numbering plan |
| 7700 (Note) | Night number |
| 7700 (Note) | Queue for Central Answering Position |
| 7750 (Note) | General ACD queue |
| 7000-7009 | Meridian Mail miscellaneous ACD queues: |
| 7000<br>7001<br>7002<br>7003<br>7004-7009 | Meridian Mail extension<br>Auto attendant extension<br>Express messaging<br>Prompt maintenance<br>Miscellaneous queues |
| 7800-7811 | Meridian Mail position I.D. |
| 7830-7841 | Meridian Mail agent extensions |
| 7900-7919 | Call park extensions |

*Note:*  The thresholds which control the agent AWC keys have been set as follows:
CWTH 1, CWLF 2, CWLW 4

## Directory Numbers (DN) assigned to card slots

Tables 4 and 5 show the relationship between slots, cards and DNs.

**Table 4**
**Main cabinet**

| Slot Number | Card Number | Card Type | Available DNs |
|---|---|---|---|
| 1 & 2 | 1 | NTMW05 | 2200 through 2223 |
| | | NTMW06 | 2200 through 2215 |
| | | NTMW07 | Trunk |
| | 2 | NTMW07 Note | 2224 through 2227 |
| 3 & 4 | 3 | NTMW05 | 2248 through 2271 |
| | | NTMW06 | 2248 through 2263 |
| | | NTMW07 | Trunk |
| | 4 | NTMW07 Note | 2272 through 2275 |
| 5 & 6 | 5 | NTMW05 | 2296 through 2319 |
| | | NTMW06 | 2296 through 2311 |
| | | NTMW07 | Trunk |
| | 6 | NTMW07 Note | 2320 through 2323 |
| 7 | 7 | NTMW05 | 2344 through 2367 |
| | | NTMW06 | 2344 through 2359 |
| 8 | 8 | NTMW05 | 2368 through 2391 |
| | | NTMW06 | 2368 through 2383 |
| 9 | 9 | NTMW05 | 2392 through 2415 |
| | | NTMW06 | 2392 through 2407 |
| 10 | 10 | Voice Mail | 2416 through 2439 (these DNs are not available) |

*Note:* Card Numbers 2, 4 and 6 can only be used for analog line assignments.

**Table 5**
**Six-slot expansion cabinet**

| Slot Number | Card Number | Card Type | Available DNs |
|---|---|---|---|
| 11 & 12 | 11 | NTMW05 | 2440 through 2463 |
| | | NTMW06 | 2440 through 2455 |
| | | NTMW07 | Trunk |
| | 12 | NTMW07 Note | 2464 through 2467 |
| 13 & 14 | 13 | NTMW05 | 2488 through 2511 |
| | | NTMW06 | 2488 through 2503 |
| | | NTMW07 | Trunk |
| | 14 | NTMW07 Note | 2512 through 2215 |
| 15 & 16 | 15 | NTMW05 | 2536 through 2559 |
| | | NTMW06 | 2536 through 2551 |
| | | NTMW07 | Trunk |
| | 16 | NTMW07 Note | 2560 through 2563 |
| 17 | 17 | NTMW05 | 2584 through 2607 |
| | | NTMW06 | 2584 through 2599 |
| 18 | 18 | NTMW05 | 2608 through 2631 |
| | | NTMW06 | 2608 through 2623 |
| 19 | 19 | NTMW05 | 2632 through 2655 |
| | | NTMW06 | 2632 through 2647 |
| 20 | — | | 2656 through 2679 (These DNs are not available) |

*Note:* Card Numbers 12, 14 and 16 can only be used for analog line assignments.

**Table 6**
**Ten-slot expansion cabinet 1**

| Slot Number | Card Number | Card Type | Available DNs |
|---|---|---|---|
| 11 & 12 | 11 | NTMW05 | 2440 through 2463 |
| | | NTMW06 | 2440 through 2455 |
| | | NTMW44 | Trunk |
| | 12 | NTMW05 | 2464 through 2487 |
| | | NTMW06 | 2464 through 2479 |
| | | NTMW44 | Trunk |
| 13 & 14 | 13 | NTMW05 | 2488 through 2511 |
| | | NTMW06 | 2488 through 2503 |
| | | NTMW44 | Trunk |
| | 14 | NTMW05 | 2512 through 2535 |
| | | NTMW06 | 2512 through 2527 |
| | | NTMW44 | Trunk |
| 15 & 16 | 15 | NTMW05 | 2536 through 2559 |
| | | NTMW06 | 2536 through 2551 |
| | | NTMW44 | Trunk |
| | 16 | NTMW05 | 2560 through 2583 |
| | | NTMW06 | 2560 through 2575 |
| | | NTMW44 | Trunk |
| 17 & 18 | 17 | NTMW05 | 2584 through 2607 |
| | | NTMW06 | 2584 through 2599 |
| | | NTMW44 | Trunk |
| | 18 | NTMW05 | 2608 through 2631 |
| | | NTMW06 | 2608 through 2623 |
| | | NTMW44 | Trunk |
| 19 & 20 | 19 | NTMW05 | 2632 through 2655 |
| | | NTMW06 | 2632 through 2647 |
| | | NTMW44 | Trunk |
| | 20 | NTMW05 | 2656 through 2679 |
| | | NTMW06 | 2656 through 2671 |
| | | NTMW44 | Trunk |

**Table 7**
**Ten-slot expansion cabinet 2**

| Slot Number | Card Number | Card Type | Available DNs |
|---|---|---|---|
| 21 & 22 | 21 | NTMW05 | 2680 through 2703 |
| | | NTMW06 | 2680 through 2695 |
| | | NTMW44 | Trunk |
| | 22 | NTMW05 | 2704 through 2727 |
| | | NTMW06 | 2704 through 2719 |
| | | NTMW44 | Trunk |
| 23 & 24 | 23 | NTMW05 | 2728 through 2751 |
| | | NTMW06 | 2728 through 2743 |
| | | NTMW44 | Trunk |
| | 24 | NTMW05 | 2752 through 2775 |
| | | NTMW06 | 2752 through 2767 |
| | | NTMW44 | Trunk |
| 25 & 26 | 25 | NTMW05 | 2776 through 2799 |
| | | NTMW06 | 2776 through 2791 |
| | | NTMW44 | Trunk |
| | 26 | NTMW05 | 2800 through 2823 |
| | | NTMW06 | 2800 through 2815 |
| | | NTMW44 | Trunk |
| 27 & 28 | 27 | NTMW05 | 2824 through 2847 |
| | | NTMW06 | 2824 through 2839 |
| | | NTMW44 | Trunk |
| | 28 | NTMW05 | 2848 through 2871 |
| | | NTMW06 | 2848 through 2863 |
| | | NTMW44 | Trunk |
| 29 & 30 | 29 | NTMW05 | 2872 through 2895 |
| | | NTMW06 | 2872 through 2887 |
| | | NTMW44 | Trunk |
| | 30 | NTMW05 | 2896 through 2919 |
| | | NTMW06 | 2896 through 2911 |
| | | NTMW44 | Trunk |

# Flexible Feature Codes

Flexible Feature Code (FFC) is used in many administrative procedures. Table 8 lists the FFC prompts, their definition and code.

**Table 8**
**Flexible Feature Codes**

| FFC Prompt | Definition | FFC Code |
|:---:|:---|:---:|
| ASRC | Automatic Set Relocation | *40 |
| AREM | Automatic Set Removal Code | *42 |
| ADMN | Administration Set Access Code | *41 |
| AWUA | Automatic Wake-up Activate | *84 |
| AWUD | Automatic Wake-up Deactivate | *83 |
| AWUV | Automatic Wake-up Verify | *82 |
| CFWA | Call Forward All Calls Activate | #1 |
| CFWD | Call Forward All Calls Deactivate | #1 |
| C6DS | 6 Party Conference Code | *70 |
| HOLD | Permanent Call Hold | #4 |
| MNTC | Maintenance Access Code | *43 |
| PUGR | Pick-up Group Code | *71 |
| RDLN | Last Number Re-dial | *72 |
| RDST | Store Last Number Re-dial | *73 |
| RGAA | Ring Again Activate | *74 |
| RGAD | Ring Again Deactivate | *75 |
| RGAV | Ring Again Verify | *77 |
| RMST | Room Status Update | *86 |
| SPCC | Speed Call Controller Code | #2/*80 |
| SPCU | Speed Call User Code | #3/*81 |
| SSPU | System Speed Call User Code | *89 |

*Note:* Flexible Feature Codes AWUA, AWUD, AWUV, and RMST are defined only for Hospitality package sets' preprogrammed data.

# SDI ports

The minimum system port configuration is three SDI ports, all of which are on the NTMW01 SSC card.

An additional SDI port is located on the Fiber Receiver card on systems equipped with an expansion cabinet.

The default SDI port configuration is shown in Table 9. The value for "XX" is set on the faceplate of the SSC card.

**Table 9**
**Pre-configured SDI ports**

| TTY Number | Card | Port | Use | Configuration |
|:---:|:---:|:---:|:---:|:---|
| 0 | 0 | 0 | MTC/SCH/BUG | XX/8/1/NONE |
| 1 | 0 | 1 | MTC/SCH/BUG | 1200/8/1/NONE |
| 2 | 0 | 2 | MTC/SCH/BUG | 1200/8/1/NONE |

### Administration and maintenance terminal port

Ports 1 and 2 are pre-configured as maintenance ports.

### 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) and is programmed for Maintenance (MTC), Service Change (SCH), and BUG messages.

**Table 10**
**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— Similar to a busy tone, except faster and higher.

- Relocation tone — A short high-pitched beep lasting for 4 seconds, followed by silence.

# Trunks

## Trunk routes

Table 11 shows pre-programmed trunk route information that you need on hand to activate and modify trunks.

**Table 11**
**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 | — | 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 to support Call Detail Recording (CDR) output. The CDR is pre-configured as follows:
CDR YES, INC YES, OAL YES, AIA YES

## Trunk models

Table 12 lists trunk characteristics according to trunk type and model number.

*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 12**
**Trunk model information**

| Trunk Type | Model Number | Signaling Mode | DIP or DTN | BIMP and TIMP |
|---|---|---|---|---|
| COT | 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 | 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 |

**— Continued —**

**Table 12**
**Trunk model information**

| Trunk Type | Model Number | Signaling Mode | DIP or DTN | BIMP and TIMP |
|---|---|---|---|---|
| | 8 | LDR | DTN | 3COM/900 |
| | 16 | EAM | DIP | - /600 |
| | 17 | EM4 | DIP | - |
| | 18 | EAM | DTN | - |
| | 19 | EM4 | DIP | - /600 |
| DID | 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 | (Wink Start Supv =Yes) | P | 3COM/600 |
| | 6 | LDR (Wink Start Supv =Yes) | DTN | 3COM/600 |
| | 7 | LDR (Wink Start Supv =Yes) | DIP | 3COM/900 |

**— Continued —**

**Table 12**
**Trunk model information**

| Trunk Type | Model Number | Signaling Mode | DIP or DTN | BIMP and TIMP |
|---|---|---|---|---|
| | 8 | LDR (Wink Start Supv =Yes) | DTN | 3COM/900 |
| WAT | 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 |
| MUS | 1 | | | 3COM/600 |
| RAN | 1 | | | 600/1200 |
| PAG | 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 |

**— Continued —**

**Table 12**
**Trunk model information**

| Trunk Type | Model Number | Signaling Mode | DIP or DTN | BIMP and TIMP |
|---|---|---|---|---|
| | 8 | OAD | DTN | 3COM/900 |
| | 16 | EAM | DIP | - /600 |
| | 17 | EM4 | DIP | - |
| | 18 | EAM | DTN | - /600 |
| | 19 | EM4 | DTN | - /600 |
| FEX | 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 |

— Continued —

# Telephones

## Telephone Models

Telephone Models are organized into the following groups according to their anticipated function:

### Administration telephones
### *M2008*

### *M2616*

### CAP telephones
### *M2616*

### *M2216*

### General Business telephones
### *Analog (500/2500 type) telephones*

### M2006

### M2008

### M2616

### M2216

In this chapter, model numbers for each telephone type are provided, followed by tables that show the key number and position on the telephone as well as the feature assigned to each key.

Tables 13, 14 and 15 show the acronyms for Class of Service options that appear for each model.

**Table 13**
**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 14**
**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 15**
**Class of Service Options - ACD telephones**

| Prompt | Meaning |
|---|---|
| UNR | Unrestricted |
| ADD | Digit Display |
| AO | Observation of Supervisor Allowed |
| FBA | Call Forward Busy Allowed |
| FNA | Call Forward No Answer Allowed |
| AGT | Agent |
| CNDA | Call Party Name Display Allowed |
| PDN | Prime DN used for CLID |
| CNIA | Call Number Information Allowed |
| ENG | English Language for Display |
| DNDA | Dialed Name Display Allow |

## Administration telephones

### M2008 telephone

The following is a description of each model that can be assigned to M2008 telephones.

### *M2008 model 99*

- Intended use:

    — Administration (maintenance) telephone

- Assigned Class of Service options:

    — MTA/ADD/LNA/FNA/GPUA/MWA/FBD

- Key assignments

    — See Table 16

**Table 16**
**M2008 model 99 key assignments**

| Key Number and Position | Feature |
|:---:|:---|
| 7 | (blank) |
| 6 | Message |
| 5 | Transfer |
| 4 | Speed Call (personnel: 99) |
| 3 | Forward |
| 2 | Conference |
| 1 | DN |
| 0 | DN |

## M2616 telephone

The following is a description of each model that can be assigned to M2616 telephones.

### *M2616 model 99*

- Intended use:

  — Administration (maintenance) telephone

- Assigned Class of Service options:

  — MTA/LNA/FNA/GPUA/MWA/ADD//HFA/FBD

- Key assignments

  — See Table 17

**Table 17**
**M2616 model 99 key assignments**

| Feature | Key Number and Position | | Feature |
|---|---|---|---|
| (blank) | 15 | 7 | (blank) |
| 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) telephones

The following is a description of each model that can be assigned to M2616 and M2216 telephones.

### M2616 and M2216 CAP telephone model 60

- Intended use:

  — Central Answering Position telephone

- Assigned Class of Service options:

  — LNA/FND/GPUA/MWA/ADD/HFD/AGN/FBD/SPV

- Key assignments

  — See Table 18

**Table 18**
**M2616 and M2216 key assignments**

| Feature | Key Number and Position | | Feature |
|---------|:---:|:---:|---------|
| Hot * | 15 | 7 | (blank) |
| 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:* An ACD character display is required with the M2616 CAP. 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.

### M2616 and M2216 CAP telephone model 61

- Intended use:

    — General Business Multi-line Central Answering Position telephone

- Assigned Class of Service options:

    — ADD/CNDA/HTA/IRA/NIA/OLA/FITA/ARHA/POA/LND

- Key assignments

    — See Table 19

**Table 19**
**M2616 and M2216 model 61 key assignments**

| Feature | Key Number and Position | | Feature |
|---------|------|------|---------|
| Call Forward | 15 | 7 | Program |
| Ringing Number Pick-up | 14 | 6 | Message Waiting |
| Auto Dial | 13 | 5 | Auto Dial |
| Auto Dial | 12 | 4 | Auto Dial |
| Park | 11 | 3 | DN |
| Display | 10 | 2 | DN |
| Conference | 9 | 1 | DN |
| Transfer | 8 | 0 | DN |

### M2616 CAP telephone model 62

- Intended use:

    — Hospitality Multi-line Central Answering Position telephone

- Assigned Class of Service options:

    — ADD/CNDA/HTA/IRA/NIA/OLA/FITA/ARHA/POA/LND

- Key assignments

    — See

**Table 20**
**M2616 model 62 key assignments**

| Feature | Key Number and Position | | Feature |
|---|---|---|---|
| Call Forward | 15 | 7 | Program |
| Ringing Number Pick-up | 14 | 6 | Message Waiting |
| Wake-up | 13 | 5 | Auto Dial |
| Class of Service | 12 | 4 | Auto Dial |
| Room Status | 11 | 3 | DN |
| Display | 10 | 2 | DN |
| Conference | 9 | 1 | DN |
| Transfer | 8 | 0 | DN |

## General business telephones

### 500- and 2500-type telephones

The following is a description of each model that can be assigned to 500-
(rotary dial) and 2500- (dial pad) type telephones.

> *Note:* When activating a 500-type telephone, a 2500-type telephone is
> required to define the features. Once the features are defined, unplug the
> 2500-type telephone and replace it with the 500-type telephone.

### 500- and 2500-type telephones model 21

- Type of telephone:
    - Support staff telephone toll allowed
- 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, toll denied
- Intended use:
    - Business telephone
- Assigned Class of Service options:
    - MWA/TLD/C6A/CFXD/DTN/FNA/GPU/LNA/XFA/XRA/FBD/
      LPA

### 500- and 2500-type telephones model 23

- Type of telephone:
    - Support staff telephone with message indication lamp, toll allowed
- Intended use:
    - Business telephone
- Assigned Class of Service options:

— MWA/UNR/C6A/CFXD/DTN/FNA/GPU/LNA/XFA/XRA/FBD/
  LPA

### *500- and 2500-type telephones model 26*

- Type of telephone:

  — Courtesy telephone

- Intended use:

  — House telephone

- Assigned Class of Service options:

  — MNL/TLD

### M2006 telephone models

The following is a description of each model that can be assigned to M2006
telephones.

### *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 assignments

  — See <span style="color:red">Table 21</span>

**Table 21**
**M2006 model 22 key assignments**

| Key Number and Position | Feature |
|:---:|:---|
| 5 | Message |
| 4 | Speed Call |
| 3 | Pick-Up |
| 2 | Forward |
| 1 | Conference |
| 0 | DN |

### M2006 model 25

- Intended use:

  — General business telephone with message indication and speed call, toll denied

- Assigned Class of Service options:

  — FNA/GPUA/LNA/MWA/FBD/TLD

- Key assignments

  — See Table 22

**Table 22**
**M2006 model 25 key assignments**

| Key Number and Position | Feature |
|:---:|:---|
| 5 | Message |
| 4 | Speed Call |
| 3 | Pick-Up |
| 2 | Forward |
| 1 | Conference |
| 0 | DN |

### M2008 telephone models

The following is a description of each model that can be assigned to M2008 telephones.

#### *M2008 model 21*

• Intended use:

— General business telephone with message indication

• Assigned Class of Service options:

— FNA/GPUA/LNA/MWA/NDD/FBD

• Key assignments

— See Table 23

**Table 23**
**M2008 model 21 key assignments**

| Key Number and Position | Feature |
|:---:|:---|
| 7 | Auto Dial |
| 6 | Message |
| 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 assignments

— See

**Table 24**
**M2008 model 23 key assignments**

| Key Number and Position | Feature |
|:-----------------------:|---------|
| 7 | Program |
| 6 | Message |
| 5 | Transfer |
| 4 | Ring Again |
| 3 | Pick-Up |
| 2 | Forward |
| 1 | Conference |
| 0 | DN |

### *M2008 model 27*

- Intended use:

    — Two-line general business telephone with message indication and display

- Assigned Class of Service options:

    — FNA/GPUA/LNA/MWA/ADD/FBD

- Key assignments

    — See Table 25

**Table 25**
**M2008 model 27 key assignments**

| Key Number and Position | Feature |
| --- | --- |
| 7 | Program |
| 6 | Message |
| 5 | Transfer |
| 4 | Pick-Up |
| 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 assignments

    — See <span style="color:red">Table 26</span>

**Table 26**
**M2008 model 33 key assignments**

| Key Number and Position | Feature |
|:-----------------------:|---------|
| 7 | Program |
| 6 | Message |
| 5 | Voice Call |
| 4 | Speed Call (personnel: 20) |
| 3 | Forward |
| 2 | Conference |
| 1 | DN |
| 0 | DN |

### M2616 telephone models

The following is a description of each model that can be assigned to M2616 telephones.

#### *M2616 model 21*

- Intended use:

    — Secretary telephone with display and message indication

- Assigned Class of Service options:

    — LNA/FNA/GPUA/MWA/ADD/HFD/FBD

- Key assignments

    — See

**Table 27**
**M2616 model 21 key assignments**

| Feature | Key Number and Position | | Feature |
|---------|:---:|:---:|---------|
| Auto Dial | 15 | 7 | Program |
| 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 25*

- Intended use:

    — Advanced business telephone with message indication and display

- Assigned Class of Service options:

    — LNA/FNA/GPUA/MWA/ADD/HFA/FBD

- Key assignments

    — See Table 28

**Table 28**
**M2616 model 25 key layout**

| Feature | Key Number and Position | | Feature |
|---|---|---|---|
| Handsfree | 15 | 7 | Program |
| 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 33*

- Intended use:

    — Manager telephone with message indication and display

- Assigned Class of Service options:

    — LNA/FNA/GPUA/MWA/ADD/HFA/FBD

- Key assignments

    — See

**Table 29**
**M2616 model 33 key assignments**

| Feature | Key Number and Position | | Feature |
|---|---|---|---|
| Handsfree | 15 | 7 | Program |
| 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 |

### M2216 telephone models

The following is a description of each model that can be assigned to M2216 telephones.

#### *M2216 model 20*

- Intended use:

**1**    ACD agent with display

- Assigned Class of Service options:

    — LNA/FND/GPUA/MWA/ADD/AGN/FBD

- Key assignments

    — See Table 30

**Table 30**
**M2216 model 20 key assignments**

| Feature | Key Number and Position | | Feature |
|---|---|---|---|
| Auto Dial | 15 | 7 | Program |
| 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/SPV/FBD

- Key assignments

— See

**Table 31**
**M2216 model 30 key assignments**

| Feature | Key Number and Position | | Feature |
|---------|------|------|---------|
| Auto Dial | 15 | 7 | Program |
| 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) |

# Chapter 24 – Changing pre-programmed data

## Introduction

The pre-programmed data on the Meridian 1 Option 11C Compact system provides an effective starting point for programming the system's telephone and trunking information.

This chapter describes how to change the default numbering plan. It may be necessary to 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

In addition to making changes to the default numbering plan, this section provides information about modifying telephone model and trunk programming stored in Option 11C Compact pre-programmed data.

# Changing the default numbering plan

## Extensions assigned differ from the default numbering plan

Compare the first digits assigned to this system with the default numbering plan as shown in the Table 2, "Default numbering plan—First digit," on page 365 of Chapter 23 – Pre-programmed data.

- 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 the section of this Chapter called "Changing the first number in the numbering plan" on page 402.

- If the first digit is being used by Meridian Mail, trunk routes, or other data, follow the instructions in the section called "Removing numbering plan interferences" on page 423.

## Changing the first number in the numbering plan

Follow the instructions in Procedure 80 to change the first number of the numbering plan.

**Procedure 80**
**Changing the first number**

**1**    Lift the handset of the administration telephone.

**2**    Enter the administration Flexible Feature Code. (See "Passwords and codes" on page 364.)

**3**    Enter the administration telephone password. (See "Passwords and codes" on page 364.)

Special dial tone is heard and the prompt
"TASK?"
appears on the top line of the character display.

**4**    Press the asterisk (*) three times.

The second line of the character display reads
"4 INSTALLATION OPTIONS'".

**5**    Select "4 INSTALLATION OPTIONS" by entering the number "4".

The character display reads
1 DEFAULT SETS
2 NUMBERING PLAN

**6**    Select "2 NUMBERING PLAN" by entering the number "2".

The character display reads
FIRST NUMBER (XXXX)?

**7**    To create a new first number, enter the digits of the new first number and press the pound key.

The number entered as the first number in the numbering plan is assigned to slot number one, unit zero of the main cabinet. The default numbers assigned to the remaining card and unit combinations are consecutive in the Option 11C Compact system assuming that each slot consists of up to 24 units.

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

## Changing the assignment of the first DN

The first directory number (DN) in the default numbering plan is DN 2200 and is assigned to card 1, unit 0 (TN). Table 36 and Table 37 show the default DN to card and unit assignments in the main and expansion cabinets.

The DN to TN assignment can be moved forward in increments of 24 by changing the First DN assignment as follows:

- To assign DN 2200 to card 1 unit 0, define the First DN as 2200 (default). The resulting DN to TN assignments are shown in Tables 36 and 37.

- To assign DN 2200 to card 2 unit 0, define the First DN as 2176. The resulting DN to TN assignments are shown in Tables 38 and 39.

- To assign DN 2200 to card 3 unit 0, define the First DN as 2152. The resulting DN to TN assignments are shown in Tables 40 and 41.

- To assign DN 2200 to card 4 unit 0, define the First DN as 2128. The resulting DN to TN assignments are shown in Tables 42 and 43.

- To assign DN 2200 to card 5 unit 0, define the First DN as 2104. The resulting DN to TN assignments are shown in Tables 44 and 45.

- To assign DN 2200 to card 6 unit 0, define the First DN as 2080. The resulting DN to TN assignments are shown in Tables 46 and 47.

- To assign DN 2200 to card 7 unit 0, define the First DN as 2056. The resulting DN to TN assignments are shown in Tables 48 and 49.

- To assign DN 2200 to card 8 unit 0, define the First DN as 2032. The resulting DN to TN assignments are shown in Tables 50 and 51.

- To assign DN 2200 to card 9 unit 0, define the First DN as 2008. The resulting DN to TN assignments are shown in Tables 52 and 53.

Procedure 81 describes how to change assignment of the first number in the numbering plan to card slot.

**Procedure 81**
**Changing DN card assignment**

**1**    Refer to Tables 36 through Tables 53 and determine the First DN assignment.

Example:

To assign DN 2200 to card 5 unit 0, refer to Table 44 and determine the First DN assignment (2104 in this example).

**2**    Enter the First DN in response to the prompt

"FIRST NUMBER (XXXX)?"

on the administration telephone menu.

DN 2200 is shifted to the appropriate slot (card 5 unit 0 in this example) and the remaining DN assignments are adjusted as shown in Tables 44 and 45.

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

**Table 36**
**Main cabinet DN assignments — DN 2200 on Card 1 Unit 0 (default assignment)**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | | Assign 2200 as First DN (Default) | | | | | | | |
| 1 | 0 - 7 | **2200** | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 |
| | 8 - 15 | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 |
| | 16 - 23 | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 |
| 2 | 0 - 3 | 2224 | 2225 | 2226 | 2227 | | | | |
| 3 | 0 - 7 | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 |
| | 8 - 15 | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 |
| | 16 - 23 | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 |
| 4 | 0 - 3 | 2272 | 2273 | 2274 | 2275 | | | | |
| 5 | 0 - 7 | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 |
| | 8 - 15 | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 |
| | 16 - 23 | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 |
| 6 | 0 - 3 | 2320 | 2321 | 2322 | 2323 | | | | |
| 7 | 0 - 7 | 2344 | 2345 | 2346 | 2347 | 2348 | 2349 | 2350 | 2351 |
| | 8 - 15 | 2352 | 2353 | 2354 | 2355 | 2356 | 2357 | 2358 | 2359 |
| | 16 - 23 | 2360 | 2361 | 2362 | 2363 | 2364 | 2365 | 2366 | 2367 |
| 8 | 0 - 7 | 2368 | 2369 | 2370 | 2371 | 2372 | 2373 | 2374 | 2375 |
| | 8 - 15 | 2376 | 2377 | 2378 | 2379 | 2380 | 2381 | 2382 | 2383 |
| | 16 - 23 | 2384 | 2385 | 2386 | 2387 | 2388 | 2389 | 2390 | 2391 |
| 9 | 0 - 7 | 2392 | 2393 | 2394 | 2395 | 2396 | 2397 | 2398 | 2399 |
| | 8 - 15 | 2400 | 2401 | 2402 | 2403 | 2404 | 2405 | 2406 | 2407 |
| | 16 - 23 | 2408 | 2409 | 2410 | 2411 | 2412 | 2413 | 2414 | 2415 |

**Table 37**
**Expansion cabinet DN assignments — DN 2200 on Card 1 Unit 0**

| Card | Unit | Default Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 11 | 0 - 7 | 2440 | 2441 | 2442 | 2443 | 2444 | 2445 | 2446 | 2447 |
|  | 8 - 15 | 2448 | 2449 | 2450 | 2451 | 2452 | 2453 | 2454 | 2455 |
|  | 16 - 23 | 2456 | 2457 | 2458 | 2459 | 2460 | 2461 | 2462 | 2463 |
| 12 | 0 - 3 | 2464 | 2465 | 2466 | 2467 | | | | |
| 13 | 0 -7 | 2488 | 2489 | 2490 | 2491 | 2492 | 2493 | 2494 | 2495 |
|  | 8 -15 | 2496 | 2497 | 2498 | 2499 | 2500 | 2501 | 2502 | 2503 |
|  | 16 - 23 | 2504 | 2505 | 2506 | 2507 | 2508 | 2509 | 2510 | 2511 |
| 14 | 0 - 3 | 2512 | 2513 | 2514 | 2515 | | | | |
| 15 | 0 - 7 | 2536 | 2537 | 2538 | 2539 | 2540 | 2541 | 2542 | 2543 |
|  | 8 - 15 | 2544 | 2545 | 2546 | 2547 | 2548 | 2549 | 2550 | 2551 |
|  | 16 - 23 | 2552 | 2553 | 2554 | 2555 | 2556 | 2557 | 2558 | 2559 |
| 16 | 0 - 3 | 2560 | 2561 | 2562 | 2563 | | | | |
| 17 | 0 - 7 | 2584 | 2585 | 2586 | 2587 | 2588 | 2589 | 2590 | 2591 |
|  | 8 - 15 | 2592 | 2593 | 2594 | 2595 | 2596 | 2597 | 2598 | 2599 |
|  | 16 - 23 | 2600 | 2601 | 2602 | 2603 | 2604 | 2605 | 2606 | 2607 |
| 18 | 0 - 7 | 2608 | 2609 | 2610 | 2611 | 2612 | 2613 | 2614 | 2615 |
|  | 8 - 15 | 2616 | 2617 | 2618 | 2619 | 2620 | 2621 | 2622 | 2623 |
|  | 16 - 23 | 2624 | 2625 | 2626 | 2627 | 2628 | 2629 | 2630 | 2631 |
| 19 | 0 - 7 | 2632 | 2633 | 2634 | 2635 | 2636 | 2637 | 2638 | 2639 |
|  | 8 - 15 | 2640 | 2641 | 2642 | 2643 | 2644 | 2645 | 2646 | 2647 |
|  | 16 - 23 | 2648 | 2649 | 2650 | 2651 | 2652 | 2653 | 2654 | 2655 |

**Table 38**
**Main cabinet DN assignments — DN 2200 on Card 2 Unit 0**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | | Assign 2176 as First DN | | | | | | | |
| **2** | **0 - 3** | **2200** | 2201 | 2202 | 2203 | | | | |
| **3** | **0 - 7** | 2224 | 2225 | 2226 | 2227 | 2228 | 2229 | 2230 | 2231 |
| | **8 - 15** | 2232 | 2233 | 2234 | 2235 | 2236 | 2237 | 2238 | 2239 |
| | **16 - 23** | 2240 | 2241 | 2242 | 2243 | 2244 | 2245 | 2246 | 2247 |
| **4** | **0 - 3** | 2248 | 2249 | 2250 | 2251 | | | | |
| **5** | **0 - 7** | 2272 | 2273 | 2274 | 2275 | 2276 | 2277 | 2278 | 2279 |
| | **8 - 15** | 2280 | 2281 | 2282 | 2283 | 2284 | 2285 | 2286 | 2287 |
| | **16 - 23** | 2288 | 2289 | 2290 | 2291 | 2292 | 2293 | 2294 | 2295 |
| **6** | **0 - 3** | 2296 | 2297 | 2298 | 2299 | | | | |
| **7** | **0 - 7** | 2320 | 2321 | 2322 | 2323 | 2324 | 2325 | 2326 | 2327 |
| | **8 - 15** | 2328 | 2329 | 2330 | 2331 | 2332 | 2333 | 2334 | 2335 |
| | **16 - 23** | 2336 | 2337 | 2338 | 2339 | 2340 | 2341 | 2342 | 2343 |
| **8** | **0 - 7** | 2344 | 2345 | 2346 | 2347 | 2348 | 2349 | 2350 | 2351 |
| | **8 - 15** | 2352 | 2353 | 2354 | 2355 | 2356 | 2357 | 2358 | 2359 |
| | **16 - 23** | 2360 | 2361 | 2362 | 2363 | 2364 | 2365 | 2366 | 2367 |
| **9** | **0 - 7** | 2368 | 2369 | 2370 | 2371 | 2372 | 2373 | 2374 | 2375 |
| | **8 - 15** | 2376 | 2377 | 2378 | 2379 | 2380 | 2381 | 2382 | 2383 |
| | **16 - 23** | 2384 | 2385 | 2386 | 2387 | 2388 | 2389 | 2390 | 2391 |

**Table 39**
**Expansion cabinet DN assignments — DN 2200 on Card 2 Unit 0**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 11 | 0 - 7 | 2416 | 2417 | 2418 | 2419 | 2420 | 2421 | 2422 | 2423 |
| | 8 - 15 | 2424 | 2425 | 2426 | 2427 | 2428 | 2429 | 2430 | 2431 |
| | 16 - 23 | 2432 | 2433 | 2434 | 2435 | 2436 | 2437 | 2438 | 2439 |
| 12 | 0 - 3 | 2440 | 2441 | 2442 | 2443 | | | | |
| 13 | 0 -7 | 2464 | 2465 | 2466 | 2467 | 2468 | 2469 | 2470 | 2471 |
| | 8 -15 | 2472 | 2473 | 2474 | 2475 | 2476 | 2477 | 2478 | 2479 |
| | 16 - 23 | 2480 | 2481 | 2482 | 2483 | 2484 | 2485 | 2486 | 2487 |
| 14 | 0 - 3 | 2488 | 2489 | 2490 | 2491 | | | | |
| 15 | 0 - 7 | 2512 | 2513 | 2514 | 2515 | 2516 | 2517 | 2518 | 2519 |
| | 8 - 15 | 2520 | 2521 | 2522 | 2523 | 2524 | 2525 | 2526 | 2527 |
| | 16 - 23 | 2528 | 2529 | 2530 | 2531 | 2532 | 2533 | 2534 | 2535 |
| 16 | 0 - 3 | 2536 | 2537 | 2538 | 2539 | | | | |
| 17 | 0 - 7 | 2560 | 2561 | 2562 | 2563 | 2564 | 2565 | 2566 | 2567 |
| | 8 - 15 | 2568 | 2569 | 2570 | 2571 | 2572 | 2573 | 2574 | 2575 |
| | 16 - 23 | 2576 | 2577 | 2578 | 2579 | 2580 | 2581 | 2582 | 2583 |
| 18 | 0 - 7 | 2584 | 2585 | 2586 | 2587 | 2588 | 2589 | 2590 | 2591 |
| | 8 - 15 | 2592 | 2593 | 2594 | 2595 | 2596 | 2597 | 2598 | 2599 |
| | 16 - 23 | 2600 | 2601 | 2602 | 2603 | 2604 | 2605 | 2606 | 2607 |
| 19 | 0 - 7 | 2608 | 2609 | 2610 | 2611 | 2612 | 2613 | 2614 | 2615 |
| | 8 - 15 | 2616 | 2617 | 2618 | 2619 | 2620 | 2621 | 2622 | 2623 |
| | 16 - 23 | 2624 | 2625 | 2626 | 2627 | 2628 | 2629 | 2630 | 2631 |

**Table 40**
**Main cabinet DN assignments — DN 2200 on Card 3 Unit 0**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | | Assign 2152 as First DN | | | | | | | |
| 3 | 0 - 7 | **2200** | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 |
| | 8 - 15 | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 |
| | 16 - 23 | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 |
| 4 | 0 - 3 | 2224 | 2225 | 2226 | 2227 | | | | |
| 5 | 0 - 7 | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 |
| | 8 - 15 | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 |
| | 16 - 23 | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 |
| 6 | 0 - 3 | 2272 | 2273 | 2274 | 2275 | | | | |
| 7 | 0 - 7 | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 |
| | 8 - 15 | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 |
| | 16 - 23 | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 |
| 8 | 0 - 7 | 2320 | 2321 | 2322 | 2323 | 2324 | 2325 | 2326 | 2327 |
| | 8 - 15 | 2328 | 2329 | 2330 | 2331 | 2332 | 2333 | 2334 | 2335 |
| | 16 - 23 | 2336 | 2337 | 2338 | 2339 | 2340 | 2341 | 2342 | 2343 |
| 9 | 0 - 7 | 2344 | 2345 | 2346 | 2347 | 2348 | 2349 | 2350 | 2351 |
| | 8 - 15 | 2352 | 2353 | 2354 | 2355 | 2356 | 2357 | 2358 | 2359 |
| | 16 - 23 | 2360 | 2361 | 2362 | 2363 | 2364 | 2365 | 2366 | 2367 |

**Table 41**
**Expansion cabinet DN assignments — DN 2200 on Card 3 Unit 0**

| Card | Unit | Default Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 11 | 0 - 7 | 2416 | 2417 | 2418 | 2419 | 2420 | 2421 | 2422 | 2423 |
|  | 8 - 15 | 2424 | 2425 | 2426 | 2427 | 2428 | 2429 | 2430 | 2431 |
|  | 16 - 23 | 2432 | 2433 | 2434 | 2435 | 2436 | 2437 | 2438 | 2439 |
| 12 | 0 - 3 | 2440 | 2441 | 2442 | 2443 | | | | |
| 13 | 0 -7 | 2456 | 2457 | 2458 | 2459 | 2460 | 2461 | 2462 | 2463 |
|  | 8 -15 | 2464 | 2465 | 2466 | 2467 | 2468 | 2469 | 2470 | 2471 |
|  | 16 - 23 | 2472 | 2473 | 2474 | 2475 | 2476 | 2477 | 2478 | 2479 |
| 14 | 0 - 3 | 2480 | 2481 | 2482 | 2483 | | | | |
| 15 | 0 - 7 | 2504 | 2505 | 2506 | 2507 | 2508 | 2509 | 2510 | 2511 |
|  | 8 - 15 | 2512 | 2513 | 2514 | 2515 | 2516 | 2517 | 2518 | 2519 |
|  | 16 - 23 | 2520 | 2521 | 2522 | 2523 | 2524 | 2525 | 2526 | 2527 |
| 16 | 0 - 3 | 2528 | 2529 | 2530 | 2531 | 2532 | 2533 | 2534 | 2535 |
| 17 | 0 - 7 | 2536 | 2537 | 2538 | 2539 | 2540 | 2541 | 2542 | 2443 |
|  | 8 - 15 | 2544 | 2545 | 2546 | 2547 | 2548 | 2549 | 2550 | 2551 |
|  | 16 - 23 | 2552 | 2553 | 2554 | 2555 | 2556 | 2557 | 2558 | 2559 |
| 18 | 0 - 7 | 2560 | 2561 | 2562 | 2563 | 2564 | 2565 | 2566 | 2567 |
|  | 8 - 15 | 2568 | 2569 | 2570 | 2571 | 2572 | 2573 | 2574 | 2575 |
|  | 16 - 23 | 2576 | 2577 | 2578 | 2579 | 2580 | 2581 | 2582 | 2583 |
| 19 | 0 - 7 | 2584 | 2585 | 2586 | 2587 | 2588 | 2589 | 2590 | 2591 |
|  | 8 - 15 | 2592 | 2593 | 2594 | 2595 | 2596 | 2597 | 2598 | 2599 |
|  | 16 - 23 | 2600 | 2601 | 2602 | 2603 | 2604 | 2605 | 2606 | 2607 |

**Table 42**
**Main cabinet DN assignments — DN 2200 on Card 4 Unit 0**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | | Assign 2128 as First DN | | | | | | | |
| **4** | **0 - 3** | **2200** | 2201 | 2202 | 2203 | | | | |
| **5** | **0 - 7** | 2224 | 2225 | 2226 | 2227 | 2228 | 2229 | 2230 | 2231 |
| | **8 - 15** | 2232 | 2233 | 2234 | 2235 | 2236 | 2237 | 2238 | 2239 |
| | **16 - 23** | 2240 | 2241 | 2242 | 2243 | 2244 | 2245 | 2246 | 2247 |
| **6** | **0 - 3** | 2248 | 2249 | 2250 | 2251 | | | | |
| **7** | **0 - 7** | 2272 | 2273 | 2274 | 2275 | 2276 | 2277 | 2278 | 2279 |
| | **8 - 15** | 2280 | 2281 | 2282 | 2283 | 2284 | 2285 | 2286 | 2287 |
| | **16 - 23** | 2288 | 2289 | 2290 | 2291 | 2292 | 2293 | 2294 | 2295 |
| **8** | **0 - 7** | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 |
| | **8 - 15** | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 |
| | **16 - 23** | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 |
| **9** | **0 - 7** | 2320 | 2321 | 2322 | 2323 | 2324 | 2325 | 2326 | 2327 |
| | **8 - 15** | 2328 | 2329 | 2330 | 2331 | 2332 | 2333 | 2334 | 2335 |
| | **16 - 23** | 2336 | 2337 | 2338 | 2339 | 2340 | 2341 | 2342 | 2343 |

**Table 43**
**Expansion cabinet DN assignments — DN 2200 on Card 4 Unit 0**

| Card | Unit | Default Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 11 | 0 - 7 | 2368 | 2369 | 2370 | 2371 | 2372 | 2373 | 2374 | 2375 |
| | 8 - 15 | 2376 | 2377 | 2378 | 2379 | 2380 | 2381 | 2382 | 2383 |
| | 16 - 23 | 2384 | 2385 | 2386 | 2387 | 2388 | 2389 | 2390 | 2391 |
| 12 | 0 - 3 | 2392 | 2393 | 2394 | 2395 | | | | |
| 13 | 0 -7 | 2416 | 2417 | 2418 | 2419 | 2420 | 2421 | 2422 | 2423 |
| | 8 -15 | 2424 | 2425 | 2426 | 2427 | 2428 | 2429 | 2430 | 2431 |
| | 16 - 23 | 2432 | 2433 | 2434 | 2435 | 2436 | 2437 | 2438 | 2439 |
| 14 | 0 - 3 | 2440 | 2441 | 2442 | 2443 | | | | |
| 15 | 0 - 7 | 2464 | 2465 | 2466 | 2467 | 2468 | 2469 | 2470 | 2471 |
| | 8 - 15 | 2472 | 2473 | 2474 | 2475 | 2476 | 2477 | 2478 | 2479 |
| | 16 - 23 | 2480 | 2481 | 2482 | 2483 | 2484 | 2485 | 2486 | 2487 |
| 16 | 0 - 3 | 2488 | 2489 | 2490 | 2491 | | | | |
| 17 | 0 - 7 | 2512 | 2513 | 2514 | 2515 | 2516 | 2517 | 2518 | 2519 |
| | 8 - 15 | 2520 | 2521 | 2522 | 2523 | 2524 | 2525 | 2526 | 2527 |
| | 16 - 23 | 2528 | 2529 | 2530 | 2531 | 2532 | 2533 | 2534 | 2535 |
| 18 | 0 - 7 | 2536 | 2537 | 2538 | 2539 | 2540 | 2541 | 2542 | 2443 |
| | 8 - 15 | 2544 | 2545 | 2546 | 2547 | 2548 | 2549 | 2550 | 2551 |
| | 16 - 23 | 2552 | 2553 | 2554 | 2555 | 2556 | 2557 | 2558 | 2559 |
| 19 | 0 - 7 | 2560 | 2561 | 2562 | 2563 | 2564 | 2565 | 2566 | 2567 |
| | 8 - 15 | 2568 | 2569 | 2570 | 2571 | 2572 | 2573 | 2574 | 2575 |
| | 16 - 23 | 2576 | 2577 | 2578 | 2579 | 2580 | 2581 | 2582 | 2583 |

**Table 44**
**Main cabinet DN assignments — DN 2200 on Card 5 Unit 0**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | | Assign 2104 as<br>First DN | | | | | | | |
| 5 | 0 - 7 | **2200** | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 |
| | 8 - 15 | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 |
| | 16 - 23 | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 |
| 6 | 0 - 3 | 2224 | 2225 | 2226 | 2227 | | | | |
| 7 | 0 - 7 | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 |
| | 8 - 15 | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 |
| | 16 - 23 | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 |
| 8 | 0 - 7 | 2272 | 2273 | 2274 | 2275 | 2276 | 2277 | 2278 | 2279 |
| | 8 - 15 | 2280 | 2281 | 2282 | 2283 | 2284 | 2285 | 2286 | 2287 |
| | 16 - 23 | 2288 | 2289 | 2290 | 2291 | 2292 | 2293 | 2294 | 2295 |
| 9 | 0 - 7 | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 |
| | 8 - 15 | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 |
| | 16 - 23 | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 |

**Table 45**
**Expansion cabinet DN assignments — DN 2200 on Card 5 Unit 0**

| Card | Unit | Default Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | 0 - 7 | 2344 | 2345 | 2346 | 2347 | 2348 | 2349 | 2350 | 2351 |
| 11 | 8 - 15 | 2352 | 2353 | 2354 | 2355 | 2356 | 2357 | 2358 | 2359 |
| | 16 - 23 | 2360 | 2361 | 2362 | 2363 | 2364 | 2365 | 2366 | 2367 |
| 12 | 0 - 3 | 2368 | 2369 | 2370 | 2371 | | | | |
| | 0 -7 | 2392 | 2393 | 2394 | 2395 | 2396 | 2397 | 2398 | 2399 |
| 13 | 8 -15 | 2400 | 2401 | 2402 | 2403 | 2404 | 2405 | 2406 | 2407 |
| | 16 - 23 | 2408 | 2409 | 2410 | 2411 | 2412 | 2413 | 2414 | 2415 |
| 14 | 0 - 3 | 2416 | 2417 | 2418 | 2419 | | | | |
| | 0 - 7 | 2440 | 2441 | 2442 | 2443 | 2444 | 2445 | 2446 | 2447 |
| 15 | 8 - 15 | 2448 | 2449 | 2450 | 2451 | 2452 | 2453 | 2454 | 2455 |
| | 16 - 23 | 2456 | 2457 | 2458 | 2459 | 2460 | 2461 | 2462 | 2463 |
| 16 | 0 - 3 | 2464 | 2465 | 2466 | 2467 | | | | |
| | 0 - 7 | 2488 | 2489 | 2490 | 2491 | 2492 | 2493 | 2494 | 2495 |
| 17 | 8 - 15 | 2496 | 2497 | 2498 | 2499 | 2500 | 2501 | 2502 | 2503 |
| | 16 - 23 | 2504 | 2505 | 2506 | 2507 | 2508 | 2509 | 2510 | 2511 |
| | 0 - 7 | 2512 | 2513 | 2514 | 2515 | 2516 | 2517 | 2518 | 2519 |
| 18 | 8 - 15 | 2520 | 2521 | 2522 | 2523 | 2524 | 2525 | 2526 | 2527 |
| | 16 - 23 | 2528 | 2529 | 2530 | 2531 | 2532 | 2533 | 2534 | 2535 |
| | 0 - 7 | 2536 | 2537 | 2538 | 2539 | 2540 | 2541 | 2542 | 2443 |
| 19 | 8 - 15 | 2544 | 2545 | 2546 | 2547 | 2548 | 2549 | 2550 | 2551 |
| | 16 - 23 | 2552 | 2553 | 2554 | 2555 | 2556 | 2557 | 2558 | 2559 |

**Table 46**
**Main cabinet DN assignments — DN 2200 on Card 6 Unit 0**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | | **Assign 2080 as First DN** | | | | | | | |
| **6** | **0 - 3** | **2200** | 2201 | 2202 | 2203 | | | | |
| **7** | **0 - 7** | 2224 | 2225 | 2226 | 2227 | 2228 | 2229 | 2230 | 2231 |
| | **8 - 15** | 2232 | 2233 | 2234 | 2235 | 2236 | 2237 | 2238 | 2239 |
| | **16 - 23** | 2240 | 2241 | 2242 | 2243 | 2244 | 2245 | 2246 | 2247 |
| **8** | **0 - 7** | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 |
| | **8 - 15** | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 |
| | **16 - 23** | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 |
| **9** | **0 - 7** | 2272 | 2273 | 2274 | 2275 | 2276 | 2277 | 2278 | 2279 |
| | **8 - 15** | 2280 | 2281 | 2282 | 2283 | 2284 | 2285 | 2286 | 2287 |
| | **16 - 23** | 2288 | 2289 | 2290 | 2291 | 2292 | 2293 | 2294 | 2295 |

**Table 47**
**Expansion cabinet DN assignments — DN 2200 on Card 6 Unit 0**

| Card | Unit | Default Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 11 | 0 - 7 | 2320 | 2321 | 2322 | 2323 | 2324 | 2325 | 2326 | 2327 |
| | 8 - 15 | 2328 | 2329 | 2330 | 2331 | 2332 | 2333 | 2334 | 2335 |
| | 16 - 23 | 2336 | 2337 | 2338 | 2339 | 2340 | 2341 | 2342 | 2343 |
| 12 | 0 - 3 | 2344 | 2345 | 2346 | 2347 | | | | |
| 13 | 0 -7 | 2368 | 2369 | 2370 | 2371 | 2372 | 2373 | 2374 | 2375 |
| | 8 -15 | 2376 | 2377 | 2378 | 2379 | 2380 | 2381 | 2382 | 2383 |
| | 16 - 23 | 2384 | 2385 | 2386 | 2387 | 2388 | 2389 | 2390 | 2391 |
| 14 | 0 - 3 | 2392 | 2393 | 2394 | 2395 | | | | |
| 15 | 0 - 7 | 2416 | 2417 | 2418 | 2419 | 2420 | 2421 | 2422 | 2423 |
| | 8 - 15 | 2424 | 2425 | 2426 | 2427 | 2428 | 2429 | 2430 | 2431 |
| | 16 - 23 | 2432 | 2433 | 2434 | 2435 | 2436 | 2437 | 2438 | 2439 |
| 16 | 0 - 3 | 2440 | 2441 | 2442 | 2443 | | | | |
| 17 | 0 - 7 | 2464 | 2465 | 2466 | 2467 | 2468 | 2469 | 2470 | 2471 |
| | 8 - 15 | 2472 | 2473 | 2474 | 2475 | 2476 | 2477 | 2478 | 2479 |
| | 16 - 23 | 2480 | 2481 | 2482 | 2483 | 2484 | 2485 | 2486 | 2487 |
| 18 | 0 - 7 | 2488 | 2489 | 2490 | 2491 | 2492 | 2493 | 2494 | 2495 |
| | 8 - 15 | 2496 | 2497 | 2498 | 2499 | 2500 | 2501 | 2502 | 2503 |
| | 16 - 23 | 2504 | 2505 | 2506 | 2507 | 2508 | 2509 | 2510 | 2511 |
| 19 | 0 - 7 | 2512 | 2513 | 2514 | 2515 | 2516 | 2517 | 2518 | 2519 |
| | 8 - 15 | 2520 | 2521 | 2522 | 2523 | 2524 | 2525 | 2526 | 2527 |
| | 16 - 23 | 2528 | 2529 | 2530 | 2531 | 2532 | 2533 | 2534 | 2535 |

**Table 48**
**Main cabinet DN assignments — DN 2200 on Card 7 Unit 0**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | | **Assign 2056 as First DN** | | | | | | | |
| **7** | **0 - 7** | **2200** | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 |
| | **8 - 15** | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 |
| | **16 - 23** | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 |
| **8** | **0 - 7** | 2224 | 2225 | 2226 | 2227 | 2228 | 2229 | 2230 | 2231 |
| | **8 - 15** | 2232 | 2233 | 2234 | 2235 | 2236 | 2237 | 2238 | 2239 |
| | **16 - 23** | 2240 | 2241 | 2242 | 2243 | 2244 | 2245 | 2246 | 2247 |
| **9** | **0 - 7** | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 |
| | **8 - 15** | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 |
| | **16 - 23** | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 |

**Table 49**
**Expansion cabinet DN assignments — DN 2200 on Card 7 Unit 0**

| Card | Unit | Default Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 11 | 0 - 7 | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 |
| | 8 - 15 | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 |
| | 16 - 23 | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 |
| 12 | 0 - 3 | 2320 | 2321 | 2322 | 2323 | | | | |
| 13 | 0 -7 | 2344 | 2345 | 2346 | 2347 | 2348 | 2349 | 2350 | 2351 |
| | 8 -15 | 2352 | 2353 | 2354 | 2355 | 2356 | 2357 | 2358 | 2359 |
| | 16 - 23 | 2360 | 2361 | 2362 | 2363 | 2364 | 2365 | 2366 | 2367 |
| 14 | 0 - 3 | 2368 | 2369 | 2370 | 2371 | | | | |
| 15 | 0 - 7 | 2392 | 2393 | 2394 | 2395 | 2396 | 2397 | 2398 | 2399 |
| | 8 - 15 | 2400 | 2401 | 2402 | 2403 | 2404 | 2405 | 2406 | 2407 |
| | 16 - 23 | 2408 | 2409 | 2410 | 2411 | 2412 | 2413 | 2414 | 2415 |
| 16 | 0 - 3 | 2416 | 2417 | 2418 | 2419 | | | | |
| 17 | 0 - 7 | 2440 | 2441 | 2442 | 2443 | 2444 | 2445 | 2446 | 2447 |
| | 8 - 15 | 2448 | 2449 | 2450 | 2451 | 2452 | 2453 | 2454 | 2455 |
| | 16 - 23 | 2456 | 2457 | 2458 | 2459 | 2460 | 2461 | 2462 | 2463 |
| 18 | 0 - 7 | 2464 | 2465 | 2466 | 2467 | 2468 | 2469 | 2470 | 2471 |
| | 8 - 15 | 2472 | 2473 | 2474 | 2475 | 2476 | 2477 | 2478 | 2479 |
| | 16 - 23 | 2480 | 2481 | 2482 | 2483 | 2484 | 2485 | 2486 | 2487 |
| 19 | 0 - 7 | 2488 | 2489 | 2490 | 2491 | 2492 | 2493 | 2494 | 2495 |
| | 8 - 15 | 2496 | 2497 | 2498 | 2499 | 2500 | 2501 | 2502 | 2503 |
| | 16 - 23 | 2504 | 2505 | 2506 | 2507 | 2508 | 2509 | 2510 | 2511 |

**Table 50**
**Main cabinet DN assignments — DN 2200 on Card 8 Unit 0**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | | Assign 2032 as First DN | | | | | | | |
| 8 | 0 - 7 | **2200** | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 |
| | 8 - 15 | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 |
| | 16 - 23 | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 |
| 9 | 0 - 7 | 2224 | 2225 | 2226 | 2227 | 2228 | 2229 | 2230 | 2231 |
| | 8 - 15 | 2232 | 2233 | 2234 | 2235 | 2236 | 2237 | 2238 | 2239 |
| | 16 - 23 | 2240 | 2241 | 2242 | 2243 | 2244 | 2245 | 2246 | 2247 |

**Table 51**
**Expansion cabinet DN assignments — DN 2200 on Card 8 Unit 0**

| Card | Unit | Default Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 11 | 0 - 7 | 2272 | 2273 | 2274 | 2275 | 2276 | 2277 | 2278 | 2279 |
| | 8 - 15 | 2280 | 2281 | 2282 | 2283 | 2284 | 2285 | 2286 | 2287 |
| | 16 - 23 | 2288 | 2289 | 2290 | 2291 | 2292 | 2293 | 2294 | 2295 |
| 12 | 0 - 3 | 2296 | 2297 | 2298 | 2299 | | | | |
| 13 | 0 -7 | 2320 | 2321 | 2322 | 2323 | 2324 | 2325 | 2326 | 2327 |
| | 8 -15 | 2328 | 2329 | 2330 | 2331 | 2332 | 2333 | 2334 | 2335 |
| | 16 - 23 | 2336 | 2337 | 2338 | 2339 | 2340 | 2341 | 2342 | 2343 |
| 14 | 0 - 3 | 2344 | 2345 | 2346 | 2347 | | | | |
| 15 | 0 - 7 | 2368 | 2369 | 2370 | 2371 | 2372 | 2373 | 2374 | 2375 |
| | 8 - 15 | 2376 | 2377 | 2378 | 2379 | 2380 | 2381 | 2382 | 2383 |
| | 16 - 23 | 2384 | 2385 | 2386 | 2387 | 2388 | 2389 | 2390 | 2391 |
| 16 | 0 - 3 | 2392 | 2393 | 2394 | 2395 | | | | |
| 17 | 0 - 7 | 2416 | 2417 | 2418 | 2419 | 2420 | 2421 | 2422 | 2423 |
| | 8 - 15 | 2424 | 2425 | 2426 | 2427 | 2428 | 2429 | 2430 | 2431 |
| | 16 - 23 | 2432 | 2433 | 2434 | 2435 | 2436 | 2437 | 2438 | 2439 |
| 18 | 0 - 7 | 2440 | 2441 | 2442 | 2443 | 2444 | 2445 | 2446 | 2447 |
| | 8 - 15 | 2448 | 2449 | 2450 | 2451 | 2452 | 2453 | 2454 | 2455 |
| | 16 - 23 | 2456 | 2457 | 2458 | 2459 | 2460 | 2461 | 2462 | 2463 |
| 19 | 0 - 7 | 2464 | 2465 | 2466 | 2467 | 2468 | 2469 | 2470 | 2471 |
| | 8 - 15 | 2472 | 2473 | 2474 | 2475 | 2476 | 2477 | 2478 | 2479 |
| | 16 - 23 | 2480 | 2481 | 2482 | 2483 | 2484 | 2485 | 2486 | 2487 |

**Table 52**
**Main cabinet DN assignments — DN 2200 on Card 9 Unit 0**

| Card | Unit | Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| | | Assign 2008 as First DN | | | | | | | |
| 9 | 0 - 7 | **2200** | 2201 | 2202 | 2203 | 2204 | 2205 | 2206 | 2207 |
| | 8 - 15 | 2208 | 2209 | 2210 | 2211 | 2212 | 2213 | 2214 | 2215 |
| | 16 - 23 | 2216 | 2217 | 2218 | 2219 | 2220 | 2221 | 2222 | 2223 |

**Table 53**
**Expansion cabinet DN assignments — DN 2200 on Card 9 Unit 0**

| Card | Unit | Default Directory Number (DN) | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 11 | 0 - 7 | 2248 | 2249 | 2250 | 2251 | 2252 | 2253 | 2254 | 2255 |
| | 8 - 15 | 2256 | 2257 | 2258 | 2259 | 2260 | 2261 | 2262 | 2263 |
| | 16 - 23 | 2264 | 2265 | 2266 | 2267 | 2268 | 2269 | 2270 | 2271 |
| 12 | 0 - 3 | 2272 | 2273 | 2274 | 2275 | | | | |
| 13 | 0 -7 | 2296 | 2297 | 2298 | 2299 | 2300 | 2301 | 2302 | 2303 |
| | 8 -15 | 2304 | 2305 | 2306 | 2307 | 2308 | 2309 | 2310 | 2311 |
| | 16 - 23 | 2312 | 2313 | 2314 | 2315 | 2316 | 2317 | 2318 | 2319 |
| 14 | 0 - 3 | 2320 | 2321 | 2322 | 2323 | | | | |
| 15 | 0 - 7 | 2344 | 2345 | 2346 | 2347 | 2348 | 2349 | 2350 | 2351 |
| | 8 - 15 | 2352 | 2353 | 2354 | 2355 | 2356 | 2357 | 2358 | 2359 |
| | 16 - 23 | 2360 | 2361 | 2362 | 2363 | 2364 | 2365 | 2366 | 2367 |
| 16 | 0 - 3 | 2368 | 2369 | 2370 | 2371 | | | | |
| 17 | 0 - 7 | 2392 | 2393 | 2394 | 2395 | 2396 | 2397 | 2398 | 2399 |
| | 8 - 15 | 2400 | 2401 | 2402 | 2403 | 2404 | 2405 | 2406 | 2407 |
| | 16 - 23 | 2408 | 2409 | 2410 | 2411 | 2412 | 2413 | 2414 | 2415 |
| 18 | 0 - 7 | 2416 | 2417 | 2418 | 2419 | 2420 | 2421 | 2422 | 2423 |
| | 8 - 15 | 2424 | 2425 | 2426 | 2427 | 2428 | 2429 | 2430 | 2431 |
| | 16 - 23 | 2432 | 2433 | 2434 | 2435 | 2436 | 2437 | 2438 | 2439 |
| 19 | 0 - 7 | 2440 | 2441 | 2442 | 2443 | 2444 | 2445 | 2446 | 2447 |
| | 8 - 15 | 2448 | 2449 | 2450 | 2451 | 2452 | 2453 | 2454 | 2455 |
| | 16 - 23 | 2456 | 2457 | 2458 | 2459 | 2460 | 2461 | 2462 | 2463 |

# Removing numbering plan interferences
## Interference with ACD queues

The system has pre-programmed ACD queues for Meridian Mail, the Central Answering Position, and general purpose ACD. (Pre-programmed ACD queues are listed in .) To remove these values, use LD 23.

*Note:* Before removing 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 wish to remove.

## Interference with Call Park extension numbers

System call park extension numbers are pre-programmed for the Central Answering Position. (Refer to ) 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 wish to remove.

## Interference with SDI ports

Five SDI/ESDI ports are pre-programmed. Ports 8 and 9 are associated with the Meridian Mail option, and ports 0, 1 and 2 are associated with the Small System Controller (SSC) card. Port 0 is associated with SSC card and cannot be removed. Any of the remaining ports can be removed 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 pre-programmed SPRE code interferes with the programming required for the Option 11C Compact 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

The attendant extension number cannot be removed from the system; however, the default number can be replaced 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 pre-programmed night number

The default value of the night number is listed in .

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 Xaaaa | "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 pre-programmed Flexible Feature Codes interfere with the programming required for the Option 11C Compact system, use LD 57 to remove the data from the system. (Default FFCs are listed in "Chapter 23 – Pre-programmed data" on page 363).

**LD 57**

**To change one or more access codes, type in 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, type in 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, type in 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 telephone models

To create telephone models that are different from the default models provided in Option 11C Compact software, use overlays to design the own models:

| Task | Overlay |
|------|---------|
| **Create your own telephone models:** | |
| Analog telephones<br>(500/2500 type telephones) | LD 10 |
| Digital telephones | LD 11 |
| Get information on telephone models | LD 20<br>(printout) |

For additional assistance when creating telephone models and trunks, refer to the *Option 11c Compact Software Guides* that are shipped with every system.

# Creating analog telephone models

The following information must be entered in LD 10 in order to create an analogue (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 in order to complete the new model. (Refer to the Option 11C Compact *Software guide*s for a complete list of prompts and possible responses).

## Modifying analog telephone models

To modify an analog telephone, use LD 10 and type in 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 Compact *Software Guides* that are shipped with the system.

# Creating digital telephone models

When creating telephone models for digital telephones, key 0 must be programmed 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 telephone model defines the ACD queue. To define the extension number, enter the ID number of the agent or the Central Answering Position.

The following information must be entered in LD 11 in order 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 in order to complete the new model. (Refer to the Option 11C Compact *Software guides* for a complete list of prompts and possible responses).

## Modifying digital telephone models

To modify a digital telephone, load LD 11 and enter the following information:

**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 Compact *Software guides* that are shipped with the system.

# Printing model information

To print information about telephone models, 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, enter "TYPE 3000 M". If "TYPE 2XXX M" is entered, all the Meridian Digital Telephone models are printed 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 telephone models

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, etc.) |
| CUST | 0 | |
| MODL | YYY | "YYY" = the model number associated with the telephone type you are removing (Valid range is 1-127). |

# Creating trunk models and changing route access codes

Use overlay program 14 to create trunk models different from the default models provided in the system software. Route access codes are changed using the administration telephone.

For additional assistance when creating trunk models, refer to the *Option 11c Compact Software Guides* that are shipped with every system.

# Creating trunk models

To create a new trunk model, load LD 14 and type in 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 being created (between 1 - 127) |

| | | |
|---|---|---|
| XTRK | XUT, XEM, XCOT, XDID | This prompt only appears defining the first model in a group. Each group consists of 16 consecutive model definitions. (Refer to the group boundaries listed below.) Once 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 boundaries are as follows:

1-15, 16-31, 32-47, 48-63, 64-79. 80-95, 96-111, 112-127.

Examples:

If, for example, a trunk model is defined as XUT, with a model number of 12, all models in the group 1-15 will automatically be XUT models. If another trunk model is defined as an XEM, with a model number of 33, all models in the group 32-47 will automatically be XEM models.

> *Note:* When creating trunk models, the trunk route and member number is not prompted. This information is defined by 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 Compact Software Guides* that are shipped with the system.

## Modifying trunk models

To modify a trunk, load LD 14 and enter following commands:

**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 trunk models

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 trunk models, load LD 20 and enter the following commands:

**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

Procedure 82 describes how to change a route access code.

**Procedure 82**

1    Lift the handset of the administration telephone.

2    Enter the administration Flexible Feature Code to access the administration menu. (This value is listed in .)

3    Enter the default administration telephone password. (This value is listed in .)

Special dial tone is heard and the prompt
"TASK?"
appears on the top line of the character display. 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 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 special dial tone is heard and
the sequence is repeated when the prompt
"ROUTE ACCESS?"
appears.

OR

If the route access code is not available for use, overflow tone is heard.

The display shows
"USED, ROUTE ACCESS?"
Repeat this step and enter a **different** access code. This sequence
continues until an appropriate new access code is entered.

**7**    Terminate the sequence by hanging up the telephone.

OR

Repeat the sequence by going through the steps again.

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

# Chapter 25 — Fault locating and clearing

This chapter contains fault clearing information for Meridian 1 Option 11C Compact.

To clear faults, you should have a basic knowledge of Option 11C Compact system operation and maintenance.

In this chapter, "replacing equipment" means removing a faulty piece of equipment and installing identical operating equipment.

Locating and clearing faults is based on the assumption that the system is properly installed (for example, all circuit card locations, option switch settings, and cable connections are correct) and was fully operational before the fault.

## Precautions

### General precautions

Option 11C Compact equipment is based on solid state circuitry which is sensitive to static electricity and environmental conditions. Follow the precautions in this section to avoid personal injury and equipment damage.

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**WARNING**

To avoid the danger of electric shock, be careful when working with power equipment and connections. Warning notices are displayed and should be heeded.

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In the Option 11C Compact system power supply, there are no user-serviceable parts. Do not disassemble a power supply under any circumstances, because there is risk of electric shock. If a power supply fails, it must be replaced.

---

To avoid damage to circuit cards from static discharge, touch the cabinet frame before handling circuit cards. This discharges the static electricity that builds up in your body and clothing.

## Fiber cable

The following precautions should be observed when handling fiber cables.

- Do not staple

- Avoid sharp bends

- Always replace the rubber plugs into the fiber cable connectors when the fiber cable is removed. The connectors must be kept clean.

---

**WARNING**

The fiber optic interface product used in Meridian 1 Option 11C Compact is considered harmless. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

---

## Circuit cards

Handle cards as follows:

- Touch the cabinet frame to discharge static electricity before handling circuit cards.

- Handle circuit cards by the faceplate and edges only. Do not touch the contacts or components.

- Keep circuit cards installed in the system as much as possible to avoid dirty contacts and unnecessary wear.

- Set circuit cards on a protective antistatic bag. If an antistatic bag is not available, hold the card, or set it in a card slot unseated from the connectors.

- Unpack or handle circuit cards away from electric motors, transformers, or similar machinery.

- Store circuit cards in protective packing. Do not stack cards on top of each other unless they are packaged.

- Store circuit cards in a dry dust-free area.

During repair and maintenance procedures:

- Insert circuit cards into compatible slots only.

- Turn off the circuit breaker or switch for a cabinet power supply before the power supply is removed or inserted.

- Software disable circuit cards, if applicable, before they are removed or inserted.

- Hardware disable circuit cards, whenever there is an enable/disable switch, before they are removed or inserted.

- Return defective circuit cards to a repair center; do not try to repair or clean them.

# Communicating with the system

You can exchange information with the system through the system terminals and the maintenance telephone. This section discusses these tools for communicating with the system.

## System terminal

You can send maintenance commands and receive system messages by accessing the system through an RS-232 device, such as a video display terminal (VDT) or teletypewriter (TTY).

### Software format

Through the system terminal, you can enter commands that tell the system to perform specific tasks; the system performs the tasks and sends messages back to the system terminal, indicating status or errors. System messages, along with indicators such as light emitting diode (LED) indicators, identify faults in the system.

System messages are codes with a mnemonic and number. Some messages contain additional information indicating the location of the fault, such as BSD090 MAIN. The mnemonic identifies a software program or a type of message. The number identifies the specific message. Table 54 gives an example of the format for a system message.

See the *Option 11C Compact software guide* for a description of all maintenance commands and the interpretation of all system messages.

**Table 54**
**System message format**

| System message:<br>BSD090 MAIN | Interpretation |
|---|---|
| BSD090 | This message concerns power equipment or information generated by the system monitor |
| MAIN | Additional information indicating a power fault in the MAIN cabinet |

## Local and remote access

A system terminal can be connected at the main and expansion cabinets.

When a system terminal is installed locally, it is connected directly to a Serial Data Interface (SDI) port, located within the main or expansion cabinet, or within both cabinets. When a system terminal is installed at a remote location, modems and a telephone line are required between the terminal and the SDI port.

When a system terminal is installed at the main cabinet, it is connected to a Serial Data Interface (SDI) port located within the main cabinet.

When a system terminal is connected to an expansion cabinet, it is connected to a Serial Data Interface (SDI) port which is part of the Fbr Rcvr card in the expansion cabinet.

When a system terminal is installed at a remote location that does not have an expansion cabinet, modems and a telephone line are required between the terminal and the SDI port.

An alternate connection option for either local or remote access is to connect to the system using Ethernet in the main cabinet.

### Maintenance telephone

A telephone functions as a maintenance telephone when the class-of-service is defined as MTA (maintenance allowed) in LD 11 or the telephone is assigned as a Model 99.

A maintenance telephone allows the sending of commands to the system, but can only use a subset of the commands that can be entered from a system terminal. The maintenance telephone, however, takes priority over a system terminal and will log the terminal out.

Tones and outpulsing can be tested using the maintenance telephone. Specific commands for tone testing are given in Tone and Digit Switch and Digitone Receiver Diagnostic (LD 34).

To enter commands on a maintenance telephone, press the keys that correspond to the letters and numbers of the command. Refer to the section for information about entering commands from a maintenance telephone.

# Hardware maintenance tools

There are fault indicators and hardware features which help perform maintenance tasks (particularly identifying and clearing faults). These maintenance tools include:

- Circuit card features which perform self-tests, indicate status, and minimize adverse affects on call processing.

- CPU controls which allow you to control common equipment functions.

- System monitor indicators which identify power and other faults.

## Circuit card features

Circuit card features include:

- self-tests

- LED indicators

### Self-tests

A self-test checks to see that a circuit card is working correctly. Many cards perform a self-test on power-up. The software commands Disable and Enable forces a card to self-test. The results of a self-test generally show whether or not there is a problem with the card.

Self test information for ISDN 1.5 Mb DTI/PRI cards are contained in *1.5 Mb DTI/PRI Administration and Maintenance*.

**NTMW01 SSC card Faceplate LEDs**

The NTMW01 SSC (Small System Controller) card has two faceplate LEDs. The top LED indicates the status of the SSC circuit card. The middle and bottom LEDs indicate the status of the NTDK22 Fiber Daughter Board. Fbr 1 indicates the status of the fiber link.

**Table 55**
**NTMW01 LEDs**

| LED | State | Definition |
|-----|-------|------------|
| Top | Yellow | SSC is in disabled state. |
| | Red (steady) | SSC self-test being performed |
| | Red (flashing three times) | Self-test passed |
| | Off | SSC is in normal operating mode. |
| | Green (steady or flashing) | PCMCIA device is being accessed. |
| Fbr 1 | Red (steady) | Fiber Daughter Board is in disabled state. |
| | Red (flashing three times) | Self-test passed |
| | Yellow | Fiber Daughter Board is enabled, link is not established. |
| | Green | Fiber Daughter Board is enabled, link is established. |
| | Off | Invalid state, hardware malfunction |

### NTMW10 Fbr Rcvr card Faceplate LEDs

The NTMW10 Fbr Rcvr card has three faceplate LEDs. The top LED
indicates the status of the card. The middle LED indicates the status of the
Serial Data Interface (SDI) port. The bottom LED indicates the status of the
fiber link.

**Table 56**
**NTMW10 LEDs**

| LED | State | Definition |
| --- | --- | --- |
| Top | On | Card is in disabled state. |
| | Off | Card is in normal operating mode. |
| SDI | On | SDI port is in disabled state. |
| | Off | SDI port is in normal operating mode. |
| Fbr | Red (steady) | Self-test in progress. |
| | Red (flashing three times) | Self-test passed. |
| | Yellow | Fiber link is not established. |
| | Green | Fiber link is established. |
| | Off | Invalid state, hardware malfunction |

### Monitor Jacks

The NTMW04 has two bantam jacks (RCV and XMT) located on the
faceplate. They may be used to monitor the performance of the carrier in the
receive and transmit direction. The jacks allow the convenient connection of
external T1/E1 test equipment and ISDN protocol analyzers.

## Initialize button

Pressing the manual initialize button starts the Initialize Program which clears common equipment faults then rebuilds call-dependent data and generates system messages indicating the status of the system. This process is called an *initialization* (or INI). Call processing is briefly interrupted during an initialization.

## System alarms

### Major alarms

A major alarm indicates a fault which seriously interferes with call processing. The causes of major alarms are listed in Table 57.

### Minor alarms

A minor alarm indicates the system hardware or software has detected a fault requiring attention. The causes of minor alarms are listed in Table 57.

A minor alarm displays an alarm on attendant consoles in customer groups affected by the fault. (A minor alarm indication on the console is an optional feature, enabled and disabled on a customer basis through data administration procedures.)

### Remote alarms

A remote alarm, in the context of general maintenance, is an extension of a major alarm on the system to another location or to an audible or visual indicator. The system generates a signal indicating it has a major alarm condition and sends it to a remote location, such as a monitoring center or test center, or to an indicator, such as a light or bell.

**Table 57**
**Causes of major and minor alarms**

| Alarm | Cause |
|-------|-------|
| Major | CPU or control bus failure |
|       | Software daughterboard failure when attempting to load the system |
|       | System power faults |
| Minor | Conference failure |
|       | Digitone receiver failure |
|       | Memory failure |
|       | More than one fault on different line and trunk cards in one cabinet |
|       | Serial Data Interface failure |
|       | Tone and digit switch failure |

### Line transfer

The NTMW07 Line/Trunk card has a built-in Power Failure Transfer (PFT) feature, designed to operate with a loop start trunk. This feature allows the connecting one trunk on the card to an analog telephone on the same card in the event of a commercial power or system failure.

> *Note:* Ground start trunks require a telephone set equipped with a ground start button to place outgoing calls when in PFT mode.

The Terminal Numbers (TNs) that are equipped to perform the PFT function vary depending on the slot assignment in the cabinets. When a PFT occurs, the following are connected:

- **In the Main cabinet**

  — When the NTMW07 card is in slot 1/2
    TN 01 03 connects to TN 02 03
    (Trunk on Card 01 Unit 03 connects to the telephone on Card 02
    Unitþ03)

  — When the NTMW07 card is in slot 3/4
    TN 03 03 connects to TN 04 03
    (Trunk on Card 03 Unit 03 connects to the telephone on Card 04
    Unitþ03)

  — When the NTMW07 card is in slot 5/6
    TN 05 03 connects to TN 06 03
    (Trunk on Card 05 Unit 03 connects to the telephone on Card 06
    Unit 03)

- **In the six-slot expansion cabinet**

  — When the NTMW07 card is in slot 11/12
    TN 11 03 connects to TN 12 03
    (Trunk on Card 11 Unit 03 connects to the telephone on Card 12
    Unit 03)

  — When the NTMW07 card is in slot 13/14
    TN 13 03 connects to TN 14 03
    (Trunk on Card 13 Unit 03 connects to the telephone on Card 14
    Unit 03)

  — When the NTMW07 card is in slot 15/16
    TN 15 03 connects to TN 16 03
    (Trunk on Card 15 Unit 03 connects to the telephone on Card 16
    Unit 03)

A line transfer occurs:

- during a sysload (SYSLOAD)

- if there is a major power failure

- if call processing stops due to a CPU failure

- if there is a loss of power to the cabinet

- if there is an over-temperature condition in a cabinet

# Software maintenance tools

Software maintenance tools help identify and clear faults, and provide self-checking capabilities. Software maintenance tools are divided into the following categories:

- Diagnostic programs monitor a variety of operations, detect faults, and initiate corrective action during normal call processing.

- The History File records maintenance-related system messages.

- Interactive programs test hardware, isolate faults, and verify fault clearing.

## Diagnostic programs

Diagnostic software programs monitor system operations, detect faults, and clear faults. Some programs run continuously, some are scheduled as part of the Midnight Routine, which is run automatically at a preset time.

### Overlays

Some programs are also called overlays or loads. They are identified by a title and a number preceded by the mnemonic for load (for example, Trunk Diagnostic — LD 36).

See the *Option 11C Compact Software Guides* for detailed information on all diagnostic programs.

### Error Monitor

The Error Monitor is a resident program which continuously tracks call processing. The Error Monitor generates system messages if it detects invalid or incorrectly formatted call processing information.

System messages generated by the Error Monitor are preceded by the mnemonic ERR, which usually indicates hardware faults, or the mnemonic BUG, which usually indicates software problems.

### Initialize Program

The Initialize Program momentarily interrupts call processing as it clears common equipment faults. It then rebuilds call-dependent data and generates system messages, with the mnemonic INI, which indicate the status of the system. This process is called an *initialization* (or *INI*).

You can activate an initialization by pressing the manual initialize (Man Int) button on the NTMW01 SSC card.

An initialization occurs automatically after the System Loader program runs, when a software or firmware fault is detected, and when a common equipment hardware fault is detected.

### Midnight and Background Routines

In the Configuration Record (LD 17), you can select the nonresident software programs which will run in the *Midnight Routine* and *Background Routine.* These routines automatically perform maintenance checks. Programs included in the Midnight Routine are defined with the prompt DROL (derived from "daily routine overlay"). Programs included in the Background Routine are defined with the prompt BKGD.

The Midnight Routine runs once every 24 hours. This routine is preset to run at midnight when a system is shipped, but you may assign a different time in the Configuration Record. When it is time for the Midnight Routine to start, the system cancels any other program.

The Background Routine runs when no other program is loaded in the overlay area. The programs included in the Background Routine run in sequence repeatedly until there is another request to use the overlay area (for example, if you log on to check the status of a circuit card) or the Midnight Routine runs.

You may include the programs listed in in Midnight and Background Routines. Software Audit (LD 44), and Network and Signaling Diagnostic (LD 30) should always be used in the Background Routine.

**Table 58**
**Programs used in Midnight and Background Routines**

| Program number | Program function |
|---|---|
| LD 30 | Network and Signaling Diagnostic |
| LD 34 | Tone and Digit Switch and Digitone Receiver |
| LD 36 | Trunk Diagnostic 1 |
| LD 38 | Conference Circuit Diagnostic |
| LD 40 | Call Detail Recording Diagnostic |
| LD 41 | Trunk Diagnostic 2 |
| LD 43 (Midnight only) | Data Dump |
| LD 44 | Software Audit |
| LD 46 | Multifrequency Sender Diagnostic |
| LD 60 (Midnight only) | Digital Trunk Interface Diagnostic |
| LD 61 (Midnight only) | Message Waiting Lamp |
| LD 135 | Common Equipment Diagnostic |
| LD 137 | Input/Output Diagnostic |

### Overlay Loader

This program locates, loads, and checks software programs. It automatically activates the Midnight and Background Routines. You can load programs manually by entering commands through the system terminal or maintenance telephone. Once the program is loaded, you see the program mnemonic (such as TRK for Trunk Diagnostic) on the system terminal.

### Overload Monitor

The volume of system messages is continuously monitored by the system. If too many error messages are detected from a line or trunk card, the system activates the Overload Monitor program. The Overload Monitor disables the faulty card and generates system messages with the mnemonic OVD.

### Resident Trunk Diagnostic

This program automatically monitors all trunk calls and records apparent faults on each trunk. If the number of faults on a trunk exceeds the threshold for that trunk, the program generates a system message identifying the trunk and the type of fault.

A failure on a trunk may keep the trunk from detecting incoming calls. The threshold mechanism cannot detect such a failure, so this program also records how many days it has been since each trunk received an incoming call. If you suspect some incoming calls are not being processed, you can use the command LMAX in Trunk Diagnostic 1 (LD 36) to identify the trunk with the maximum idle days.

### System Loader

The System Loader program loads all call processing programs and data, and starts memory-checking diagnostics. After all required programs and data have been loaded and all checks performed, the System Loader is erased from system memory, the Initialize Program runs, and normal call processing begins. This process is called a *sysload* (or *system reload*).

The System Loader operates automatically on system power up or if a common equipment or power fault destroys information in the system memory.

## History File

If a printer is connected to the system, each system message is printed as it is received. If a printer is not connected, you can use the History File (if equipped) to store a limited number of system messages in protected memory. The contents of the file may then be printed on demand, using LD 22.

The messages stored are specified on a system basis and can be one or more of the following types:

- customer service changes (CSC)

- maintenance messages

- service changes (SCH)

- software errors

- initialization and sysload messages

- traffic messages

For information on selecting the messages to be stored, see the *Option 11C Compact Software Guides.*

The contents of the History File are erased during a sysload or if you change the length of the History File. However, the contents survive an initialization.

You can change the length of the History File with the prompt HIST in the Configuration Record (LD 17).

If the History File is full, the first messages stored are replaced by incoming messages. If this happens, the system gives a "file overflow" message at the start of a printout so you know some information has been replaced by newer messages.

# End user reports

Reports from system users often indicate problems that may not be indicated by the system. Many faults reported by users, such as a damaged telephone or data set, are obvious and can be fixed by replacing the damaged equipment.

Some faults are less obvious and may be caused by other equipment, such as a defective peripheral equipment line or trunk card. To classify the fault in these cases, check for system messages and visual fault indications. You may also need to have the user reproduce the problem so you can determine the sequence of events that led to the fault.

## User report indications

Table 59 lists problems that are typically reported by users.

**Table 59**
**User report indications**

| User report | Type of fault |
|---|---|
| Major alarm reported by attendant | Power |
| No ring on 500/2500-type telephones | |
| Major alarm reported by attendant | Common equipment |
| Minor alarm reported by attendant | Common equipment |
| Users cannot transfer or conference | |
| Users cannot dial out on 500/2500-type telephones | |
| Trouble with calls on attendant console | Peripheral equipment |
| Trouble with calls on telephones | |
| Users have trouble with a specific trunk | Trunk |
| Callers report continuous ringing | |
| Trouble with calls on console and/or telephones | |
| Trouble with calls | Attendant console |
| Trouble with equipment (such as handset, headset, or display) | |
| Trouble with calls | Telephone |
| Trouble with equipment (such as handset or add-on module) | |

# Technical assistance service

## Nortel Technical Assistance Centers

To help customers obtain maximum benefit, reliability, and satisfaction from their Meridian 1 Option 11C Compact, Nortel provides technical assistance in resolving system problems. This service is provided through the centers listed in Table 60.

**Table 60**
**Technical Assistance Centers**

| Location | Contact |
|---|---|
| Nortel (ETAS)<br>2100 Lakeside Blvd.<br>Richardson, Texas, USA<br>75082 | Telephone: 972-437-8282<br><br>Fax: 972-437-8913 |
| Nortel (CTAS)<br>P.O. Box 4000<br>250 Sidney Street<br>Belleville, Ontario, Canada<br>K8N 5B7 | Telephone: 613-966-8181<br><br>Fax: 613-967-5360 |

## Services available

Services available through the Technical Assistance Centers include:

• diagnosing and resolving software problems not covered by support documentation

• diagnosing and resolving hardware problems not covered by support documentation

• assisting in diagnosing and resolving problems caused by local conditions

There are several types of class-of-service available. Emergency requests (Class E1 and E2) receive an immediate response. Service for emergency requests is continuous until normal system operation is restored. Non-emergency requests (Class S1, S2, and NS) are serviced during normal working hours. Service classifications are described further in Tables 61 and 63.

Except as excluded by the provisions of warranty or other agreements with Nortel, a fee for technical assistance may be charged, provided at rates established by Nortel. Information on rates and conditions for services are available through Nortel sales representatives.

**Table 61**
**Technical service emergency classifications**

| Class | Degree of failure | Symptoms |
|-------|-------------------|----------|
| E1 | Major failure causing system degradation or outage | System out of service with complete loss of call-processing capability |
| | | Loss of total attendant console capability |
| | | Loss of incoming or outgoing call capability |
| | | Call processing degraded for reasons such as trunk group out of service |
| | | • 10% or more lines out of service |
| | | • Frequent initializations (seven per day or more) |
| | | • inability to recover from initialization or sysload |
| | | • consistently slow dial tone (eight seconds or more delay) |
| E2 | Major failure causing potential system degradation or outage | Frequent initializations (one per day or more) |

**Table 62**
**Technical services non-emergency classifications**

| Class | Degree of failure | Symptoms |
|-------|-------------------|----------|
| S1 | Failure which affects service | Software or hardware trouble directly and continuously affecting user's service or customer's ability to collect revenue |
| | | Problem that will seriously affect service at in-service or cut-over date |
| S2 | Intermittent failure which affects service | Software or hardware faults that only intermittently affect service |
| | | System-related documentation errors which directly result in or lead to impaired service |
| NS | Failure which does not affect service | Documentation errors |
| | | Software inconsistencies which do not affect service |
| | | Hardware diagnostic failures (not defined above) which cannot be corrected by resident skills |
| | | Test equipment failures for which a backup or manual alternative can be used |
| | | Any questions concerning products |

## Requesting assistance

Collect the information listed in Table 63 before calling for service.

**Table 63**
**Checklist for service requests**

Name of person requesting service     _____

Company represented     _____

Telephone number     _____

System type/identification     _____

Installed software generic and issue
(located on data disk)     _____

Modem telephone number and password
(if applicable)     _____

Seriousness of request
(see Tables 61 and 62)     _____

Description of assistance required     _____

_____

_____

_____

# How to clear faults

## Fault clearing process

When a fault must be cleared in the Option 11C Compact, follow these steps:

- Observe and record all fault indicators.

- System messages, visual fault indicators and user reports identify many problems. If the indicators are not current or seem incomplete, you may need to print the History File for previous messages, you may need to initialize the system for information on the current status, or both.

- Look up all system messages in the *Option 11C Compact Software Guide*.

  The interpretation of the message may identify faulty equipment and indicate what action to take to clear the problem. If you cannot clear the fault through information in the *Option 11C Compact Software Guide,* follow the process in this section to isolate and clear the fault.

- Try to enable or test disabled equipment.

- You may be able to hardware re-enable circuit cards by unseating then reinstalling them. You may be able to software re-enable cards by disabling then re-enabling them. When the cause of a fault is not clearly evident, a software test may help you identify the problem.

- Replace equipment as necessary.

## How to clear faults

To clear faults in the Option 11C Compact system, follow the steps below:

1    Classify the fault by the indicators present (see the section "Fault indicators" on page 460. When there are indications of multiple faults, clear them in the following order:

- "Clearing power faults" on page 469
- "Clearing Common Equipment faults" on page 474
- "Clearing Network faults" on page 481
- "Clearing Peripheral Equipment faults" on page 495
- "Clearing trunk faults" on page 503
- "Clearing attendant console faults" on page 510
- Telephone faults

*Note:* Always clear possible power faults then Common Equipment faults before any other type of fault.

2    Go to the section for clearing the type of fault identified. There is a section for each type of fault listed above (for example, "Clearing power faults" on page 469. As closely as possible, match the problem to a symptom listed in the section.

3    Go through the procedure for clearing each possible cause of the problem until the fault is cleared.

4    When the fault is corrected, follow the instructions in "Final maintenance procedure" on page 534 to completely restore normal operation.

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

# Fault indicators

When there is a fault in the system, you may be notified by any combination of the following indicators:

- system messages

- visual fault indicators

- user reports

Each type of indicator is described below.

## System messages

System messages are codes with a mnemonic and number, such as OVD021. The mnemonic identifies a software program or a type of message. The number identifies the specific message. Use system messages with other indicators, such as visual indicators, to identify and clear faults.

Table 64 lists the most common fault indicating messages and the type of fault they indicate. For a complete list and interpretation of system messages, see the *Option 11C Compact Software Guide*.

**Table 64**
**System message fault indicators and related fault types**

| System messages | Type of fault |
|---|---|
| BSD90 messages | Power |
| CCED messages<br>CED messages<br>CIOD messages<br>HWR messages<br>INI001, 002, 004, 005, 007<br>IOD006, 007, 060, 061, 291—297<br>NWS030, 102, 103, 142<br>SYS messages | Common Equipment |
| CNF messages<br>DTA, DTC, DTI messages<br>ERR020, 120, 4060<br>INI003, 008—012<br>NWS101, 141, 201—204, 301, 401<br>OVD021, 022, 023, 031<br>SYS4696<br>TDS messages<br>XMI messages | Network |
| ERR4062<br>NWS301, 401, 501<br>OVD001—010, 024<br>XMI messages | Peripheral Equipment |
| ERR090, 220, 270<br>OVD001—010<br>TRK messages | Trunk |
| ERR500<br>MWL500<br>NWS501<br>OVD001—010 | Telephone |

## Visual fault indicators

There are visual indicators that can help identify faults. These indicators include:

- A major alarm display: indicates a possible power, or Common Equipment, or Network fault

- Circuit card Light Emitting Diodes (LEDs): indicates a card or a unit on a circuit card is disabled

Table 65 lists visual indicators and the type of fault they might indicate.

**Table 65**
**Visual fault indicators and related fault types**

| Indicator | Type of fault |
|---|---|
| Green LED off on a power supply Circuit breaker tripped (down) Remote alarm | Power |
| Red LED lit on CE card | Common Equipment |
| Minor alarm on an attendant console | Network |
| Red LED lit on associated card | Peripheral Equipment |
| Red LED lit on trunk card | Trunk |
| Red LED lit on associated cards | Attendant console |
| Red LED lit on associated cards | Telephone |
| Sync LED on Fbr Rcvr card | Fbr Rcvr card or Fiber cable |

## User reports

Many faults reported by users, such as a damaged telephone or data set, are obvious and can be fixed by replacing the damaged equipment.

Some faults are less obvious and may be caused by other equipment, such as a defective Peripheral Equipment circuit card. To classify the fault in these cases, check for system messages and visual fault indications. You may also have the user reproduce the problem so you can determine the sequence of events that led to the fault.

Table 66 lists typical problems reported by users and the type of fault they might indicate.

**Table 66**
**User reported problems and related fault types**

| User report | Type of fault |
|---|---|
| An alarm reported by attendant | Power |
| An alarm reported by attendant | Common Equipment |
| An alarm reported by attendant<br>Cannot transfer or conference<br>Cannot dial out on 500/2500-type telephones | Network |
| Trouble with calls on attendant console<br>Trouble with calls on telephones | Peripheral Equipment |
| Trouble with a specific trunk<br>Continuous ringing<br>Trouble with calls on console and/or telephones | Trunk |
| Trouble with calls<br>Trouble with equipment (such as handset, headset, or display) | Attendant console |
| Trouble with calls<br>Trouble with equipment (such as handset or add-on module) | Telephone |

# Accessing the system

When replacing equipment, you send maintenance commands to the system software to disable faulty equipment and to software enable and test newly installed equipment.

You send maintenance commands to the system through the system terminal or the maintenance telephone. This section gives the procedures for accessing the system through these devices.

## Access through the system terminal

You can send maintenance commands and receive system messages by accessing the CPU through an RS-232 device, such as a video display terminal (VDT) or teletypewriter (TTY).

When you access the system through a system terminal, a login procedure is required. All system passwords are initially set as 0000, but you can change passwords through the Configuration Record (LD 17).

If a sysload (SYSLOAD) occurs before you save a new password in a data dump, the last active password remains valid.

Each system has two levels of passwords: level 1 is for general use, level 2 is for administrative use. Either password is accepted in the login procedure.

describes how to access the system from a terminal.

**Procedure 83**
**Accessing the system from a system terminal**

**1**     Press the return key.

- If the response is
  **OVL111 nn IDLE** or **OVL111 nn BKGD**
  you are ready to log into the system. Go to Step 2.

- If the response is
  **OVL000 >**
  you are already logged into the system. Go to Step 4.

  Responses may vary with different Background Terminal
  packages.

**2**     Enter
  **LOGI**
  **then press the return key.**

  The normal response is
  **PASS?**
  If there is any other response, see the *Option 11C Compact Software
  Guide.*

**3**     Enter either the level 1 or level 2 password and press the return key.
  If the password is correct, the system responds with the prompt
  **>**

**4**     Enter
  **LD xx**
  **"xx" represents the number of the program.**

**5**     Perform tasks.

**6**     End the program by entering
  **\*\*\*\***

**7**     End the log in session with
  **LOGO**

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

## Access through the maintenance telephone

A telephone functions as a maintenance telephone when you define the class-of-service as MTA (maintenance telephone allowed) in the Telephones program (LD 11).

A maintenance telephone allows you to send commands to the system, but you can only use a subset of the commands that can be entered from a system terminal. The maintenance telephone, however, takes priority over a system terminal and will log the terminal out.

You can test tones and outpulsing through the maintenance telephone. Specific commands for those tests are given in the Tone and Digit Switch and Digitone Receiver Diagnostic (LD 34).

You can test trunk connections through the maintenance telephone. Specific commands for those tests are given in the Trunk Diagnostic (LD 36).

No log in procedure is required when you access the system through a maintenance telephone. To enter commands, press the keys that correspond to the letters and numbers of the command (for example, to enter *LD 42 return*, key in *53#42##*). shows the translation from a terminal keyboard to a telephone dial pad.

To use the maintenance telephone, the Terminal Number (TN) for that telephone must be operating.

describes how to access the maintenance telephone.

**Table 67**
**Translation from keyboard to dial pad**

| Keyboard | | | | Dial Pad |
|---|---|---|---|---|
| | | | 1 | 1 |
| A | B | C | 2 | 2 |
| D | E | F | 3 | 3 |
| G | H | I | 4 | 4 |
| J | K | L | 5 | 5 |
| M | N | O | 6 | 6 |
| P | R | S | 7 | 7 |
| T | U | V | 8 | 8 |
| W | X | Y | 9 | 9 |
| | | | 0 | 0 |
| | | Space or # | | # |
| | | Return | | ## |
| *Note:* There is no equivalent for Q or Z on a dial pad. | | | | |

**Procedure 84**
**Accessing the maintenance telephone**

**1**    Press the prime DN key.

**2**    Place the telephone in maintenance mode by entering
**xxxx91**
"xxxx" represents the customer Special Prefix (SPRE) number. It is
defined in the Customer Data Block and can be printed using LD 21.
The SPRE number is typically "1" (which means you would enter *191*).

**3**    Check for busy tone by entering
**\*\***

- If there is no busy tone, go to Step 4.

- If there is a busy tone, a program is active. To end an active
  program and access the system, enter
  **\*\*\*\***

**4**    Load a program by entering
**53#xx##**
**"xx" represents the number of the program.**

**5**    Perform tasks.

**6**    Press the release key to return the telephone to call processing mode.
Background routines are then loaded automatically.

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

# Clearing power faults
## Power faults

The various electrical voltages required to power the system, including ringing voltages for Analog 500- and 2500-type telephones and to light message waiting lamps on 2500-type telephones, are provided by a power supply located in each cabinet.

The power supply is located in the extreme left shelf position in each cabinet.

## Fault clearing procedures

System messages with the mnemonic BSD090 contain power related information. They identify the type of equipment generating the message.

Table 68 shows the power messages output

**Table 68**
**BSD power messages**

| BSD090 message | Affected equipment |
|---|---|
| BSD090 MAIN-PWR | Power fault in the main cabinet. |
| BSD090 EXPANSION CABINET 1 - PWR | Power fault in expansion cabinet 1. |
| BSD POWER OK - MAIN CABINET | The power fault in the main cabinet no longer exists. |
| BSD POWER OK - EXPANSION CABINET 1 | The power fault in the expansion cabinet 1 no longer exists. |
| **BSD90 message multiple problem format** This format is used to indicate more than one problem, and is output for both main and expansion cabinets**.** | **Affected equipment** |

Table 69 lists common power fault indications. To clear faults, select the symptom listed that most resembles the fault indications then go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

You must clear power faults before you try to clear other types of faults in the system. You must clear power faults in the main cabinet before clearing power faults in an expansion cabinet.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check <u>"How to clear faults" on page 458</u> to see if another type of fault is indicated.

After the fault is corrected, go to <u>"Final maintenance procedure" on page 534</u> to completely restore normal operation.

**Table 69**
**Power fault indications**

| Indicator | Possible indications |
|---|---|
| System messages | BSD090 messages |
| Visual indicators | Alarms<br>Green LED off on cabinet power supply<br>LED lit on PFTU<br>Circuit breaker tripped (down)<br>Remote alarm |
| User reports | Difficulty reported by attendant<br>No ring on 500/2500-type telephones |

## Symptom:
## Main circuit breaker off and all LEDs off

All the LEDs in the system are off and the circuit breaker on the power supply in the cabinet is tripped. Use this procedure to clear the problem.

High room temperature or a power surge can shut down the system. Check for these external conditions and if present, correct them then reset the breaker.

You may need to replace:

- the NTMW11 power supply

- the NTMW01 SSC card (if the fault is in the main cabinet)

- the cooling fan in the top of the affected cabinet

- any one of the remaining circuit cards in the affected cabinet

| Possible cause | Action |
|---|---|
| Thermal overload | Make sure nothing is blocking ventilation throughout the system. Allow the system to cool for a few minutes then reset the breaker. Make sure that the fan in the top of the cabinet is operating. If not, replace the fan. |
| | Check that the fan in the top of the cabinet is operating and is not obstructed by items left on top of the cabinet. Listen to determine if fan is operating. To further check or replace fan, remove top cover to gain access to the fan. See Figures 56 and 57. |
| | If the breaker trips, go to the next possible cause. |
| Defective circuit card in the cabinet | Unseat all the circuit cards in the cabinet except the power supply. Reset the breaker. |
| | If the breaker trips, the power supply is defective. Remove the existing power supply and install a new one. |
| | If the breaker does not trip, reinstall the circuit cards one-at-a-time until the breaker trips. |

**Figure 56**
**Location of top cover fasteners**



Two fasteners securing top cover to cabinet
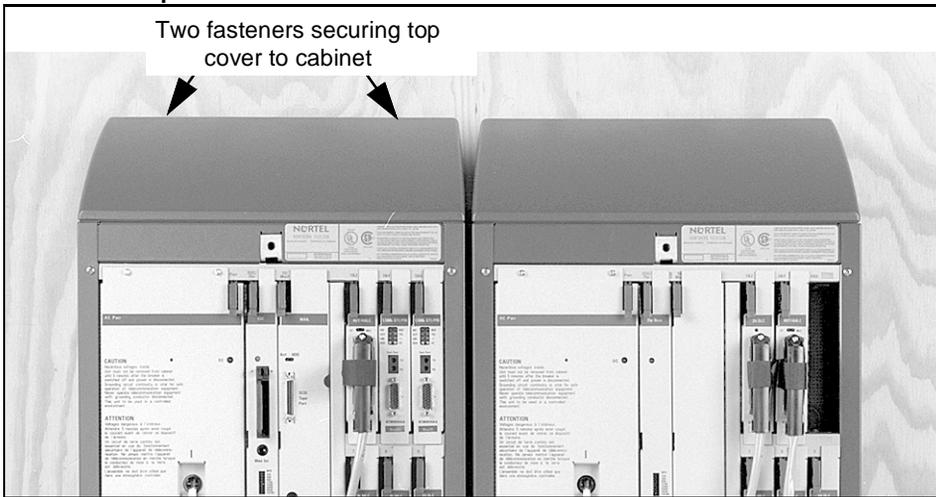
**Figure 57**
**View of fan from rear of cabinet (cover removed)**
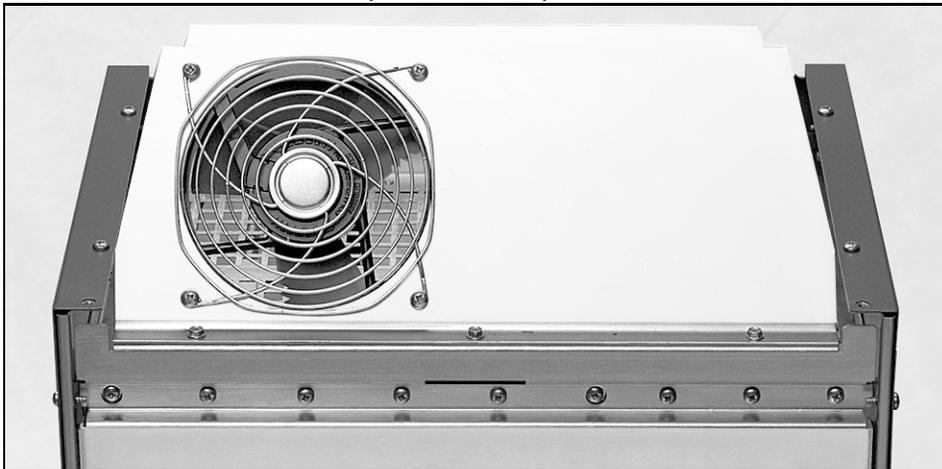
## Symptom:
## Circuit breaker on the power supply in the cabinet is on but all LEDs in the cabinet are off

All the LEDs in the cabinet are off but the circuit breaker on the Power Supply Unit in the cabinet is not tripped. Use this procedure to clear the problem.

You may need to replace the:

- NTMW11 power supply

- Main AC Power Supply Cord

- Uninterruptible Power Supply (UPS)

| Possible cause | Action |
|---|---|
| Main Power Cord not connected | If the main power cord for the cabinet is unplugged, plug it in. Check both ends of the cord to make sure that it is also plugged in to the power supply unit. |
| | If the power cord is already plugged in, go to the next possible cause. |
| **WARNING** **The following tests are performed on a live power connection.** | |
| No power at outlet | With a meter or test lamp, test for power at the outlet. |
| | If there is no power at the outlet when AC power is supplied through a UPS unit, repair or replace the UPS following the manufacturer's instructions. |
| | If there is no power at the outlet when AC power is supplied through commercial service (not through a UPS), take the necessary steps to have the commercial power restored. |
| | If there is power at the outlet, go to the next possible cause. |
| Defective Main Power Cord | With a meter or test lamp, test the cabinet end of the main power cord (at the bottom of the Power Supply Unit in the cabinet) for power. |
| | If there is no power, replace the power cord. |
| | If there is power at the connections, go to the next possible cause. |
| Defective Power Supply Unit | Replace the NTMW11 Power Supply Unit. |

# Clearing Common Equipment faults
## Common Equipment faults

Common Equipment (CE) functions perform system control and switching. Common Equipment, located on the NTMW01 SSC card, can include:

- CPU: Comprised of two processors. The main processor handles call processing, serial ports, and network traffic. The auxiliary processor handles card polling, power monitoring, tone generation, and control of a Digital Signal Processor (DSP) for tone detection.

- Fiber Expansion Daughter Board: provides 16 additional conference channels and access to expansion cabinet hardware

- Software Daughter Board: provides system software storage

- Ethernet controller: provides one port between the CPU and a Local Area Network (LAN)

- Serial Data Interface: provides three ports between the CPU and external devices

- Personal Computer Memory Card Industry Association (PCMCIA) interface: provides access for one Type III or two Type II PCMCIA card drives to allow software delivery or customer data storage

- Tone and Digit Switch: provides 30 channels of tone generation

- Conference: provides 32 channels, plus 16more if the Fiber Expansion Daughter Board is equipped

Common Equipment faults can disable the CPU and stop call processing. In addition, other types of equipment (such as Peripheral Equipment) may not operate properly while there is a CE fault in the system.

## Fault clearing procedures

Table 70 lists Common Equipment (CE) fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power faults before attempting to clear Common Equipment faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check to see if another type of fault is indicated.

After the fault is corrected, go to to completely restore normal operation.

**Table 70**
**Common Equipment fault indications**

| Indicator | Possible indications |
|---|---|
| System messages | CCED messages<br>CED messages<br>CIOD messages<br>HWR messages<br>INI001, 002, 004, 005, 007<br>IOD006, 007, 060, 061, 291—297<br>NWS030, 102, 103, 142<br>SYS messages |
| Visual indicators | Major alarm on attendant consoles<br>Red LED lit on NTMW01 SSC circuit card |
| User reports | Major alarm |

**ISDN and DTI faults**

Fault locating and clearing procedures for 1.5 Mb ISDN or DTI related faults are contained in the *ISDN DTI/PRI Administration and Maintenance*.

## Symptom:
## Call processing stopped on the entire system

Call processing has stopped. Look up all system messages in the *Option 11C Compact Software Guide* and follow the instructions given. If the fault does not clear, use this procedure.

You may need to replace:

- NTMW11 Power Supply

- NTMW01 SSC card

- NTDK21 or NTDK81 Software Daughter Board

- NTDK22 Fiber Daughter Board

- Main Cabinet

| Possible cause | Action |
|---|---|
| Improperly installed NTDK21 or NTDK81 Software Daughter Board | Unseat the NTMW01 SSC card.<br>Unseat the Software Daughter Board.<br>Reseat the Software Daughter Board.<br>Ensure Daughter Board connector is fully seated.<br>Reinsert the NTMW01 SSC circuit card. |
| Improperly installed NTDK22 Fiber Daughter Board | Unseat the NTMW01 SSC card.<br>Unseat the Fiber Daughter Board.<br>Reseat the Fiber Daughter Board.<br>Ensure Daughter Board connector is fully seated.<br>Reinsert the NTMW01 SSC circuit card. |
| Defective NTMW11 Power Supply in the main cabinet | Make sure the green LED on the NTMW11 Power Supply in the main cabinet is lit. If it is not lit, go to "Clearing power faults" on page 469.<br>If the power supply LED is lit, go to the next possible cause. |
| Initialization required | Press the manual initialize button on the faceplate of the NTMW01 SSC. If the system initializes, check all fault indicators and clear any faults indicated. If the system does not initialize, unseat the circuit cards in the shelf in the main cabinet (and in the expansion cabinet if equipped) one-at-a-time. If the system initializes, replace the last circuit card removed (it may be faulty). If the system will not initialize, go to the next possible cause. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective NTMW01 SSC card | Replace the NTMW01 SSC circuit card with the original Daughter Boards installed on it.<br><br>If the system does not recover, go to the next possible cause. |
| Defective NTDK22 Fiber Daughter Board | Unseat the NTMW01 SSC circuit card and replace the Fiber Daughter Board.<br>Reinsert the NTMW01 SSC circuit card.<br><br>If a sysload (SYSLOAD) occurs, check all fault indicators and clear any faults indicated.<br>If the system will not reload, go to the next possible cause. |
| Defective NTDK21 or NTDK81 Software Daughter Board | Unseat the NTMW01 SSC circuit card and replace the Software Daughter Board.<br>Reinsert the NTMW01 SSC circuit card.<br>Reinstall software form PCMCIA card as necessary.<br><br>If the system will not reload, go to the next possible cause. |
| Defective backplane | Replace the cabinet. |

## Symptom:
## Fault indicated on the NTMW01 SSC card, or Memory fault indicated

The red LED is lit on the SSC card, or a memory fault is indicated. Look up all system messages in the *Option 11C Compact Software Guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

- NTMW01 SSC card

- NTDK21 or NTDK81 Software Daughter Board

- NTDK22 Fiber Daughter Board

| Possible cause | Action |
|---|---|
| Improperly installed NTDK21 or NTDK81 Software Daughter Board | Power down the system, remove the NTMW01 SSC card. Unseat the Software Daughter Board and then reseat it. Reinsert the NTMW01 SSC card. Power up the system. |
| Improperly installed NTDK22 Fiber Daughter Board | Power down the system, remove the NTMW01 SSC card. Unseat the Fiber Daughter Board and then reseat it. Reinsert the NTMW01 SSC circuit card. Power up the system. |
| Defective NTMW01 SSC card | Replace the NTMW01 SSC card with the original daughter boards installed on it. *Note:* Reuse all daughter boards installed on the original NTMW01 SSC card. Call processing on the entire system will be interrupted while the NTMW01 SSC circuit card is being replaced. If the system does not recover, go to the next possible cause. |
| Defective NTDK21 or NTDK81 Software Daughter Board | Unseat the NTMW01 SSC card and replace the Software Daughter Board. *Note:* Call processing on the entire system will be interrupted while the NTMW01 SSC card is unseated. Reinsert the NTMW01 SSC card. If the system will not reload, go to the next possible cause. |
| Defective NTDK22 Fiber Daughter Board | Unseat the NTMW01 SSC card and replace the Fiber Daughter Board. *Note:* Call processing on the entire system will be interrupted while the NTMW01 SSC circuit card is unseated. Reinsert the NTMW01 SSC circuit card. |

## Symptom:
## Fault indicated on the Tone and Digit Switch

The red LED is lit on the CPU circuit card, or a Tone and Digit Switch fault is indicated. Look up all system messages in the *Option 11C Compact Software Guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace the NTMW01 SSC card.

| Possible cause | Action |
|---|---|
| Defective Tone and Digit Switch circuitry | Test the Tone and Digit Switch and (Digitone Receiver) on the NTMW01 SSC card by entering<br>**LD 34**<br>**DISX 0**<br>and then<br>**ENLX 0**<br>finally<br>**STAT 0.**<br><br>If the Digitone Receiver fails the test, replace the NTMW01 SSC card.<br><br>***Note:*** Reuse all daughter boards installed on the original NTMW01 SSC card. Call processing on the entire system will be interrupted while the NTMW01 SSC card is being replaced. |

## Symptom:
## Fault indicated when trying to perform a data dump

You are able to log onto the system but you get an error message when trying to perform a data dump.

| Possible cause | Action |
|---|---|
| Corrupted Software Daughter Board (NTDK21 or NTDK81) | Perform an **EDD NBK** command in **LD 43** to restore the software cartridge. |
| Manual initialize button pressed when performing a backup using the Customer Configuration Backup and Restore feature. | While still in remote backup mode, issue an **ENLT** command. |
| Security failure during an upgrade. | Re-enter the keycodes. |
| | ***Note:*** Up to three invalid keycode may be entered. After the third invalid keycode, all changes are lost and the Setup Program returns to the main menu. |

# Clearing Network faults

## Network faults

Network functions in the Option 11C Compact are an integral part of the NTMW01 SSC card. It provides speech path switching and transmit and receive signaling messages from the CPU. Network functions include:

- Conference/Tone and Digit Switch

- Digital switching and conferencing for the system

- Serial Data Interface

- Ethernet controller

Network faults can cause system initializations and disable conference capability or all terminal connections (such as trunks and telephones) on a card. Network faults can make functional Peripheral Equipment seem faulty.

## Fault clearing procedures

Manual Continuity Tests can be used to isolate Network faults and Peripheral Equipment faults. See "LD 30" in the *Option 11C Compact software guide* for details on performing the tests.

Table 71 lists common Network fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before attempting to clear Network faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check "How to clear faults" on page 458 to see if another type of fault is indicated.

After the fault is corrected, go to "Final maintenance procedure" on page 534 to completely restore normal operation.

**Table 71**
**Network fault indicators**

| Indicator | Possible indications |
|---|---|
| System messages | CNF messages |
| | DTA, DTC, DTI messages |
| | ERR020, 120, 4060 |
| | INI003, 008—012 |
| | NWS101, 141, 201—204, 301, 401 |
| | OVD021, 022, 023, 031 |
| | SYS messages |
| | TDS messages |
| Visual indicators | Minor alarm on an attendant console |
| | Red LEDs lit or flashing on circuit cards |
| User reports | Minor alarm reported by attendant |
| | Users cannot transfer or conference |
| | Users cannot dial out on 500/2500-type telephones |
| | No dial tone at all sets; no display on digital sets |

## Symptom:
## Disabled card indicated by OVD message

An overload (OVD) message indicates a card disabled. All terminal connections on the card are disabled.

Test the card by entering:

**LD 30**
**TEST**
If the card tests "OK" the problem has cleared. If an "OVD" message appears after a few minutes, use this procedure.

Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Manual Continuity Tests can be used to isolate Network and Peripheral Equipment faults. See "LD 30" in the *Option 11C Compact software guide* for details on performing the tests.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace some of the following equipment:

- Peripheral Equipment (PE) circuit card

- Cabinet

- A0632902 Fiber Optic cable

- NTMW01 SSC card

- NTDK21 or NTDK81 Software Daughter Board

- NTDK22 Fiber Daughter Board

- NTMW10 Fbr Rcvr (Fiber Receiver) card

| Possible cause | Action |
|---|---|
| Defective cable | Isolate the feeder cable from the system. |
| Defective PE circuit card | Unseat the PE circuit card. Enable and test the card by entering<br>**LD 30**<br>**TEST**<br><br>If you receive an OVD message after a few minutes, go to the next possible cause.<br><br>If you do not receive an OVD message after a few minutes, install a new PE circuit card in the slot.<br>If an OVD message appears after the new circuit card is inserted, there is a fault on the terminal equipment (such as a telephone or console connected to the circuit card).<br><br>See the appropriate section (such as "Clearing attendant console faults" on page 510) and fix the fault. (If the messages point to a particular TN, isolate that TN from the system.) |
| Defective terminal equipment | Check terminal equipment (such as attendant consoles and telephones) on the disabled card.<br><br>If you find defective terminal equipment, see the appropriate section (such as "Clearing attendant console faults" on page 510) to fix the fault. |
| Defective NTMW10 Fbr Rcvr card if affected card is in Expansion cabinet | Replace the NTMW10 Fbr Rcvr.<br><br>*Note:* Call processing for the Expansion cabinet will be interrupted while the Fbr Rcvr (Fiber Receiver) card is being replaced.<br><br>Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ  if the fault is in Expansion cabinet 1<br><br>If the fault remains replace the Fiber cable<br>Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þif the fault is in Expansion cabinet 1 |
| —continued— ||

| Possible cause | Action |
|---|---|
| | If the fault remains replace the Fiber Daughter Board NTDK22 Fiber Daughter Board on the NTMW01 SSC card. |
| | *Note:* Reuse the Software Daughter Board and the other Fiber Daughter Board, if equipped, attached to the original SSC card. Call processing on the entire system will be interrupted while the card is unseated. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ   if the fault is in Expansion cabinet 1<br>If the fault remains replace the NTMW01 SSC card. |
| Defective NTDK22 Fiber Daughter Board if affected card is in Expansion cabinet | Replace the Fiber Daughter Board on the NTMW01 SSC card. |
| | *Note:* Call processing on the entire system is interrupted while the NTMW01 SSC card is unseated. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ |
| | If the fault remains replace the Fiber cable. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ |
| | If the fault remains replace the NTMW10 Fbr Rcvr. |
| | *Note:* Call processing for the Expansion cabinet will be interrupted while the Fbr Rcvr (Fiber Receiver) card is being replaced. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ |
| | If the fault remains replace the NTMW01 SSC card. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective NTMW01 SSC card | Install a new NTMW01 SSC card. |
| | *Note:* Reuse the daughter boards attached to the original NTMW01 SSC card. Call processing on the entire system is interrupted while the SSC card is being replaced. |
| | Enable and test the card by entering **LD 30** **TEST** |
| | Wait for an OVD message. |
| | If the card tests "OK", the SSC circuit card was defective. |
| | If after a few minutes you receive an OVD message, and this system is not equipped with an expansion cabinet, the shelf backplane is defective. Replace the main cabinet. |
| | If this system is equipped with an expansion cabinet, go to the next possible cause. |
| Defective Expansion cabinet | Replace cabinet. |
| | Enable and test the card by entering **LD 30** **TEST** |

## Symptom:
## Card disabled without OVD message

There is a system message indicating one or more cards are defective or disabled, but there is no overload (OVD) message indicating disabled equipment. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Peripheral Equipment (PE) circuit card

- The cabinet

- A0632902 Fiber Optic cable

- NTMW01 SSC card

- NTDK21 and NTDK81 Software Daughter Board

- NTDK22 Fiber Daughter Board

- NTMW10 Fbr Rcvr (Fiber Receiver) card

| Possible cause | Action |
|---|---|
| PE card circuitry latched | Disable card, reseat card and enable the card.<br>If the fault persists, go to the next possible cause. |
| Defective PE circuit card | Replace the PE circuit card.<br><br>Enable and test the card by entering<br>**LD 30**<br>**TEST**<br><br>If the fault persists, go to the next possible cause. |
| Defective terminal equipment | Check all terminals (such as telephones or trunks) connected to the PE circuit card.<br><br>Enable and test the card by entering<br>**LD 30**<br>**TEST**<br><br>If the fault is not located, go to the next possible cause. |
| 25-pair cable seating | Check for obstructions, clear if any and reseat cable.<br><br>If the fault persists, go to the next possible cause. |
| —continued— ||

| Possible cause | Action |
|---|---|
| Defective NTMW10 Fbr Rcvr (Fiber Receiver) card if affected card is in Expansion cabinet | Replace the NTMW10 Fbr Rcvr. |
| | *Note:*  Call processing for the Expansion cabinet is interrupted while the Fbr Rcvr card is being replaced. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ |
| | If the fault remains replace the Fiber cable. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ |
| | If the fault remains replace the NTDK22 Fiber Daughter Board on the NTMW01 SSC circuit card. |
| | ***Note:*** Reuse the Software Daughter Board and the other Fiber Daughter Board, if equipped, attached to the original NTMW01 SSC circuit card. Call processing on the entire system will be interrupted while the NTMW01 SSC circuit card is unseated. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ |
| | If the fault remains replace the NTMW01 SSC card. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective NTDK22 Fiber Daughter Board if affected card is in Expansion cabinet | Replace the Fiber Daughter Board on the NTMW01 SSC card. |
| | ***Note:*** Reuse the Software Daughter Board attached to the original SSC card. Call processing on the entire system is interrupted while the SSC card is unseated. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ |
| | If the fault remains replace the Fiber cable. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ |
| | If the fault remains replace the NTMW10 Fbr Rcvr. |
| | *Note:* Call processing for the Expansion cabinet is interrupted while the Fbr Rcvr card is being replaced. |
| | Enable the fiber link by entering<br>**LD 135**<br>**ENL FIL 1**þ |
| | If the fault remains replace the NTMW01 SSC card. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective NTMW01 SSC | Install a new NTMW01 SSC card. |
| | *Note:* Reuse the daughter board attached to the original SSC card. Call processing on the entire system is interrupted while the SSC circuit card is being replaced. |
| | Enable and test the card by entering **LD 30** **TEST** |
| | If the card tests "OK", the NTMW01 SSC was defective. |
| | If after a few minutes the problem recurs, and this system is not equipped with an expansion cabinet, the shelf backplane is defective. Replace the main cabinet. |
| | If this system is equipped with an expansion cabinet, go to the next possible cause. |
| Defective Expansion cabinet | Replace cabinet if the affected PE card is in this cabinet. |
| | Enable and test the card by entering **LD 30** **TEST** |
| | If problem persists got to next possible cause |
| Defective Main cabinet | Replace cabinet. |

## Symptom:
## Problems with transferring, placing conference calls, or Music-on-Hold

Several users cannot transfer or place conference calls, or calls do not receive Music-on-Hold. A circuit card that provides conference capability may be disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- NTMW01 SSC card
- NTDK22 Fiber Daughter Board
- Telephone

| Possible cause | Action |
|---|---|
| Defective NTDK22 Fiber Daughter Board | If a fault is indicated on conference loop 31, replace the Fiber Daughter Board. |
| | *Note:* Call processing on the entire system is interrupted while the NTMW01 SSC is unseated. |
| Defective NTMW01 SSC | If there are no messages indicating a fault on any conference loop, test each conference loop in the system by entering<br>**LD 38**<br>**CNFC loop**<br>**("loop" represents the conference loop number 29, 30, or 31)** |
| | If the conference loop is disabled, try to enable it by entering<br>**LD 38**<br>**ENLL loop**<br>**("loop" represents the conference loop number 29, 30, or 31)** |
| | If a fault is indicated on conference loop 31, replace the Fiber Daughter Board for Expansion. |
| | If a fault is indicated on conference loop 29 or 30, replace the NTMW01 SSC card. |
| | *Note:* Reuse the daughter boards installed on the original SSC card. Call processing on the entire system is interrupted while the SSC card is being replaced. |
| | If no faults are detected on any conference loop, go to the next possible cause. |
| Defective telephone | Check the telephone with this problem. Make sure that the feature is properly assigned to the telephone and the telephone is not defective. |

## Symptom:
## Problems placing calls on 2500-type telephones and some trunks

Several users of 2500-type telephones report trouble placing calls. Other users may report trouble dialing on certain trunks. A Digitone Receiver may be disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace the NTMW01 SSC card.

| Possible cause | Action |
|---|---|
| Disabled Digitone Receiver | Check for disabled Digitone Receiver TNs by entering **LD 34** **STAT** |
| | If any are disabled, try to enable them by entering **ENLX c u** **("c u" represents card and unit number)** |
| | If the Digitone Receiver will not enable, go to the next possible cause. |
| Defective Digitone Receiver | Test the Digitone Receiver on the NTMW01 SSC card by entering **DISX 0** and then **ENLX 0.** |
| | If the Digitone Receiver fails the test, replace the SSC circuit card. |
| | If the Digitone Receiver passes the test, go to the next possible cause. |
| Telephone problem | Check the telephone with this problem. Make sure that the class-of-service (DTN) is properly assigned to the telephone and the telephone is not defective. |

# Clearing Peripheral Equipment faults

## Peripheral Equipment faults

Peripheral Equipment (PE) provides the interface between Network switching and terminal equipment (such as trunks, telephones, data sets, and attendant consoles). Peripheral Equipment faults can disable network and terminal equipment.

## Fault clearing procedures

Manual Continuity Tests can be used to isolate Peripheral Equipment faults.

System messages with the mnemonic BSD090 contain fiber interface related information. They identify the link and its state. Table 68 shows the Fiber Interface messages output and their meaning.

**Table 72**
**Fiber Interface messages**

| BSD655 message | Problem |
| --- | --- |
| BSD090 FIBER 1 LINK DOWN | Expansion cabinet Fiber Interface Link is down. |
| BSD090 FIBER 1 LINK ESTABLISHED | Expansion cabinet Fiber Interface Link is reestablished. |

Table 73 lists common Peripheral Equipment (PE) fault indications (many other system messages may be generated). To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before attempting to clear peripheral equipment faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check <span style="color:red">"How to clear faults" on page 458</span> to see if another type of fault is indicated.

After the fault is corrected, go to <span style="color:red">"Final maintenance procedure" on page 534</span> to completely restore normal operation.

**Table 73**
**Peripheral Equipment fault indicators**

| Indicator | Possible indications |
|---|---|
| Sample system messages | BSD655 FIBER 1 LINK DOWN ERR4062 |
| | NWS301, 401, 501 |
| | OVD001—010, 024 |
| Visual indicators | Red LEDs lit on circuit cards |
| User reports | Trouble with calls on attendant console |
| | Trouble with calls on telephones |

## ISDN and DTI faults

Fault locating and clearing procedures for 1.5 Mb ISDN, DTI or PRI related faults are contained in the *ISDN PRI Administration and Maintenance*.

# Symptom:
# Disabled Peripheral Equipment circuit card

A Peripheral Equipment (PE) circuit card is disabled, the red LED the PE circuit card is lit, or two or more units on a circuit card are disabled. There is a system message indicating the circuit card or units on it are disabled. Only one PE circuit card is affected.

Look up all system messages in the "*Option 11C Compact software guide*" and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Peripheral Equipment (PE) circuit card

- NTMW01 SSC card

- NTDK22 Fiber Daughter Board

- NTMW10 Fbr Rcvr (Fiber Receiver) card

| Possible cause | Action |
|---|---|
| Defective PE circuit card | Replace the affected circuit card. |
| | Enable the circuit card by entering<br>**LD 32**<br>**ENLC c**<br>**("c" represents the card number)** |
| | Test the card by entering<br>**LD 30**<br>**UNTT c**<br>("c" represents the card number) |
| Defective NTMW10 Fbr Rcvr card if affected card is in Expansion cabinet | *Note:* Call processing for the Expansion cabinet is interrupted while the Fbr Rcvr card is being replaced. |
| | Disable the Expansion cabinet by entering:<br>**LD 32**<br>**DISS 1** |
| | Disable the Fiber Link by entering:<br>**LD 135**<br>**DIS FIL 1** |
| | Replace the Fbr Rcvr card. |
| | Perform Local and Remote Loop-back tests on the link by entering:<br>**LD 135**<br>**LLBK FIL 1**<br>**RLBK FIL 1** |
| | Enable the Fiber Link by entering:<br>**LD 135**<br>**ENL FIL1** |
| | Enable the Expansion cabinet by entering:<br>**LD 32**<br>**ENLS 1** |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective NTDK22 Fiber Expansion Daughter Board if affected card is in Expansion cabinet | Replace the Fiber Expansion Daughter Board on the NTMW01 SSC card. *Note:* Call processing for the entire system is interrupted while the SSC circuit card is unseated. Reuse the Software Daughter Board attached to the original SSC card. Enable the circuit card by entering **LD 32** **ENLC c** **("c" represents the card number)** Test the circuit card by entering **LD 30** **TEST** (the TEST command ensures that all circuit cards are re-enabled in the expansion cabinet) |
| Defective NTMW01 SSC | Replace the NTMW01 SSC card. *Note:* Call processing for the entire system is interrupted while the SSC card is being replaced. Reuse the Software Daughter Board attached to the original SSC circuit card. Test the card by entering Test the circuit card by entering **LD 30** **UNTT c** **("c" represents the card number)** |

## Symptom:
## More than one Peripheral Equipment circuit card disabled

More than one Peripheral Equipment circuit card, or two or more units on different circuit cards, are disabled in the same cabinet. There is a system message indicating the circuit cards or units on the circuit cards are disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Manual Continuity Tests can be used to isolate Intelligent Peripheral Equipment faults. See "LD 30" in the *Option 11C Compact software guide* for details on performing the tests.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- A0632902 Fiber Optic Cable

- NTMW01 SSC card

- NTDK22 Fiber Daughter Board

- NTMW10 Fbr Rcvr (Fiber Receiver) card

| Possible cause | Action |
|---|---|
| If the PE circuit card is in an expansion cabinet, the fiber optic cable may be defective | *Note:*  Call processing for the Expansion cabinet is interrupted while the Fbr Rcvr card is being replaced.<br><br>Disable the Expansion cabinet by entering:<br>**LD 32**<br>**DISS 1**<br><br>Disable the Fiber Link by entering:<br>**LD 135**<br>**DIS FIL 1**<br><br>Replace the fiber optic cable.<br><br>Perform Local and Remote Loop-back tests on the link by entering:<br>**LD 135**<br>**LLBK FIL 1**<br>**RLBK FIL 1**<br><br>Enable the Fiber Link by entering:<br>**LD 135**<br>**ENL FIL 1**<br><br>Enable the Expansion cabinet by entering:<br>**LD 32**<br>**ENLS 1**<br><br>Enable the circuit card by entering<br>**LD 32**<br>**ENLC c**<br>**("c" represents the card number)**<br><br>Test the circuit card by entering<br>**LD 30**<br>**TEST**<br>(the TEST command ensures that all circuit cards are re-enabled in the expansion cabinet) |
| —continued— | |

| Possible cause | Action |
|---|---|
| Fiber link problems | Replace the Fbr Rcvr (Fiber Receiver) card or Fiber Expansion Daughter Board especially if BSD655 messages have been output indicating there is a problem. |
| Defective PE circuit card | Replace the affected circuit cards. |
| | Enable the circuit card by entering<br>**LD 32**<br>**ENLS x** |
| | (**x** represents the shelf number; **0** for the main cabinet, **1** for the expansion cabinet.) |
| | Test the circuit card by entering<br>**LD 30**<br>**TEST** |
| Defective NTMW01 SSC | Replace the NTMW01 SSC card. |
| | *Note:* Call processing for the entire system is interrupted while the SSC circuit card is being replaced. |
| | Reuse the daughter boards attached to the original SSC circuit card. |
| | Test the circuit cards by entering<br>**LD 30**<br>**TEST** |

# Clearing trunk faults

## Trunk faults

Trunk circuit cards provide the interface between the system and Central Office (CO) trunks, or between PBXs. The maintenance telephone can be used to test trunks. The Universal Trunk card provides four trunk units, each of which can be connected to a trunk configured to operate as one of the following:

- Central Office trunk

- Direct Inward Dialing (DID) trunk

- Two-way Tie, Dial Repeating (2DR)

- Two-way Tie, Outgoing Automatic Incoming Dial (OAID) trunk

- Recorded Announcement (RAN) trunk

- Music trunk

- Paging trunk

Trunk faults can cause problems (such as noise) on outside calls and can keep calls from entering or leaving the system.

### Fault clearing procedures

Manual Continuity Tests can be used to isolate Network and Peripheral Equipment faults. See "LD 30" in the *Option 11C Compact software guide* for details on performing the tests.

Table 74 lists common trunk fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before attempting to clear trunk faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check to see if another type of fault is indicated.

After the fault is corrected, go to to completely restore normal operation.

**Table 74**
**Trunk fault indicators**

| Indicator | Possible indications |
|---|---|
| System messages | ERR090, 220, 270<br>OVD001—010<br>TRK messages |
| Visual indicators | Red LED lit on trunk circuit card |
| User reports | Users have trouble with a specific trunk<br>Callers report continuous ringing<br>Trouble with calls on console and/or telephones |

## ISDN and DTI faults

Fault locating and clearing procedures for 1.5 Mb ISDN or DTI related faults are contained in the *ISDN DTI/PRI Administration and Maintenance*.

## Symptom:
## Trunk cannot make or receive calls (OVD message received)

You cannot make or receive calls over a trunk and an overload (OVD) system message is received. The message indicates only this trunk has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Manual continuity tests can be used to isolate faults to Peripheral Equipment. See "LD 30" in the *Option 11C Compact software guide* for details on performing the tests.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Universal Trunk circuit card: NTMW07

- NTMW01 SSC card

- Trunk equipment (such as music source or paging equipment)

| Possible cause | Action |
|---|---|
| Defective trunk circuit card | Hardware disable then re-enable the circuit card to initiate a self-test. If the test fails, replace the circuit card. If the test passes, follow the procedure below. |
| | Disconnect the wiring between the circuit card and the cross-connect terminal. |
| | Enable the TN by entering<br>**LD 32**<br>**ENLU c u**<br>**("c u" represents card and unit numbers)** |
| | Wait for an OVD message. |
| | If you receive an OVD message, replace the circuit card. |
| | If you do not receive an OVD message, reconnect the wiring and go to the next possible cause. |
| Defective wiring | At the main cross-connect terminal, disconnect the wiring to the CO or other trunk equipment (such as a music source or paging equipment). |
| | Enable the TN and wait for an OVD message. If you receive an OVD message, repair or replace the wiring to the PE card. |
| | If there is no OVD message, repair or replace the wiring from the cross-connect terminal to the trunk. |
| | If the trunk circuit card still will not enable or there is still a trunk problem, reconnect the wiring and go to the next possible cause. |
| | Enable the TN by entering<br>**LD 32**<br>**ENLU c u**<br>**("c u" represents card and unit numbers)** |
| | Wait for an OVD message. |
| | If you receive an OVD message, replace the circuit card. |
| | If you do not receive an OVD message, reconnect the wiring and go to the next possible cause. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective trunk equipment | Make sure the CO equipment or other trunk equipment is not defective. |
| | If there is no problem with this equipment, go to the next possible cause. |
| Defective NTMW01 SSC card | Use the attendant console to seize trunks and audibly test for dial tone and outpulsing, or use a maintenance telephone and enter **LD 36** **TRK c u** **("c u" represents card and unit numbers)** |
| | *Note:* See the *Option 11C Compact software guide* for information on using this test. |
| | If you do not hear outpulsing or tones, replace the NTMW01 SSC. |

## Symptom:
## Trunk cannot make or receive calls (no OVD message)

You cannot make or receive calls over a trunk, but there is no overload (OVD) or other system message showing the TN for this trunk is defective or has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Manual continuity can be used to isolate faults to Peripheral Equipment. See "LD 30" in the *Option 11C Compact software guide* for details on performing the tests.

Trunk connections from the main frame to the Peripheral Equipment can be checked with a butt-in set or test set. Check the trunk wiring at the entry point for dial tone and progress toward the PE.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Trunk circuit card: NTMW07

- NTMW01 SSC card

- Trunk equipment (such as music source or paging equipment)

| Possible cause | Action |
|---|---|
| Defective trunk equipment | Make sure the CO equipment or other trunk equipment is not defective. |
| | If there is no problem with this equipment, go to the next possible cause. |
| Disabled or defective TN | Test the TN by entering<br>**LD 30**<br>**UNTT c u**<br>**("c u" represents card and unit numbers)** |
| | Test other TNs by entering<br>**TEST** |
| | If the test fails, replace the indicated item and test again. |
| Defective trunk circuit card | Hardware disable then re-enable the circuit card to initiate a self-test. |
| | If the test fails, replace the circuit card. |
| | If the test passes, go to the next possible cause. |
| Defective wiring | At the main cross-connect terminal, disconnect the wiring to the CO or other trunk equipment. |
| | Enable the TN and wait for an OVD message. If you receive an OVD message, repair or replace the wiring to the PE shelf. |
| | If there is no OVD message, repair or replace the wiring from the cross-connect terminal to the telephone. |
| | If the trunk circuit card still will not enable or there is still a trunk problem, reconnect the wiring and go to the next possible cause. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective NTMW01 SSC card | Use the attendant console Barge-in to seize trunks and audibly test for dial tone and outpulsing, or use a maintenance telephone and enter<br>**LD 36**<br>**TRK c u**<br>**("c u" represents card and unit numbers)**<br><br>***Note:*** See the *Option 11C Compact software guide* for information on using this test.<br><br>If you do not hear outpulsing or tone replace the NTMW01 SSC card. |
| Excessive traffic in the system | Additional trunk circuit cards may be required to handle the traffic in the system. |

# Clearing attendant console faults

## Attendant console faults

Components that can cause an attendant console fault are:

- the console itself or add-on units

- the console power supply

- the building wiring

- the cross-connect from the console to the line circuit

- the unit on the peripheral line circuit card

- the peripheral line circuit card

- the ringing generator

- the cabinet power supply

If more than one attendant console is affected, look for connections such as:

- they are on the same line circuit card

- there is a problem with ringing or tones

Use the following software programs to isolate attendant console faults:

- LD 31 to test sets and consoles

- LD 30 to perform signaling and continuity tests

## Fault clearing procedures

Table 75 lists common attendant console fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications then go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before you try to clear attendant console faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check to see if another type of fault is indicated.

After the fault is corrected, go to to completely restore normal operation.

**Table 75**
**Common attendant console fault indicators**

| Indicator | Possible indications |
|---|---|
| System messages | |
| Visual indicators | Red LED lit on associated circuit cards |
| User reports | Trouble with calls |
| | Trouble with equipment (such as handset, headset, or display) |

## Symptom:
## Console cannot make or receive calls (OVD message received)

The attendant console cannot make or receive calls. There is an OVD message indicating a TN for the attendant console has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Attendant console

- Peripheral Equipment (PE) circuit card associated with the console

- Common Equipment, Peripheral Equipment

| Possible cause | Action |
|---|---|
| PE card circuitry latched | Disable card, reseat card and enable the card<br>If the fault persists, go to the next possible cause. |
| Defective PE circuit card | Software disable the TN indicated by the OVD message by entering<br>**LD 32**<br>**DISU c u**<br>**("c u" represents card unit number)**<br><br>Disconnect the wiring between the PE circuit card and the cross-connect terminal.<br><br>Re-enable the TN by entering<br>**ENLU c u**<br>**("c u" represents card unit number)**<br><br>Wait for an OVD message<br><br>If you receive a message indicating a problem with the circuit card or unit, replace the circuit card.<br><br>If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause. |
| Defective console | Disable the TN. Disconnect the wiring from the console to the jack.<br><br>Re-enable the TN and wait for an OVD message.<br><br>If you do not receive an OVD message, replace the console.<br><br>If you receive an OVD message, reconnect the wiring and go to the next possible cause. |
| Defective wiring | Disable the TN. Disconnect the wiring between the console and the cross-connect terminal.<br><br>Re-enable the TN and wait for an OVD message.<br><br>If you do not receive an OVD message, replace or repair the wiring between the console and the cross-connect terminal.<br><br>If you receive an OVD message, replace or repair the wiring between the PE shelf and the cross-connect terminal. |

## Symptom:
## Console cannot make or receive calls (no OVD message)

The attendant console cannot make or receive calls. There is no OVD message. There may be other system messages indicating the TN for this console is defective or has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up messages as you perform this procedure.

| Possible cause | Action |
|---|---|
| No power to console | Check the power supply and wiring to see that the console is powered up. |
| | If there is a power supply problem, correct it. |
| | If there is no power problem, go to the next possible cause. |
| Defective console | Test the console by entering **LD 31** (See the *Option 11C Compact software guide* for information on testing consoles with LD 31.) |
| | If the console fails the test, replace it. |
| | If the console passes the test, go to the next possible cause. |
| —continued— | |
| Console connected to wrong TNs | Check the cross-connect terminal to make sure the console is connected to the correct TNs. |
| | If the console is not connected correctly, fix the wiring. |
| | If the console is connected correctly, go to the next possible cause. |
| Defective wiring | Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded |
| | Check the wiring between the console and the cross-connect terminal |
| | Check the wiring between the Peripheral Equipment shelf and the cross-connect terminal |
| | If there is a wiring problem, correct it. |

## Symptom:
## Indicator or digit display not functioning properly

The attendant console operates, but some LCD indicators or digit displays are not functioning properly. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

| Possible cause | Action |
|---|---|
| Disconnected or defective power supply | Make sure the required power supplies to the attendant console are connected and are not defective. |
| | If there is still a console problem, go to the next possible cause. |
| Disabled TN | Software disable then re-enable each TN by entering **LD 32** **DISU c u** **ENLU c u** **("c u" represents card and unit number)** |
| | Test other TNs by entering **LD 30** **UNTT c u** |
| | Test other TNs by entering **TEST** |
| | If there is still a console problem, go to the next possible cause. |
| Feature not assigned | Make sure the feature or the indicator is assigned in software. |
| | If there is still a console problem, go to the next possible cause. |
| Defective console | Test the console by entering **LD 31** (See the *Option 11C Compact software guide* for information on testing consoles with LD 31.) |
| | If the console fails the test, replace it. |

## Symptom:
## Operator cannot hear or be heard properly

The attendant console operates, but the user cannot hear or be heard properly. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

| Possible cause | Action |
|---|---|
| Defective headset or handset | Make sure the handset or headset is plugged into the correct jack on the console. |
| | Try another handset or headset. |
| | If the test equipment works, replace the equipment. |
| | If there is still a console problem, go to the next possible cause. |
| Defective console | Test the console by entering **LD 31** (See the *Option 11C Compact software guide* for information on testing consoles with LD 31.) |
| | If the console fails the test, replace it. |
| | If the console passes the test, go to the next possible cause. |
| Defective Peripheral Equipment circuit card | Software disable each TN by entering **LD 32 DISU c u ("c u" represents card and unit number)** |
| | Disconnect the wiring between the PE circuit card and the cross-connect terminal. |
| | Re-enable and test each TN by entering **ENLU c u** |
| | Wait for an OVD message. If you receive a message indicating a problem with the circuit card or unit, replace the circuit card. |
| | If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective wiring to console | Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded<br>Check the wiring between the console and the cross-connect terminal<br>Check the wiring between the PE shelf and the cross-connect terminal<br><br>If there is a wiring problem, correct it. |

# Clearing telephone faults

This section describes how to clear telephone faults.

## Telephone faults

Components that can cause a telephone fault are:

- the telephone itself or add-on units

- the telephone power supply

- the building wiring

- the cross-connect from the telephone to the line circuit

- the unit on the peripheral line circuit card

- the peripheral line circuit card

- the ringing generator

- the cabinet power supply

If more than one telephone is affected, look for connections such as:

- they are on the same line circuit card

- there is a problem with ringing or tones

Use the following software programs and tests to isolate telephone faults:

- LD 30 to perform signaling tests

- LD 31 to test sets and consoles

## Fault clearing procedures

Table 76 lists common telephone fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before attempting to clear telephone faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check <u>"How to clear faults" on page 458</u> to see if another type of fault is indicated.

After the fault is corrected, go to <u>"Final maintenance procedure" on page 534</u> to completely restore normal operation.

**Table 76**
**Telephone fault indicators**

| Indicator | Possible indications |
|---|---|
| System messages | • ERR500 |
| | • MWL500 |
| | • NWS501 |
| | • OVD001—010 |
| Visual indicators | • Red LED lit on associated circuit cards |
| User reports | • Trouble with calls |
| | • Trouble with equipment (such as handset or add-on module) |

## Symptom:
## Telephone cannot make or receive calls (OVD message received)

The telephone cannot make or receive calls. There is an OVD message indicating the TN for only this telephone has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

- Peripheral Equipment (PE) circuit card

- Telephone

- Wiring between the cross-connect terminal and the telephone

- Wiring between the Peripheral Equipment shelf and the telephone

| Possible cause | Action |
|---|---|
| Defective PE circuit card | Software disable the TN indicated by the OVD message by entering<br>**LD 32**<br>**DISU c u**<br>**("c u" represent card and unit number)**<br><br>Disconnect the wiring between the PE circuit card and the cross-connect terminal.<br><br>Re-enable the TN by entering<br>**ENLU c u**<br><br>Wait for an OVD message.<br><br>If you receive a message indicating a problem with the circuit card or unit, replace the circuit card.<br><br>If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause. |
| Defective telephone | If the telephone is a Meridian Digital Telephone, enter<br>**LD 32**<br>**IDU c u**<br><br>If there is no response, replace the telephone.<br>If there is an appropriate response, continue this procedure.<br><br>Disable the telephone TN. Disconnect the wiring from the telephone to the jack.<br><br>Re-enable the TN and wait for an OVD message.<br><br>If you do not receive an OVD message, replace the telephone.<br><br>If you receive an OVD message, reconnect the wiring and go to the next possible cause. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective wiring | Disable the TN. Disconnect the wiring between the telephone and the cross-connect terminal. |
| | Re-enable the TN and wait for an OVD message. |
| | If you do not receive an OVD message, replace or repair the wiring between the telephone and the cross-connect terminal. |
| | If you do not receive an OVD message, replace or repair the wiring between the telephone and the cross-connect terminal. |
| | If there is still a telephone problem, reconnect all wiring and go to the next possible cause. |
| Defective backplane | Disable the TN. Unseat the affected PE circuit card. |
| | Re-enable the TN and wait for an OVD message. |
| | If you receive an OVD message, replace the cabinet. |

## Symptom:
## Telephone cannot make or receive calls (no OVD message)

The telephone cannot make or receive calls. There is no OVD message or other system message indicating the TN for this telephone is defective or disabled. There may or may not be dial tone when the handset is unhooked. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

| Possible cause | Action |
|---|---|
| No power to digital telephone | Check the power supply (if one is required) and make sure it is not defective. |
| | If there is a power supply problem, correct it. |
| | If there is no problem with the power supply, go to the next possible cause. |
| Telephone not connected properly | Check the cross-connect terminal to make sure the telephone is connected to the correct TN. |
| | If the telephone is not connected correctly, fix the wiring. |
| | If the telephone is connected correctly, go to the next possible cause. |
| Disabled TN | Software disable then re-enable the telephone TN by entering **LD 32** **DISU c u** **ENLU c u** **("c u" represents card and unit number)** |
| | Test other TNs by entering **LD 30** **UNTT c u** |
| | Test other TNs by entering **TEST** |
| | If there is still a telephone problem, go to the next possible cause. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective telephone | Disconnect the telephone from the jack. Plug in another telephone of the same type. |
| | If the replacement telephone works, replace the telephone you removed. |
| | If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause. |
| | ***Note:*** If the telephone is a Meridian Digital Telephone, enter **LD 32** **IDU c u** |
| | If there is no response, replace the telephone. |
| Defective wiring | Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded. Check the wiring between the telephone and the cross-connect terminal. Check the wiring between the PE shelf and the cross-connect terminal. |
| | If there is a wiring problem, correct it. |

## Symptom:
## One end cannot hear or cannot be heard

The person at the far end can hear you but you cannot hear them or the person at the far end cannot hear you but you can hear them. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Peripheral Equipment (PE) circuit card

- Telephone handset

- Telephone

•    Wiring to the telephone

| Possible cause | Action |
|---|---|
| Fault on other equipment | Check with the user to determine if the fault is present only on<br>• certain types of calls (such as on a paging trunk or a Tie trunk)<br>• calls to a specific location<br>• calls to a specific telephone or other piece of equipment (such as a modem or Fax machine)<br><br>If the fault occurs only with certain calls, take the appropriate action.<br><br>If the fault occurs on all calls, go to the next possible cause. |
| Defective handset | Check the receiver or transmitter in the handset. If one is defective, replace the handset or, if necessary, the telephone. |
| Defective telephone | Disconnect the telephone from the jack. Plug in another telephone of the same type.<br><br>If the replacement telephone works, replace the telephone you removed.<br><br>If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause.<br><br>***Note:*** If the telephone is a Meridian Digital Telephone, enter<br>**LD 32**<br>**IDU c u**<br><br>If there is no response, replace the telephone. |
| | —continued— |

| Possible cause | Action |
|---|---|
| Defective PE circuit card | Software disable the telephone TN by entering<br>**LD 32**<br>**DISU c u**<br>**("c u" represents card and unit number)**<br><br>Disconnect the wiring between the PE circuit card and the cross-connect terminal.<br><br>Re-enable and test the TN by entering<br>**ENLU c u**<br><br>Wait for an OVD message. If you receive a message indicating a problem with the circuit card or unit, replace the circuit card.<br><br>If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause. |
| Defective wiring to telephone | Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded.<br>Check the wiring between the telephone and the cross-connect terminal.<br>Check the wiring between the PE shelf and the cross-connect terminal.<br><br>If there is a wiring problem, correct it. |

## Symptom:
## Noise or low volume on all calls

There is noise on the line on all calls or the volume is lower than usual on all calls. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Peripheral Equipment (PE) circuit card

- Telephone

• Wiring to the telephone

| Possible cause | Action |
|---|---|
| Defective handset | Replace handset<br><br>If problem is not cleared, go to the next possible cause. |
| Defective wiring | Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded.<br>Check the wiring between the telephone and the cross-connect terminal.<br>Check the wiring between the PE shelf and the cross-connect terminal.<br><br>If there is a wiring problem, correct it.<br><br>If there is no problem with the wiring, go to the next possible cause. |
| Defective telephone | Disconnect the telephone from the jack. Plug in another telephone of the same type.<br><br>If the replacement telephone works, replace the telephone you removed.<br><br>If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause.<br><br>If the telephone is a Meridian Digital Telephone, enter<br>**LD 32**<br>**IDU c u**<br><br>If there is no response, replace the telephone. |
| Defective PE circuit card | Software disable the telephone TN by entering<br>**LD 32**<br>**DISU c u**<br>**("c u" represents card and unit number)**<br><br>Disconnect the wiring between the PE circuit card and the cross-connect terminal.<br><br>Re-enable and test the TN by entering<br>**ENLU c u**<br><br>Wait for an OVD message. If you receive a message indicating a problem with the circuit card or unit, replace the circuit card.<br><br>If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause. |

## Symptom:
## Defective indicator, digit display, or component

The telephone can place and receive calls, but one or more LED or LCD indicator, a digit display, or a component (such as a handsfree unit) is not working. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

• Power supply to telephone

• Peripheral Equipment (PE) circuit card

• Telephone

| Possible cause | Action |
|---|---|
| Telephone has incorrect software parameters | Disconnect then reconnect power to the telephone to force a reset and parameter download. |
| | If the fault is not cleared, go to the next possible cause. |
| No power to digital telephone | Check the power supply (if one is required) and make sure it is not defective. |
| | If there is a power supply problem, correct it. |
| | If there is no problem with the power supply, go to the next possible cause. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective telephone | Disconnect the telephone from the jack. Plug in another telephone of the same type. |
| | If the replacement telephone works, replace the telephone you removed. |
| | If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause. |
| | If the telephone is a Meridian Digital Telephone, enter<br>**LD 32**<br>**IDU c u** |
| | If there is no response, replace the telephone. |
| Feature not assigned | Make sure the feature or the indicator is assigned in software (see the *Option 11C Compact software guide*). |
| | If there is still a telephone problem, go to the next possible cause. |

## Symptom:
## Defective feature

The telephone can make and receive calls, but one or more of its features (such as call transfer or ring again) is not working. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

| Possible cause | Action |
|---|---|
| Feature not assigned | Make sure the feature or the indicator is assigned in software (see the *Option 11C Compact input/output guide*). |
| | If there is still a console problem, go to the next possible cause. |
| Defective telephone | Disconnect the telephone from the jack. Plug in another telephone of the same type. |
| | If the replacement telephone works, replace the telephone you removed. |
| | If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause. |
| | If the telephone is a Meridian Digital Telephone, enter **LD 32** **IDU c u** |
| | If there is no response, replace the telephone. |

## Symptom:
## Defective add-on module

The telephone can make and receive calls, but an add-on module connected to it is not working. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Add-on module

- Data option circuit card

- Power supply for add-on module

| Possible cause | Action |
|---|---|
| Defective power supply for add-on module | If the add-on module requires a separate power supply, make sure it is properly connected.<br><br>If there is still a telephone problem, go to the next possible cause. |
| Defective add-on module | Replace the add-on module. |
| Defective data option circuit card | If the fault is with a data add-on module, replace the data option circuit card. |

## Symptom:
## Cannot dial from 2500-type telephone

A user cannot dial from a 2500-type telephone. The condition may exist on more than one telephone and may be intermittent. The telephone may occasionally experience a "no dial tone" condition. Calls from other types of sets are not affected. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- NTMW01 SSC card
- Telephone
- Wiring to the telephone

| Possible cause | Action |
|---|---|
| Incorrectly programmed | To determine the correct Class Of Service (CLS) use<br>**LD 20**<br>**PRT**<br><br>**I**f CLS is DIP, change to DTN using<br>**LD 10** |
| Defective telephone | If only one telephone is affected, replace it.<br><br>If there is still a telephone problem, go to the next possible cause. |
| Defective PE circuit card | Replace the affected circuit cards.<br><br>Enable the circuit card by entering<br>**LD 32**<br>**ENLS s**<br><br>(**s** represents the shelf number; **0** for the main cabinet, **1** for the expansion cabinet.)<br><br>Test the circuit card by entering<br>**LD 30**<br>**TEST** |
| Defective wiring | If only one telephone is affected, make sure wiring is properly connected and wires are not interchanged, crossed, or grounded<br>Check the wiring between the telephone and the cross-connect terminal<br>Check the wiring between the PE shelf and the cross-connect terminal<br><br>If there is a wiring problem, correct it.<br><br>If there is still a telephone problem, go to the next possible cause. |
| Defective Digitone Receiver | If the condition is intermittent or more than one telephone is affected, test the Digitone Receivers in the NTMW01 SSC card by entering<br>**LD 34**<br>**DIS 0** and **ENL 0**<br><br>Replace the NTMW01 SSC if it fails the test.<br><br>If there is still a telephone problem, go to the next possible cause. |
| Excessive Digitone traffic | |

## Symptom:
## No ring on 500- and 2500-type telephones

Both 500- and 2500-type telephones do not ring. One or several sets in the same cabinet are experiencing the problem. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Ringing Generator: NTMW11 power supply

- Peripheral Equipment (PE) circuit card

- Telephone

- Wiring to the telephone

| Possible cause | Action |
|---|---|
| Defective telephone | If only one telephone is affected, replace it. |
| | If there is still a telephone problem, go to the next possible cause. |
| Defective wiring | If only one telephone is affected, make sure wiring is properly connected and wires are not interchanged, crossed, or grounded. |
| | Check the wiring between the telephone and the cross-connect terminal. |
| | Check the wiring between the PE shelf and the cross-connect terminal. |
| | If there is a wiring problem, correct it. |
| | If there is still a telephone problem, go to the next possible cause. |
| —continued— | |

| Possible cause | Action |
|---|---|
| Defective PE circuit card | Software disable the telephone TN by entering<br>**LD 32**<br>**DISU c u**<br>**("c u" represents card and unit number)**<br><br>Disconnect wiring between the PE circuit card and the cross-connect terminal.<br><br>Re-enable and test the TN by entering<br>**ENLU c u**<br><br>Wait for an OVD message. If you receive a message indicating a problem with the circuit card or unit, replace the circuit card.<br><br>If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause. |
| Defective Ringing Generator | If several sets on different circuit cards in the same cabinet are affected, replace the NTMW11 power supply in the cabinet. |

# Final maintenance procedure

Refer to Procedure 85 and perform the final maintenance procedure to verify that the Meridian 1 Option 11C Compact is operating properly and there are no remaining faults.

**Procedure 85**
**Final maintenance procedure**

1    Make sure all circuit cards that may have been removed are reinserted in their assigned location and enabled.

2    Make sure all wiring and connectors that may have been disconnected are reconnected.

3    Make sure all circuit cards and units that should be enabled are enabled. Digital telephones on a circuit card that was disabled may not be restored when the card is enabled. Each telephone should be individually disabled and re-enabled through **LD 32** (commands **DISU c u** to disable and **ENLU c u** to enable, where "**c**" and "**u**" are the circuit card and unit numbers). Service may also be restored by disconnecting and reconnecting the telephone line cord.

4    Make sure all circuit breakers are set to ON and any fuses (in power panels or auxiliary equipment) are inserted.

5    Clear fault indicators by entering **LD 135**

To clear a major alarm indication and restore Power Fail Transfer Units (PFTUs) to normal operation, enter
**CMAJ**

To clear all minor alarm indications, enter
**CMIN ALL**

6    Set the midnight routine to run after you log out of the system by entering
**MIDN**

End the session in LD 135 and log out of the system
****
**LOGO**
**(the midnight routine will now run)**

7    Check system messages produced when the midnight routine runs. Clear any faults indicated.

**8**    If there was a sysload (SYSLOAD) while you were clearing a fault, reset the correct time and date by entering
**LD 2**
**STAD (day) (month) (year) (hour) (minute) (second)**
Check the time and date you entered
**TTAD**
**End the session in LD 2 and log out of the system**
****
**LOGO**

**9**    Replace any covers that were removed.

**10**    Tag defective equipment with a description of the fault and return it to a repair center.

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

**P0890123**

# Option 11C Compact
## Planning, Installation, Fault Clearing and CCBR Guide

**NORTEL**
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