
Meridian 1

Upgrade system installation through X11 release 21

Upgrading to Meridian 1 system options

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General information

This document describes how to upgrade SL-1 and Meridian 1 systems running on hardware and software prior to X11 release 21. When upgrading a system to X11 release 21, in addition to this document, refer to the following documents:

- *Meridian 1 system installation procedures* (553-3001-210)
- *Software conversion procedures* (553-2001-320)
- *Upgrade engineering* (553-3001-150)
- *Circuit card installation and testing* (553-3001-211)
- *Disk drive upgrade procedures* (553-3001-251)
- *X11 input/output guide* (553-3001-400)
- *X11 features and services* (553-3001-305)

Please note that the NTPs contain 2 sections relating to hardware upgrades. These two sections are *Upgrade system installation to X11 release 22* (553-3001-258) and *Upgrade system installation* (553-3001-250).

- *Upgrade system installation to X11 release 22* (553-3001-258) defines the procedures for systems upgrading to option 51C, 61C and 81C, where the existing system is on release 18 or later. This NTP may reference the upgrade procedures in *Upgrade system installation* (553-3001-250).
- *Upgrade system installation* (553-3001-250) documents hardware upgrades to release 21 and is used as a reference.

Tools

Table 1-1 lists the tools that you will need for upgrading a Northern Telecom system. Special tools required in a procedure are listed in that procedure.

Table 1-1
List of recommended tools

Digital Multimeter (DMM)
Pliers, needlenose
Pliers, standard
Screwdriver, 3/16" flat blade
Screwdriver, #2 Phillips
Wire cutters
Electrical insulation tape
5/16" socket wrench
Electric drill and drill bits
Hammer and sheet metal center punch
1/4" socket wrench
3/8" socket wrench
1/4" nut driver
7/16" socket driver

SL-1 A, M, S, and MS system upgrades

This chapter covers these upgrades:

- SL-1 A, M, S, or MS system to option 51C X11 release 21, below
- SL-1 A, M, S, or MS system to option 61C X11 release 21, page 2-22

Upgrading A, M, S, and MS systems to option 51C

To upgrade an SL-1 A, M, S, or MS system to an option 51C, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- removing the common equipment (CE) from the SL-1 cabinet
- installing a Meridian 1 option 51C column next to the SL-1 cabinet
- installing new connector housings on the SL-1 cabinet
- cabling the cabinet to the option 51C column

Upgrading the software consists of the following:

- If you choose to have the customer database converted, you must send it to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this. Alternatively, you can reenter the database on the option 51C after the upgrade is complete.

Equipment required

Tables 2-1 and 2-2 list the items required to upgrade an AC- or DC-powered system to an X11 release 22 Meridian 1 option 51C. Some configurations may require items not included in the tables. All required items must be identified and on hand before the upgrade can start.

Letters at the end of a part number represent the minimum vintage equipment that can be used in the upgrade; only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect peripheral shelves in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D86AC cables that connect the network card and the peripheral buffer card to the I/O panel
- NT9J96 cables that connect the I/O panel in the Core/Network module to the cabinet I/O panel

An NT8D01 Controller card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 2-1
Hardware requirements for an AC-powered option 51C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
1	NT5D20AA	I/O Processor and Core Multi Drive Unit
1	NT5D21AA	Core/Network module, AC
1	NT6D65AA	Core to Network Interface card (CNI)
1	NT9D19AA	48 MB Call Processor card (CP)
1	NT7D00AA	Top Cap, AC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
1	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal, AC
1	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment module, AC
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52AB	Pedestal Blower Unit, AC

Table 2-1
Hardware requirements for an AC-powered option 51C (Part 2 of 2)

Qty	Part number	Description
1	NT8D53BB	Power Distribution Unit, AC
2	NT8D80AZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
4	NTND21AA	Module Side Cover
1	QPC43R	Peripheral Signaling card (PS)
1	QPC441F	Three-Port Extender card (3PE)
1	QPC471H	Clock Controller
Note 1: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used.		
Note 2: A superloop network card, an IPE module, and a power supply and cable are included in the upgrade package to provide replacement card slot availability for the existing IPE cards contained in the unused NT8D11 module.		

Table 2-2
Hardware requirements for a DC-powered option 51C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
1	NT5D20AA	I/O Processor and Core Multi Drive Unit
1	NT5D21DA	Core/Network module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
1	NT6D65AA	Core to Network Interface card (CNI)
1	NT9D19AA	48 MB Call Processor card (CP)
1	NT7D00BA	Top Cap, AC
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
1	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment module, AC
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)

Table 2-2
Hardware requirements for a DC-powered option 51C (Part 2 of 2)

Qty	Part number	Description
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
4	NTND21AA	Module Side Cover
1	QPC43R	Peripheral Signaling card (PS)
1	QPC471H	Clock Controller
1	QPC441F	Three-Port Extender card (3PE)
Note 1: One NT6D42CC Ringing Generator, DC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 2: A superloop network card, an IPE module, and a power supply and cable are included in the upgrade package to provide replacement card slot availability for the existing IPE cards contained in the unused NT8D11 module.		

Upgrade preparation

Some preparation is required before the conversion of the SL-1 hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 51C.
- Install the option 51C hardware.
- Back up the customer database to disk by doing a data dump.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) to install new power equipment and to provide a good ground for the equipment.

Installing option 51C hardware

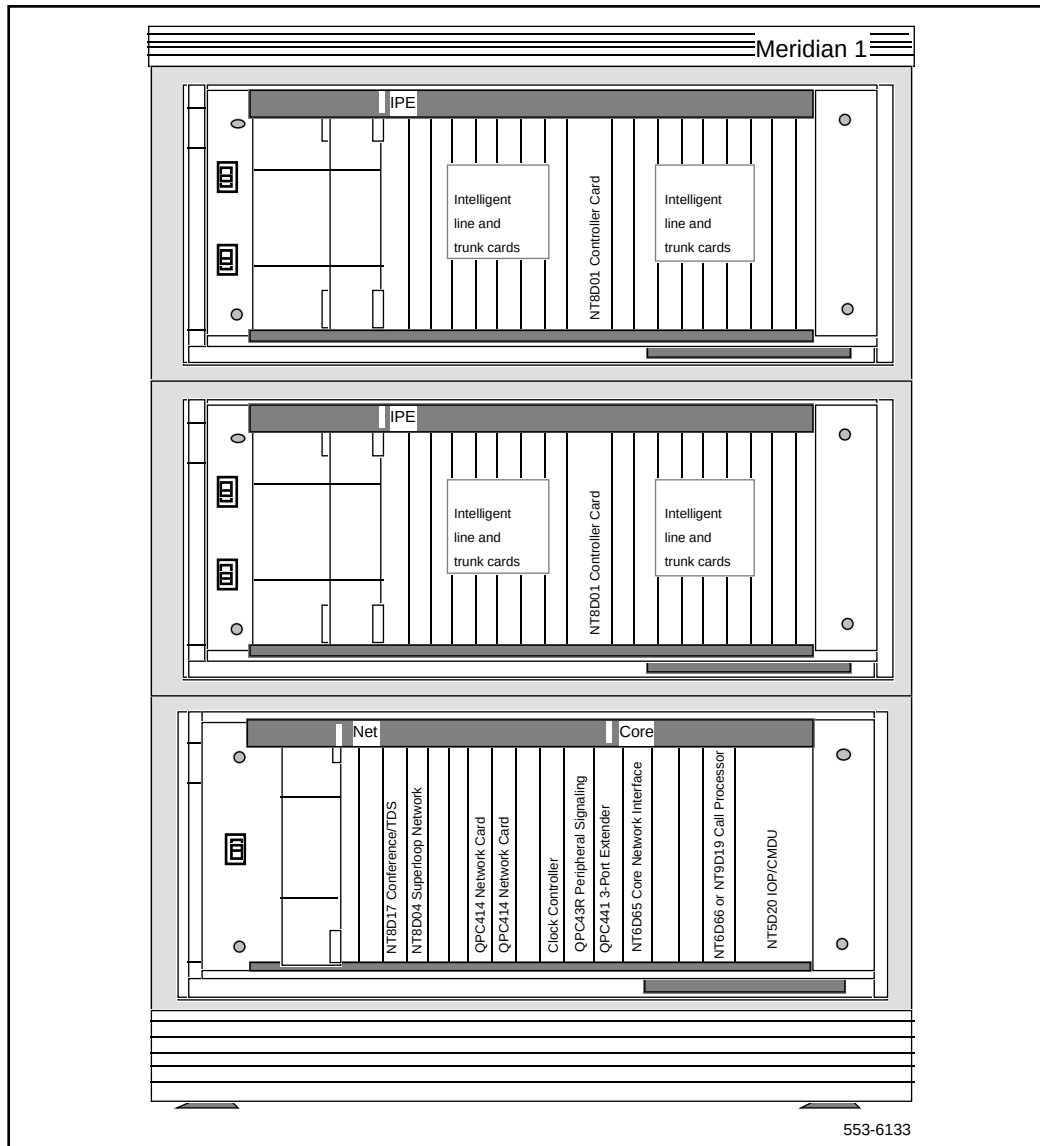
The option 51C equipment is preconfigured at the factory according to your requirements. The equipment includes the pedestal, Core/Network modules, IPE module, cards, and top cap. Cards such as MDUs and power supplies are shipped in separate packages to prevent damage to the cards.

Figure 2-1 shows the option 51C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

To install the option 51C at your site, first follow the procedures in *Meridian 1 system installation procedures* (553-3001-210) and then continue with the procedures in this chapter.

Also install any external cables that can be installed at this time without interrupting service (see “Installing external cables” on page 2-15).

Figure 2-1
Meridian 1 option 51C



Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1 On the A, M, S, or MS system, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

If you choose to have the customer database converted, you must send it to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this. After you have received your converted database, proceed to “Installing the connector housings” on page 2-10.

Alternatively, you can reenter the database on the option 51C after the upgrade is complete. Refer to the section “Turning on the power and configuring the system” on page 2-18 for data reentry procedures after the upgrade is complete.

Installing the connector housings

The connector housings connect cables in the peripheral cabinets to cables from the option 51C, while reducing electromagnetic interference (EMI). Housings are installed on the peripheral cabinet: on cabinets with a top I/O panel, the housing is installed on top of the cabinet; on cabinets with cover plates on the cabinet side panel, the housing is installed on the side panel. Both housings can accommodate six cables. These are the connector housing kits:

- P0696547 side-mounted connector housing
- P0702380 top-mounted connector housing

Note: For a detailed description of connector housings and installation procedures, refer to *Upgrade engineering* (553-3001-150).

Converting the hardware

CAUTION

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed. Service will be restored when the option 51C is fully operational.

Preparing the A system for upgrade

- 1 Set all shelf circuit breakers to OFF.
- 2 Set the –48V Cabinet Input circuit breaker on the QBL3 power distribution box in the CE cabinet to OFF.
- 3 Set the AC input circuit breaker on the rectifier to OFF.
- 4 Remove the cable between the QPC33 Tape Interface card and the tape unit on the CE shelf.
- 5 Tag and disconnect all cables from the connectors on the QPC45, QPC139, and QPC50 cards.
- 6 Remove the tape from the tape unit.

- 7 Tag and disconnect the cables from the front of all cards on the QSD18 CE shelf, the QSD19 CE shelf, and the QSD2 CE shelf, if equipped.
- 8 Remove cards from the QSD18, QSD19, or QSD2 CE shelves and store them in a safe place.
- 9 Tag and disconnect the tape unit alarm connector. To do this, you must first remove the tape unit and then disconnect the alarm connector.
- 10 The CE shelf will not be used after the upgrade is completed. You may remove it now if you wish:
 - Tag and disconnect power connectors and alarm connectors from the QSD18, QSD19, or QSD2 shelf, if equipped. Tape all exposed power leads with electrical insulation tape.

Note: If the cabinet is equipped with an expansion CE shelf (a second CE shelf), disconnect and remove the wiring between the +5V, +12V, -12V, and LGND connections on the CE shelf.

- Tag and disconnect all CE alarm connectors.
- Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CE shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setting information.
- Install the QPC84S Power Monitor.

Preparing the M system for upgrade

- 1 Set all shelf circuit breakers to OFF.
- 2 Set the CAB INP circuit breaker on the QSD23 power control shelf in the QCA37 cabinet to OFF.
- 3 Set the AC input circuit breaker on the –48V rectifier in the QCA37 cabinet to OFF.
- 4 Tag and disconnect all cables from connectors on the QPC139 and QPC376 cards.
- 5 Remove the cards from the QSD26 CE shelf and store them in a safe place.
- 6 Tag and disconnect the tape unit alarm connector. To do this, you must first remove the tape unit and then disconnect the alarm connector.
- 7 The CE shelf will not be used after the upgrade is completed. You may remove it now if you wish:
 - Tag and disconnect power connectors and alarm connectors from the QSD26 shelf. Tape all exposed power leads with electrical insulation tape.

Note: If the cabinet is equipped with an expansion CE shelf (a second CE shelf), disconnect and remove the wiring between the +5V, +12V, –12V, and LGND connections on the CE shelf.

- Tag and disconnect all CE alarm connectors.
- Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CE shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setting information.
- Install the QPC84S Power Monitor.

Preparing the S system for upgrade

- 1 Remove covers from the front and rear of the QCA60 cabinet.
- 2 Tag and disconnect all network loop cables connected to QPC376 network cards and cables connected to QPC139 SDI cards.
- 3 Set the ENB/DIS switch on the faceplate of the QPC33 card located in the CE shelf to DIS.
- 4 Set the power switch on the faceplate of the tape unit to OFF or 0.
- 5 Tag and disconnect the cable from the faceplate of the QPC33 card to the tape unit.
- 6 Set all shelf circuit breakers to OFF.
- 7 Set the CAB INP circuit breaker at the front of the cabinet to OFF.
- 8 Tag and disconnect the AC power for the cabinet by disconnecting the commercial AC power line cord from its receptacle or by setting the commercial AC power supply circuit breaker at the service panel to OFF.
- 9 Tag and disconnect any remaining cables connected to cards on the CE shelf.

Note: The main CE shelf is located at the bottom left shelf position in the cabinet (viewed from the front). An optional expansion CE shelf may be located at the top right shelf position.

- 10 Remove cards from the CE shelf and store them in a safe place.
- 11 The CE shelf will not be used after the upgrade is completed. You may remove it now if you wish:
 - Tag and disconnect power connectors from the power distribution harness to the backplane of the main CE shelf and the expansion CE shelf, if equipped. Tape all exposed power leads with electrical insulation tape.

Note: If the cabinet is equipped with an expansion CE shelf (a second CE shelf), disconnect and remove the wiring between the +5V, +12V, -12V, and LGND connections on the CE shelf.

- Tag and disconnect all CE alarm connectors.

- Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CE shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setting information.
- Install the QPC84S Power Monitor.

Preparing the MS system for upgrade

- 1 Set the CAB INP circuit breaker on the QSP43 power control shelf in the QCA109 cabinet and all other shelf circuit breakers to OFF.
- 2 Set the AC input circuit breaker on the –48V rectifier in the QCA109 cabinet to OFF.
- 3 Tag and disconnect cables from connectors on the faceplate of the following cards located on the CE shelf:
 - QPC425 CPU/SDI card
 - QPC376 network cards
 - QPC139 SDI cards, if equipped
- 4 Remove cards from the CE shelf and store them in a safe place.
- 5 Tag and disconnect the tape unit alarm connector. To do this, you must first remove the tape unit and then disconnect the alarm connector.
- 6 The CE shelf will not be used after the upgrade is completed. You may remove it now if you wish:
 - Tag and disconnect all alarm connectors from the harness to the CE shelf.
 - Unplug all power converter cards and all CE cards from the CE shelf.
 - Tag and disconnect power connections and power monitor connector C12 from the cabinet power distribution harness to the right end of the backplane on the QSP39 shelf.

Note: If the cabinet is equipped with an expansion CE shelf (a second CE shelf), disconnect and remove the wiring between the +5V, +12V, –12V, and LGND connections on the CE shelf.

- Tag and disconnect the power connector from the cabinet power wiring harness to the shelf housing the tape unit or QMM38 Mass Storage Unit, if equipped.
- Tape all exposed power leads with electrical insulation tape.
- Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CE shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setting information.
- Install the QPC84S Power Monitor.

Installing external cables

Now that the option 51C column is installed and the peripheral cabinet has been prepared, you must connect them with external cables.

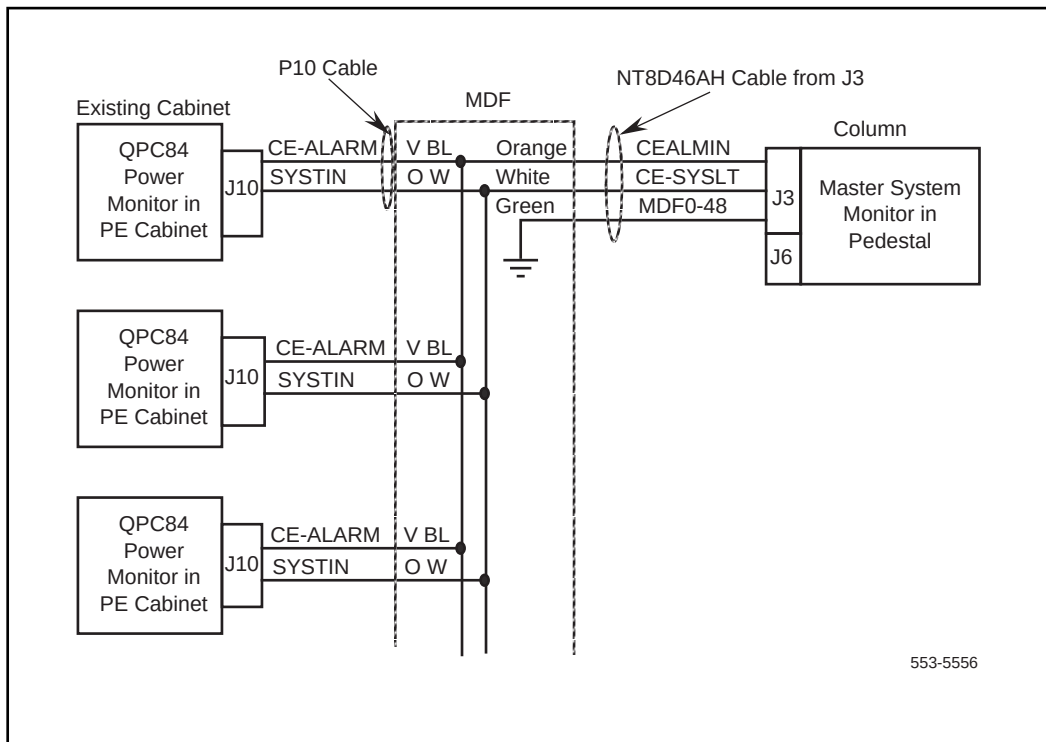
- 1** Install network cables between the peripheral cabinet and the new modular column. This connects network cards in the Core/Network module to the peripheral buffer card in the PE shelf of the cabinet. Refer to *Upgrade engineering* (553-3001-150) for a detailed explanation of the connector kits and cables required to connect peripheral shelves in a cabinet to an option 51C column.

Each network loop connection requires that three cables be installed:

- Connect the NT8D86AC cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
- Connect the NT9J96 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network module to the I/O panel on the top or the side of the peripheral cabinet. A connector housing kit is required for the cabinet to accept the cable connector.
- Connect the NT8D86AC cable from the faceplate connector of the peripheral buffer to the I/O panel connector at the top or the side of the cabinet.

- 2 Install alarm cables between the peripheral cabinet and the option 51C column as shown in Figure 2-2. Leave the original alarm connection between the peripheral cabinet and the MDF. Connect the following cables:
 - Verify that the NT8D46AG cable is connected from the system monitor to the SDI paddle board.
 - Connect the NT8D46BH cable from the system monitor to the MDF.
 - Connect the P10 cable from the cabinet to the MDF.

Figure 2-2
Peripheral cabinet to option 51C power and alarm connections



- 3 Connect the external cable from the Core/Network module I/O panel connector, labeled “PRI/DTI” (if equipped), to the network interface.
- 4 Install one PRI/DTI card in this module as the primary clock reference, and install the rest of the PRI/DTI cards in the peripheral cabinet CE shelf. For installation procedures, refer to *Circuit card installation and testing* (553-3001-211).
- 5 Verify that the PRI/DTI cards in the peripheral cabinet CE shelf are connected to the MDF.
- 6 Connect all external cables from the MDF to the PE shelf connectors on the cabinet I/O panels and the IPE module I/O panels. Refer to the appropriate procedure in *Meridian 1 system installation procedures* (553-3001-210) for IPE module cabling procedures.

Turning on the power and configuring the system

Before you power up the system, review installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.

- 1 Perform the appropriate step to restore power in the Core/Network module:
 - For AC-powered systems, simultaneously set the circuit breaker on the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).

- 2 Follow the steps below to install the customer database (converted by Northern Telecom).

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- To activate the Software Installation Tool, insert disk 1 from the software upgrade package into the NT5D20 IOP/CMDU.
- Press the MAN RST button on the NT9D19 CP card.
- Select the following options in sequence, and insert the disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation
- Follow all screen directions until the database transfer is complete.
- Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system

3 Perform a sanity test on the CPU:**LD 135** to load the program**STAT CNI** to get the status of all configured CNIs**STAT CPU** to get the status of the Core

Note: Testing the CP and CNI cards can take 2 minutes or more for each test.

******** to exit the program**4** Load overlay 137 and get the status of CMDU and IOP:**LD 137** to load the program**STAT** to get the status of CMDU and IOP******** to exit the program**5** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.**6** Insert a backup database disk into each IOP/CMDU for backup. Load overlay 43 and perform a data dump to the backup disks. This command creates backups on the hard disk and the floppy disk on the active IOP/CMDU if a floppy disk is installed:**LD 43** to load the program**EDD** to begin the data dump**CAUTION**

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 7** Perform the appropriate step to turn off power in the Core/Network module:
 - For AC-powered systems, set the circuit breaker on the MPDU in the module to OFF (down position).
 - For DC-powered systems, set the switch on the module power supply to OFF (down position).
- 8** Label each card that is being transferred to a Core/Network module with the loop (0–31) for the card.
- 9** On all cards that are being transferred to Core/Network modules, disable the faceplate switches, disconnect all cables, and remove the cards.
- 10** Connect all cables to the cards (including the NT8D86 cables from the I/O panels to the QPC414 Network cards). Enable the faceplate switches.
- 11** Switch the cables at the PE end:
 - If NT9J96 cables inside the PE cabinets are not connected, connect them to the faceplates of the appropriate QPC659 cards.
- 12** Turn on power to the cabinet:
 - Set the AC input circuit breaker on the –48V rectifier in the cabinet to ON.
 - Set the CAB INP circuit breaker on the power control shelf in the cabinet and all other shelf circuit breakers to ON.
- 13** In the option 51C, verify that all cards are enabled (all ENB/DIS switches are set to ENB).
- 14** Follow the appropriate step to restore power in each Core/Network module.
 - For AC-powered systems, set the circuit breaker on the MPDU in the Core/Network module to ON (up position).
 - For DC-powered systems, set the switch on the module power supply in the Core/Network module to ON (up position).

- 15** After the system initializes, reenter system configuration data into the customer database, if required, in the following sequence:
 - Configure network loops to match loop types and loop numbers of the current configuration.
 - Configure I/O devices to reflect the current configuration.
 - Reenter customer data blocks. System options and features must reflect the current configuration.
 - Configure station data blocks.
 - Configure route data blocks.
 - Configure trunk data blocks.
 - Configure remaining system configuration records.
 - Verify system operation before adding new equipment.
 - Configure new equipment and functions, if any.
- 16** Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 17** Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).

The Meridian 1 X11 release 22 option 51C is now operational. Install all module covers to complete the upgrade.

Upgrading A, M, S, and MS systems to option 61C

To upgrade an SL-1 A, M, S, or MS system to an option 61C, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- removing the common equipment (CE) from the SL-1 cabinet
- installing a Meridian 1 option 61C column next to the SL-1 cabinet
- installing new connector housings on the SL-1 cabinet
- cabling the cabinet to the option 61C column

Upgrading the software consists of the following:

- If you choose to have the customer database converted, you must send it to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this. Alternatively, you can reenter the database on the option 61C after the upgrade is complete.

Equipment required

Tables 2-3 and 2-4 list the items required to upgrade an AC- or DC-powered system to an X11 release 22 Meridian 1 option 61C. Some configurations may require items not included in the tables. All required items must be identified and on hand before the upgrade can start.

Letters at the end of a part number represent the minimum vintage equipment that can be used in the upgrade; only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect peripheral shelves in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D86AC cables that connect the network card and the peripheral buffer card to the I/O panel
- NT9J96 cables that connect the I/O panel in the Core/Network module to the cabinet I/O panel

An NT8D01 Controller card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 2-3
Hardware requirements for an AC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21AA	Core/Network module, AC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT9D19AA	Call Processor card (CP)
1	NT7D00AA	Top Cap AC
1	NT7D06AA	Filler Panel
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal, AC
2	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment module, AC
2	NT8D41AA	Dual-Port SDI Paddle Board
3	NT8D44AA	SDI Paddle Board to I/O Cable
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52AB	Pedestal Blower Unit, AC
1	NT8D53BB	Power Distribution Unit, AC
2	NT8D80AZ	CPU Interface Cable (5 ft.)

Table 2-3

Hardware requirements for an AC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
6	NTND21AA	Module Side Cover
2	QPC43R	Peripheral Signaling card (PS)
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
Note 1: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 2: A superloop network card, an IPE module, and a power supply and cable are included in the upgrade package to provide replacement card slot availability for the existing IPE cards contained in the unused NT8D11 module.		

Table 2-4
Hardware requirements for a DC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21DA	Core/Network module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT9D19AA	Call Processor card (CP)
1	NT7D00BA	Top Cap, AC
1	NT7D06AA	Filler Panel
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment module, AC
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC
2	NT8D80AZ	CPU Interface Cable (5 ft.)

Table 2-4**Hardware requirements for a DC-powered option 61C (Part 2 of 2)**

Qty	Part number	Description
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
6	NTND21AA	Module Side Cover
2	QPC43R	Peripheral Signaling card (PS)
2	QPC471H	Clock Controller
2	QPC441F	Three-Port Extender card (3PE)
Note 1: One NT6D42CC Ringing Generator, DC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 2: A superloop network card, an IPE module, and a power supply and cable are included in the upgrade package to provide replacement card slot availability for the existing IPE cards contained in the unused NT8D11 module.		

Upgrade preparation

Some preparation is required before the conversion of the SL-1 hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 61C.
- Install the option 61C hardware.
- Back up the customer database to disk by doing a data dump.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Installing option 61C hardware

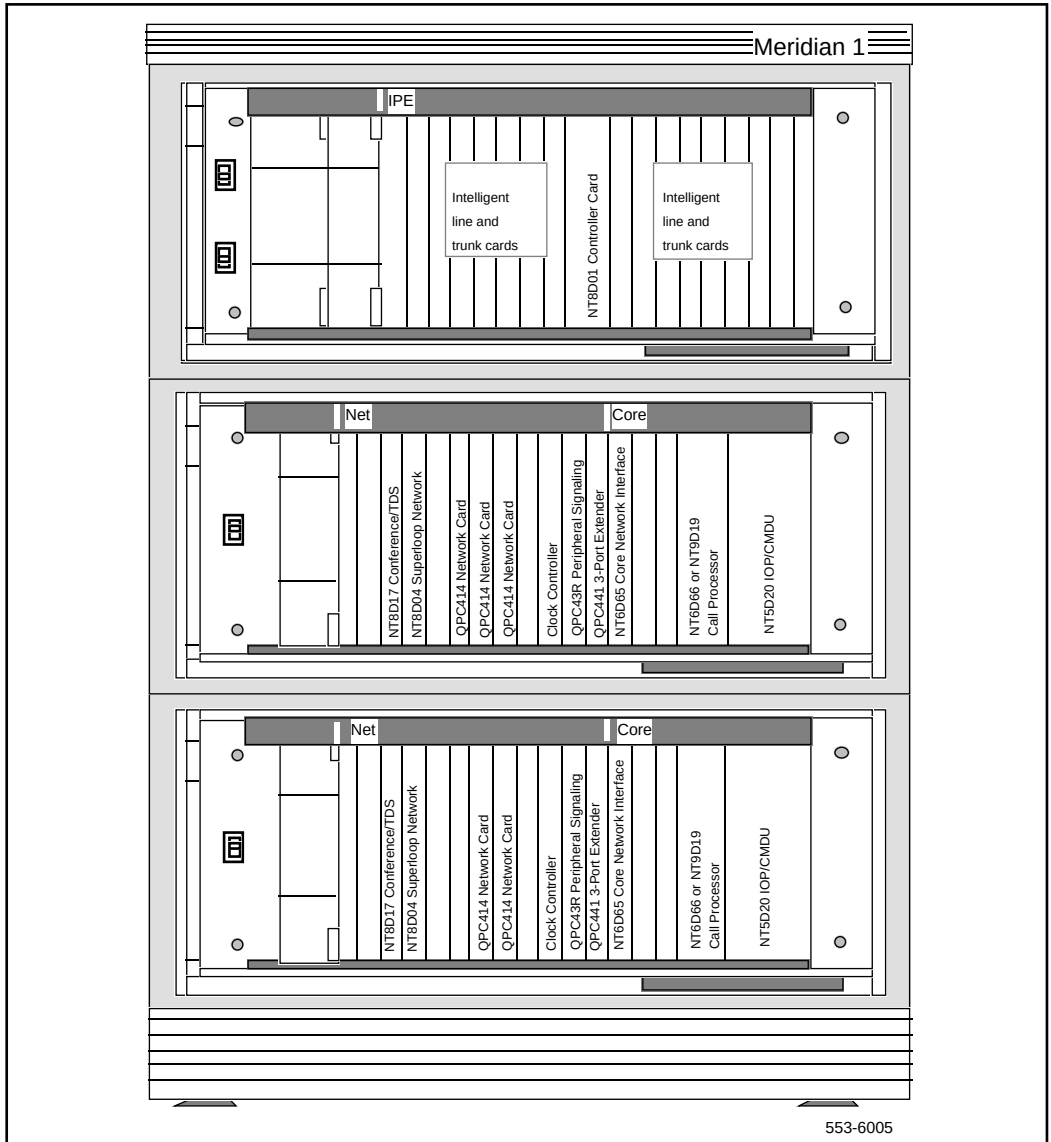
The option 61C equipment is preconfigured at the factory according to your requirements. The equipment includes the pedestal, Core/Network modules, IPE module, cards, and top cap. Cards such as IOP/CMDUs, MDUs, and power supplies are shipped in separate packages to prevent damage to the cards.

Figure 2-3 shows the option 61C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

To install the option 61C at your site, first follow the procedures in *Meridian 1 system installation procedures* (553-3001-210) and then continue with the procedures in this chapter.

Also install any external cables that can be installed at this time without interrupting service (see “Installing external cables” on page 2-36).

Figure 2-3
Meridian 1 option 61C



Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1 On the A, M, S, or MS system, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

If you choose to have the customer database converted, you must send it to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this. After you have received your converted database, proceed to “Installing the connector housings” on page 2-31.

Alternatively, you can reenter the database on the option 61C after the upgrade is complete. Refer to “Turning on the power and configuring the system” on page 2-38 for data reentry procedures after the upgrade is complete.

Installing the connector housings

The connector housings connect cables in the peripheral cabinets to cables from the option 61C, while also reducing electromagnetic interference (EMI). Housings are installed on the peripheral cabinet: On cabinets with a top I/O panel, the housing is installed on top of the cabinet; on cabinets with cover plates on the cabinet side panel, the housing is installed on the side panel. Both housings can accommodate six cables. These are the connector housing kits:

- P0696547 side-mounted connector housing
- P0702380 top-mounted connector housing

Note: For a detailed description of connector housings and installation procedures, refer to *Upgrade engineering* (553-3001-150).

Converting the hardware

CAUTION

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed.

Preparing the A system for upgrade

- 1 Set all shelf circuit breakers to OFF.
- 2 Set the –48V Cabinet Input circuit breaker on the QBL3 power distribution box in the CE cabinet to OFF.
- 3 Set the AC input circuit breaker on the rectifier to OFF.
- 4 Remove the cable between the QPC33 Tape Interface card and the tape unit on the CE shelf.
- 5 Tag and disconnect all cables from the connectors on the QPC45, QPC139, and QPC50 cards.
- 6 Remove the tape from the tape unit.
- 7 Tag and disconnect the cables from the front of all cards on the QSD18 CE shelf, the QSD19 CE shelf, and the QSD2 CE shelf, if equipped.

- 8 Remove cards from the QSD18, QSD19, or QSD2 CE shelves and store them in a safe place.
- 9 Tag and disconnect the tape unit alarm connector. To do this, you must first remove the tape unit and then disconnect the alarm connector.
- 10 The CE shelf will not be used after the upgrade is completed. You may remove it now if you wish:

- Tag and disconnect power connectors and alarm connectors from the QSD18, QSD19, or QSD2 shelf, if equipped. Tape all exposed power leads with electrical insulation tape.

Note: If the cabinet is equipped with an expansion CE shelf (a second CE shelf), disconnect and remove the wiring between the +5V, +12V, -12V, and LGND connections on the CE shelf.

- Tag and disconnect all CE alarm connectors.
- Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CE shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setting information.
- Install the QPC84S Power Monitor.

Preparing the M system for upgrade

- 1 Set all shelf circuit breakers to OFF.
- 2 Set the CAB INP circuit breaker on the QSD23 power control shelf in the QCA37 cabinet to OFF.
- 3 Set the AC input circuit breaker on the -48V rectifier in the QCA37 cabinet to OFF.
- 4 Tag and disconnect all cables from connectors on the QPC139 and QPC376 cards.
- 5 Remove the cards from the QSD26 CE shelf and store them in a safe place.
- 6 Tag and disconnect the tape unit alarm connector. To do this, you must first remove the tape unit and then disconnect the alarm connector.

- 7 The CE shelf will not be used after the upgrade is completed. You may remove it now if you wish:

- Tag and disconnect power connectors and alarm connectors from the QSD26 shelf. Tape all exposed power leads with electrical insulation tape.

Note: If the cabinet is equipped with an expansion CE shelf (a second CE shelf), disconnect and remove the wiring between the +5V, +12V, -12V, and LGND connections on the CE shelf.

- Tag and disconnect all CE alarm connectors.
- Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CE shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setting information.
- Install the QPC84S Power Monitor.

Preparing the S system for upgrade

- 1 Remove covers from the front and rear of the QCA60 cabinet.
- 2 Tag and disconnect all network loop cables connected to QPC376 network cards and cables connected to QPC139 SDI cards.
- 3 Set the ENB/DIS switch on the faceplate of the QPC33 card located in the CE shelf to DIS.
- 4 Set the power switch on the faceplate of the tape unit to OFF or 0.
- 5 Tag and disconnect the cable from the faceplate of the QPC33 card to the tape unit.
- 6 Set all shelf circuit breakers to OFF.
- 7 Set the CAB INP circuit breaker at the front of the cabinet to OFF.
- 8 Tag and disconnect the AC power for the cabinet by disconnecting the commercial AC power line cord from its receptacle or by setting the commercial AC power supply circuit breaker at the service panel to OFF.

- 9 Tag and disconnect any remaining cables connected to cards on the CE shelf.

Note: The main CE shelf is located at the bottom left shelf position in the cabinet (viewed from the front). An optional expansion CE shelf may be located at the top right shelf position.

- 10 Remove cards from the CE shelf and store them in a safe place.
- 11 The CE shelf will not be used after the upgrade is completed. You may remove it now if you wish:
 - Tag and disconnect power connectors from the power distribution harness to the backplane of the main CE shelf and the expansion CE shelf, if equipped. Tape all exposed power leads with electrical insulation tape.

Note: If the cabinet is equipped with an expansion CE shelf (a second CE shelf), disconnect and remove the wiring between the +5V, +12V, -12V, and LGND connections on the CE shelf.

- Tag and disconnect all CE alarm connectors.
- Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CE shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setting information.
- Install the QPC84S Power Monitor.

Preparing the MS system for upgrade

- 1 Set the CAB INP circuit breaker on the QSP43 power control shelf in the QCA109 cabinet and all other shelf circuit breakers to OFF.
- 2 Set the AC input circuit breaker on the -48V rectifier in the QCA109 cabinet to OFF.
- 3 Tag and disconnect cables from connectors on the faceplate of the following cards located on the CE shelf:
 - QPC425 CPU/SDI card
 - QPC376 network cards
 - QPC139 SDI cards, if equipped

- 4 Remove cards from the CE shelf and store them in a safe place.
- 5 Tag and disconnect the tape unit alarm connector. To do this, you must first remove the tape unit and then disconnect the alarm connector.
- 6 The CE shelf will not be used after the upgrade is completed. You may remove it now if you wish:
 - Tag and disconnect all alarm connectors from the harness to the CE shelf.
 - Unplug all power converter cards and all CE cards from the CE shelf.
 - Tag and disconnect power connections and power monitor connector C12 from the cabinet power distribution harness to the right end of the backplane on the QSP39 shelf.

Note: If the cabinet is equipped with an expansion CE shelf (a second CE shelf), disconnect and remove the wiring between the +5V, +12V, -12V, and LGND connections on the CE shelf.

- Tag and disconnect the power connector from the cabinet power wiring harness to the shelf housing the tape unit or QMM38 Mass Storage Unit, if equipped.
- Tape all exposed power leads with electrical insulation tape.
- Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CE shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setting information.
- Install the QPC84S Power Monitor.

Installing external cables

Now that the option 61C column is installed and the peripheral cabinet has been prepared, you must connect them with external cables.

- 1 Install network cables between the peripheral cabinet and the new modular column. This connects network cards in the Core/Network module to the peripheral buffer card in the PE shelf of the cabinet. Refer to *Upgrade engineering* (553-3001-150) for a detailed explanation of the connector kits and cables required to connect peripheral shelves in a cabinet to an option 61C column.

Each network loop connection requires that three cables be installed:

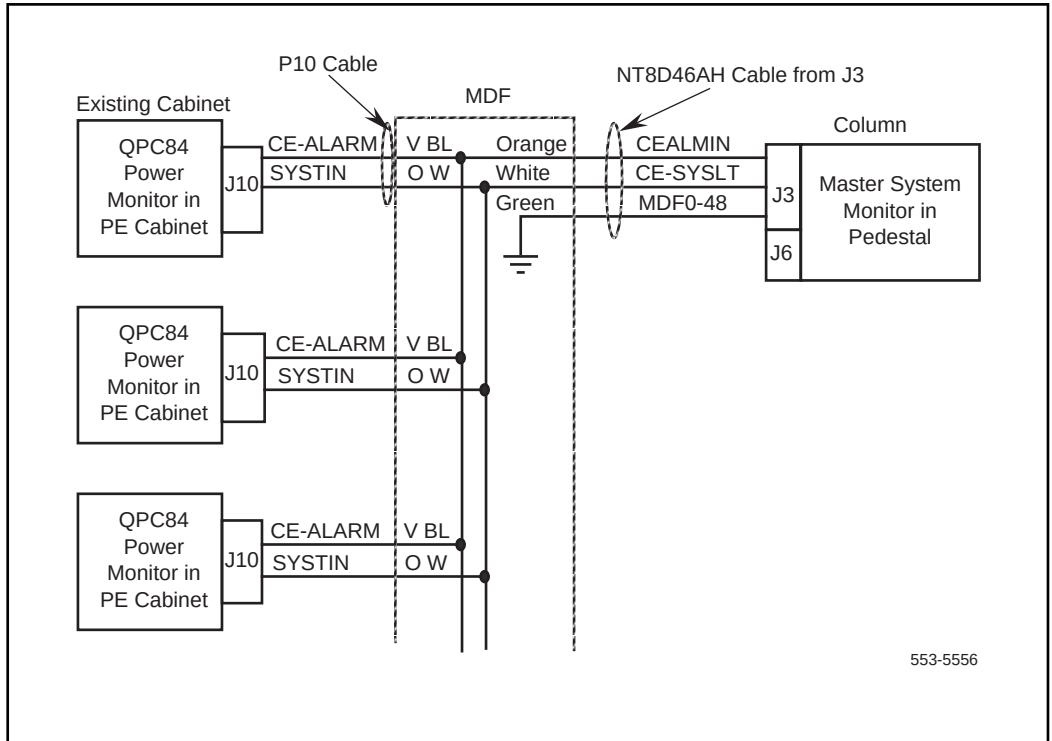
- Connect the NT8D86AC cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
- Connect the NT9J96 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network module to the I/O panel on the top or the side of the peripheral cabinet. A connector housing kit is required for the cabinet to accept the cable connector.
- Connect the NT8D86AC cable from the faceplate connector of the peripheral buffer to the I/O panel connector at the top or the side of the cabinet.

- 2 Install alarm cables between the peripheral cabinet and the option 61C column as shown in Figure 2-4. Leave the original alarm connection between the peripheral cabinet and the MDF. Connect the following cables:

- Verify that the NT8D46AG cable is connected from the system monitor to the SDI paddle board.
- Connect the NT8D46BH cable from the system monitor to the MDF.
- Connect the P10 cable from the cabinet to the MDF.

- 3 Connect the external cable from the Core/Network module I/O panel connector (labeled “PRI/DTI”) to the network interface.

Figure 2-4
Peripheral cabinet to option 61C power and alarm connections



- 4 Install one PRI/DTI card in this module as the primary clock reference, and install the rest of the PRI/DTI cards in the peripheral cabinet CE shelf. For installation procedures, refer to *Circuit card installation and testing* (553-3001-211).
- 5 Verify that the PRI/DTI cards in the peripheral cabinet CE shelf are connected to the MDF.
- 6 Connect all external cables from the MDF to the PE shelf connectors on the cabinet I/O panels and the IPE module I/O panels. Refer to the appropriate procedure in *Meridian 1 system installation procedures* (553-3001-210) for IPE module cabling procedures.

- 7 Connect the external cable to the Core/Network module I/O panel connecting PRI/DTI to the network interface. Install one PRI/DTI card in this module to be the master card and install the rest of the PRI/DTI cards, as slaves, in the existing cabinet CE shelf.
- 8 Verify that PRI/DTI cards in the existing peripheral cabinet CE shelf are connected to the cross connect or network interface.

Connect all external cables from the cross connect to the PE shelf connectors on cabinet I/O panels and IPE module I/O panels. Refer to the appropriate procedure in *Meridian 1 system installation procedures* (553-3001-210) for IPE module I/O panel external cable installation procedures.

Turning on the power and configuring the system

Before you power up the system, review installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel in Core/Net 1. If you are using only one terminal or a switch box for the CPSI ports, set the connection to Core/Net 1. Verify that the terminal is set for 9600 baud, 7 data, space parity, 1 stop bit, full duplex, XON.

- 1 In Core/Net 1, set the MAINT/NORM switch on the NT9D19 CP card to MAINT.
- 2 In Core/Net 0, set the ENB/DIS switch on the NT6D65 CNI card to DIS.
- 3 Perform the appropriate step to restore power in each Core/Network module:
 - For AC-powered systems, simultaneously set the circuit breaker on the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- 4 In Core/Net 0, set the MAINT/NORM switch on the NT9D19 CP card to MAINT.

- 5 Follow the steps below to install the customer database (converted by Northern Telecom) on Core/Net 1.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- To activate the Software Installation Tool, insert disk 1 from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT9D19 CP card in Core/Net 1.
- Select the following options in sequence, and insert the disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation
- Follow all screen directions until the database transfer is complete.
- Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system

- 6 After the system initializes, set the ENB/DIS switch to ENB on the NT6D65 CNI card in Core/Net 0.

- 7 On the NT9D19 CP card in Core/Net 0, press and release the MAN RST button. When “SYS700” messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the following messages will appear on the LCD display:

RUNNING ROM OS
ENTERING CP VOTE

Within 10 minutes, an HWI533 message from the Core/Net 1 CPSI port indicates the Core 0 memory is shadowed to the Core 1 memory. Wait until the memory synchronization is complete before continuing.

- 8 Set the NORM/MAINT switch to NORM on the NT9D19 CP card in Core/Net 1 and perform a redundancy sanity test:

LD 135 to load the program
STAT CNI to get the status of all configured CNIs
STAT CPU to get the status of both Cores
TEST CPU to test the inactive CP card and CP-to-CP cable
TEST CNI c s to test the CNI on the inactive side

Note: Testing the CP and CNI cards may take 90 seconds or more for each test.

- 9 Test the inactive Core, then switch Cores and test the other side:

SCPU to switch to Core 0
TEST CPU to test the inactive CP card and CP-to-CP cable

- 10 Get the status of the CP cards and memories and of the CNIs:

STAT CPU to get the status of both Cores
STAT CNI to get the status of all configured CNIs
******** to exit LD 135

- 11 Load overlay 137 and synchronize the hard disks. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137 to load the program
STAT to get the status of CMDUs, IOPs, and redundancy (verify that CMDU 1 is active)
SYNC to synchronize the hard disks

Note: Synchronization may take up to 30 minutes.

- 12 Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs if necessary:

STAT to get the status of CMDUs, IOPs, and redundancy
SWAP to switch CMDUs (if necessary)
******** to exit LD 137

- 13 In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.

- 14** Insert a backup database disk into each IOP/CMDU for backup. Load overlay 43 and perform a data dump to the backup disks. This command creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and the floppy on the active IOP/CMDU if a disk is installed:

LD 43 to load the program

EDD to begin the data dump

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 15** Perform the appropriate step to turn off power in each Core/Network module:
- For AC-powered systems, set the circuit breaker on the MPDU in the module to OFF (down position).
 - For DC-powered systems, set the switch on the module power supply to OFF (down position).
- 16** Label each card that is being transferred to a Core/Network module with the shelf (0 or 1) and loop (0–31) for the card.
- 17** On all cards that are being transferred to Core/Network modules, disable the faceplate switches, disconnect all cables, and remove the cards.
- 18** Connect all cables to the cards (including the NT8D86 cables from the I/O panels to the QPC414 Network cards). Enable the faceplate switches.
- 19** Switch the cables at the PE end:
- If NT9J96 cables inside the PE cabinets are not connected, connect them to the faceplates of the appropriate QPC659 cards.

- 20 Turn on power to the cabinet:
- Set the AC input circuit breaker on the –48V rectifier in the cabinet to ON.
 - Set the CAB INP circuit breaker on the power control shelf in the cabinet and all other shelf circuit breakers to ON.
- 21 In the option 61C, verify that all cards are enabled (all ENB/DIS switches are set to ENB).
- 22 Follow the appropriate step to restore power in each Core/Network module:
- For AC-powered systems, simultaneously set the circuit breaker on the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).

Note: If power to both Core/Network modules is restored simultaneously, the CMDUs should still be synchronized.

- 23 After the system initializes, reenter system configuration data into the customer database, if required, in the following sequence:
- Configure network loops to match loop types and loop numbers of the current configuration.
 - Configure I/O devices to reflect the current configuration.
 - Reenter customer data blocks. System options and features must reflect the current configuration.
 - Configure station data blocks.
 - Configure route data blocks.
 - Configure trunk data blocks.
 - Configure remaining system configuration records.
 - Verify system operation before adding new equipment.
 - Configure new equipment and functions, if any.

- 24 Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 25 Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).

The Meridian 1 X11 release 22 option 61C is now operational. Install all module covers to complete the upgrade.

SL-1 L, LE, and N system upgrades

This chapter covers these upgrades:

- SL-1 L, LE, or N system to Meridian 1 option 61C X11 release 21

Upgrading L, LE, and N systems to option 61C

To upgrade an SL-1 L, LE, or N system to an option 61C X11 release 21, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- removing the common equipment (CE) from the SL-1 cabinet
- installing a Meridian 1 option 61C column next to the SL-1 cabinet
- installing new connector housings on the SL-1 cabinet
- cabling the cabinet to the option 61C column

Upgrading the software consists of the following:

- if you choose to have the customer database converted, you must send it to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this. Alternatively, you can reenter the database on the option 61C after the upgrade is complete.

Equipment required

Tables 3-1 and 3-2 list the items required to upgrade an AC- or DC-powered system to an X11 release 21 Meridian 1 option 61C. Some configurations may require items not included in the tables. All required items must be identified and on hand before the upgrade can start.

Letters at the end of a part number represent the minimum vintage equipment that can be used in the upgrade; only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect peripheral shelves in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D86AC cables that connect the network card and the peripheral buffer card to the I/O panel
- NT9J96 cables that connect the I/O panel in the CPU/Network module to the cabinet I/O panel

An NT8D01 Controller card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 3-1
Hardware requirements for an AC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21AA	Core/Network module, AC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT9D19AA	Call Processor card (CP)
1	NT7D00AA	Top Cap, AC
1	NT7D06AA	Filler Panel
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal, AC
2	NT8D29AB	Common Equipment Power Supply, AC

Table 3-1
Hardware requirements for an AC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
1	NT8D37BA	Intelligent Peripheral Equipment module, AC
2	NT8D41AA	Dual-Port SDI Paddle Board
3	NT8D44AA	SDI Paddle Board to I/O Cable
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52AB	Pedestal Blower Unit, AC
1	NT8D53BB	Power Distribution Unit, AC
2	NT8D80AZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
6	NTND21AA	Module Side Cover
2	QPC43R	Peripheral Signaling card (PS)
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
Note 1: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 2: A superloop network card, an IPE module, and a power supply and cable are included in the upgrade package to provide replacement card slot availability for the existing IPE cards contained in the unused NT8D11 module.		

Table 3-2
Hardware requirements for a DC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21DA	Core/Network module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT9D19AA	Call Processor card (CP)
1	NT7D00BA	Top Cap, AC
1	NT7D06AA	Filler Panel
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment module, AC
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC
2	NT8D80AZ	CPU Interface Cable (5 ft.)

Table 3-2**Hardware requirements for a DC-powered option 61C (Part 2 of 2)**

Qty	Part number	Description
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
6	NTND21AA	Module Side Cover
2	QPC43R	Peripheral Signaling card (PS)
2	QPC471H	Clock Controller
2	QPC441F	Three-Port Extender card (3PE)
Note 1: One NT6D42CC Ringing Generator, DC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 2: A superloop network card, an IPE module, and a power supply and cable are included in the upgrade package to provide replacement card slot availability for the existing IPE cards contained in the unused NT8D11 module.		

Upgrade preparation

Some preparation is required before the conversion of the SL-1 hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 61C.
- Install the option 61C hardware.
- Back up the customer database to disk by doing a data dump.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Installing option 61C hardware

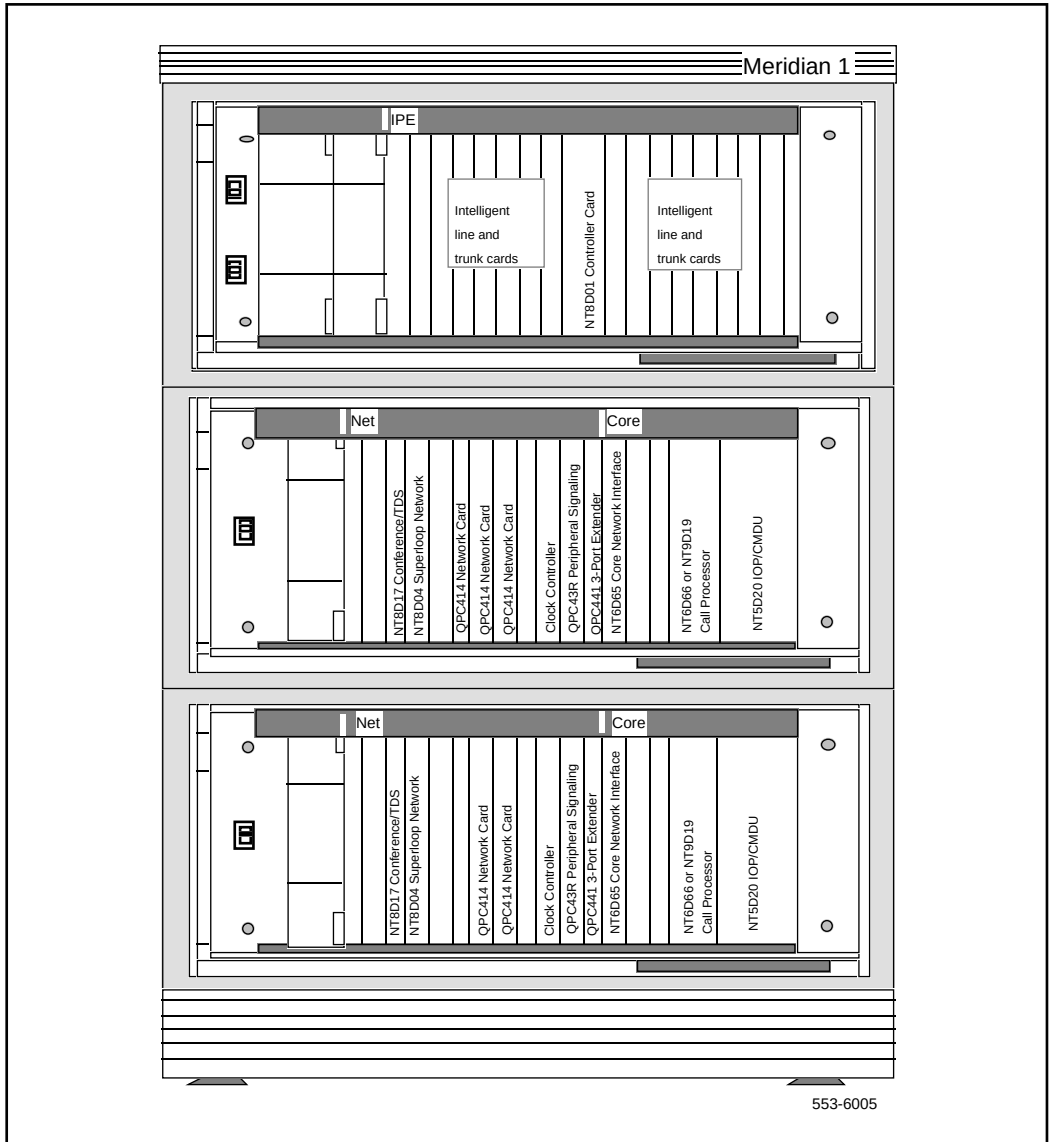
The option 61C equipment is preconfigured at the factory according to your requirements. The equipment includes the pedestal, Core/Network modules, IPE module, cards, and top cap. Cards such as IOP/CMDUs and power supplies are shipped in separate packages to prevent damage to the cards.

Figure 3-1 shows the option 61C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

To install the option 61C at your site, first follow the procedures in *Meridian 1 system installation procedures* (553-3001-210) and then continue with the procedures in this chapter.

Also install any external cables that can be installed at this time without interrupting service (see “Installing external cables” on page 3-16).

Figure 3-1
Meridian 1 option 61C



Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1 On the L, LE, or N system, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

If you choose to have the customer database converted, you must send it to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this. After you have received your converted database, proceed to “Installing the connector housings” on page 3-9.

Alternatively, you can reenter the database on the option 61C after the upgrade is complete. Refer to “Turning on the power and configuring the system” on page 3-19 for data reentry procedures after the upgrade is complete.

Installing the connector housings

The connector housings connect cables in the peripheral cabinets to cables from the option 61C, while also reducing electromagnetic interference (EMI). Housings are installed on the peripheral cabinet: on cabinets with a top I/O panel, the housing is installed on top of the cabinet; on cabinets with cover plates on the cabinet side panel, the housing is installed on the side panel. Both housings can accommodate six cables. These are the connector housing kits:

- P0696547 side-mounted connector housing
- P0702380 top-mounted connector housing

Note: For a detailed description of connector housings and installation procedures, refer to *Upgrade engineering* (553-3001-150).

Converting the SL-1 hardware

CAUTION

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed.

Preparing the L system for upgrade

To prepare an L system for conversion to an option 61C, do the following:

- 1** Set all shelf circuit breakers to OFF.
- 2** Set the CAB INP circuit breaker in the power control shelf in the QCA6 cabinet to OFF.
- 3** Set the AC input circuit breaker on the -48V rectifier in the QCA6 cabinet to OFF.
- 4** Disconnect all network loop cables connected to QPC50 Network cards and cables connected to QPC45 SDI cards.
- 5** Set the ENB/DIS switch on the faceplate of the QPC33 card located in the CPU/MEM shelf to DIS.
- 6** Remove the tape and set the power switch on the faceplate of the tape unit to OFF or 0.
- 7** Disconnect and remove the cable from the faceplate of the QPC33 TUI card to the tape unit.
- 8** Disconnect all remaining cables from the faceplate connectors on cards located in the CPU/MEM and network shelves.
- 9** Remove cards from the CPU/MEM shelf and store them in a safe place.

10 Disconnect power and alarm connections:

- Disconnect all alarm connectors from the harness to the CPU/MEM shelf.
- Unplug the power converter card and all common equipment cards from each CPU/MEM shelf.
- Disconnect power connections and the power monitor connector from the cabinet power distribution harness on the backplane of each CPU/MEM shelf.
- Tape all exposed power leads with electrical insulation tape.
- Remove the QPC84 Power Monitor from the QSD10 shelf and set switches to disable power monitoring in the CPU/MEM shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setup.
- Reinstall the QPC84S Power Monitor.

11 Remove cards from network shelves and store them in a safe place.**12** Disconnect the tape unit power monitor and alarm connectors. To do this, you must first remove the tape unit and then disconnect the connectors. Tape all exposed power leads with electrical insulation tape.**13** If you are using network shelves for PRI/DTI cards, do the following:

- Install the PRI/DTI cards in network shelf card slots 1, 3, 5, 7, 9, and 11.
- Plan to install at least one PRI/DTI card, as a master card with clock reference, in the CPU/Network module of the option 61C column to obtain clock reference for the PRI/DTI cards.

- 14** If you are not going to use network shelves for PRI/DTI cards, do the following:
- Disconnect the alarm connector from the harness to each network shelf.
 - Unplug the power converter card from each network shelf.
 - Disconnect power connections and the power monitor connector from the cabinet power distribution harness on the backplane on each network shelf.
 - Tape all exposed power leads with electrical insulation tape.

Preparing the LE system for upgrade

To prepare an LE system for conversion to an option 61C, do the following:

- 1** Set all shelf circuit breakers to OFF.
- 2** Set the CAB INP circuit breaker on the QSP43 power control shelf in the QCA96 cabinet and all other shelf circuit breakers to OFF.
- 3** Set the AC input circuit breaker on the –48V rectifier in the QCA96 cabinet to OFF.
- 4** Disconnect all network loop cables connected to QPC376 Network cards and cables connected to QPC139 SDI cards.
- 5** Set the ENB/DIS switch on the faceplate of the QPC33 card located in the CPU/MEM shelf to DIS.
- 6** Remove the tape and set the power switch on the faceplate of the tape unit to OFF or 0.
- 7** Disconnect and remove the cable from the faceplate of the QPC33 card to the tape unit.
- 8** Disconnect cables from the faceplate connectors on cards located in the CPU/MEM and network shelves.
- 9** Remove cards from the CPU/MEM shelf and store them in a safe place.

- 10** Disconnect power and alarm connections:
 - Disconnect all alarm connectors from the harness to the CPU/MEM shelf.
 - Unplug all power converter cards and all common equipment cards from the CPU/MEM shelf.
 - Disconnect power connections and the power monitor connector from the cabinet power distribution harness of the backplane on the QSP41 shelf.
 - Tape all exposed power leads with electrical insulation tape.
 - Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CPU/MEM shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setup.
 - Reinstall the QPC84S Power Monitor.
- 11** Remove cards from network shelves and store them in a safe place.
- 12** Disconnect the tape unit or the mass storage unit power monitor and alarm connectors. To do this, you must first remove the tape unit or the mass storage unit and then disconnect the connectors. Tape all exposed power leads with electrical insulation tape.
- 13** If you are using network shelves for PRI/DTI cards, do the following:
 - Install the PRI/DTI cards in network shelf card slots 2, 4, 6, 8, 10, and 12.
 - Plan to install at least one PRI/DTI card, as a master card with clock reference, in the CPU/Network module of the option 61C column to obtain clock reference for the PRI/DTI cards.

- 14** If you are not going to use network shelves for PRI/DTI cards, do the following:
- Disconnect all alarm connectors from the harness to each network shelf.
 - Unplug all power converter cards from each network shelf.
 - Disconnect power connections and the power monitor connector from the cabinet power distribution harness to the backplane on QSD54 and QSD55 shelves.
 - Tape all exposed power leads with electrical insulation tape.

Preparing the N system for upgrade

To prepare an N system for conversion to an option 61C, do the following:

- 1** Set all shelf circuit breakers to OFF.
- 2** Set the CAB INP circuit breaker on the QSP43 power control shelf in the QCA58 cabinet and all other shelf circuit breakers to OFF.
- 3** Set the AC input circuit breaker on the –48V rectifier in the QCA58 cabinet to OFF.
- 4** Disconnect all network loop cables connected to QPC414 Network cards and cables connected to QPC139 SDI cards.
- 5** Set the ENB/DIS switch on the faceplate of the QPC33 Tape Unit Interface (TUI) card located in the CPU/MEM shelf to DIS. If equipped with a mass storage unit, repeat this step for the mass storage unit interface card.
- 6** Remove the tape and set the power switch on the faceplate of the tape unit to OFF or 0. If equipped with a mass storage unit, repeat this step by removing the disks and turning the MSU power switch to OFF.
- 7** Disconnect and remove the cable from the faceplate of the QPC33 card to the Tape Unit. If equipped with a mass storage unit, disconnect the cable between the MSU and the MSUI faceplates.
- 8** Disconnect cables from the faceplate connectors on cards located in the CPU/MEM and network shelves.
- 9** Remove cards from the CPU/MEM shelf and store them in a safe place.

- 10** Disconnect power and alarm connections:
 - Disconnect all alarm connectors from the harness to the CPU/MEM shelf.
 - Unplug all power converter cards and all common equipment cards from the CPU/MEM shelf.
 - Disconnect power connections and the power monitor connector from the cabinet power distribution harness of the backplane on the QSP41 shelf.
 - Tape all exposed power leads with electrical insulation tape.
 - Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CPU/MEM shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setup.
 - Reinstall the QPC84S Power Monitor.
- 11** Remove cards from network shelves and store them in a safe place.
- 12** Disconnect the tape unit or the mass storage unit power monitor and alarm connectors. To do this, you must first remove the Tape Unit or the mass storage unit and then disconnect the connectors. Tape all exposed power leads with electrical insulation tape.
- 13** If you are using network shelves for PRI/DTI cards, do the following:
 - Install the PRI/DTI cards in network shelf card slots 2, 4, 6, 8, 10, and 12.
 - Plan to install at least one PRI/DTI card, as a master card with clock reference, in the CPU/Network module of the option 61C column to obtain clock reference for the PRI/DTI cards.

- 14** If you are not going to use network shelves for PRI/DTI cards, do the following:
- Disconnect alarm connectors from the harness to network shelves.
 - Unplug all power converter cards from each network shelf.
 - Disconnect power connections and the power monitor connector from the cabinet power distribution harness to the backplane on QSD39 and QSD40 shelves.
 - Tape all exposed power leads with electrical insulation tape.

Installing external cables

Now that the option 61C column is installed and the peripheral cabinet has been prepared, you must connect them with external cables.

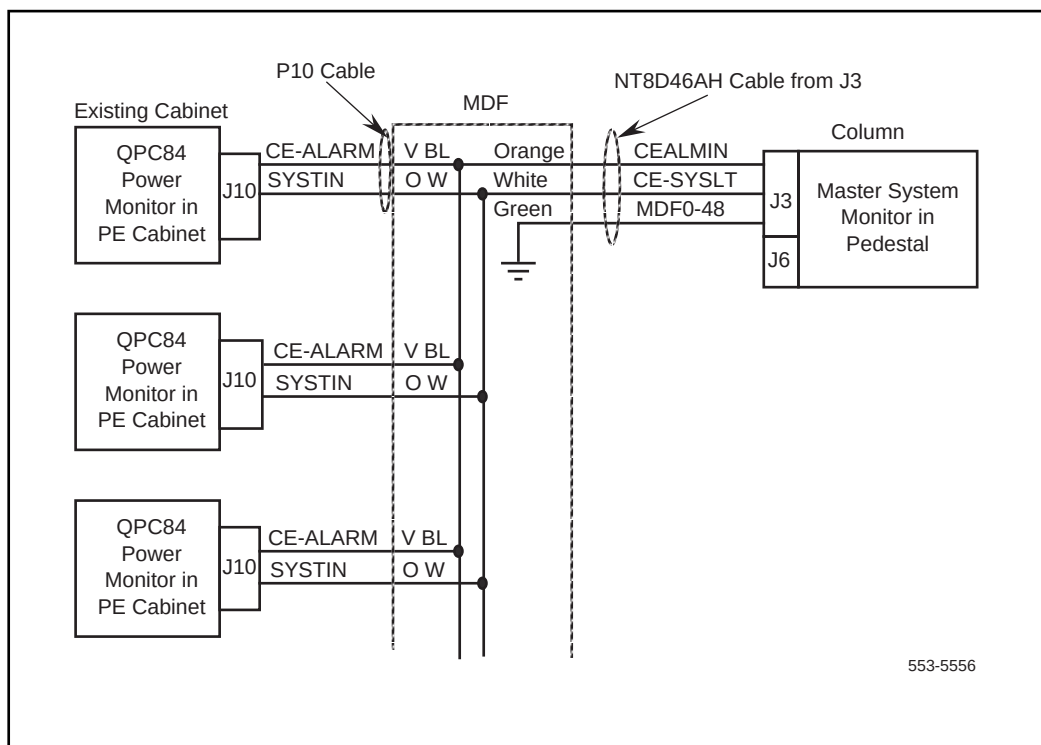
- 1** Install network cables between the peripheral cabinet and the new modular column. This connects network cards in the Core/Network module to the peripheral buffer card in the PE shelf of the cabinet. Refer to *Upgrade engineering* (553-3001-150) for a detailed explanation of the connector kits and cables required to connect peripheral shelves in a cabinet to an option 61C column.

Each network loop connection requires that the following three cables be installed:

- Connect the NT8D86AC cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
- Connect the NT9J96 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network module to the I/O panel on the top or the side of the peripheral cabinet. A connector housing kit is required for the cabinet to accept the cable connector.
- Connect the NT8D86AC cable from the faceplate connector of the peripheral buffer to the I/O panel connector at the top or the side of the cabinet.

- 2 Install alarm cables between the peripheral cabinet and the option 61C column as shown in Figure 3-2. Leave the original alarm connection between the peripheral cabinet and the MDF. Connect the following cables:
 - Verify that the NT8D46AG cable is connected from the system monitor to the SDI paddle board.
 - Connect the NT8D46BH cable from the system monitor to the MDF.
 - Connect the P10 cable from the cabinet to the MDF.

Figure 3-2
Peripheral cabinet to option 61C power and alarm connections



- 3** Connect the external cable from the Core/Network module I/O panel connector (labeled “PRI/DTI”) to the network interface.
- 4** Install one PRI/DTI card in this module as the primary clock reference, and install the rest of the PRI/DTI cards in the peripheral cabinet CE shelf. For installation procedures, refer to *Circuit card installation and testing* (553-3001-211).
- 5** Verify that the PRI/DTI cards in the peripheral cabinet CE shelf are connected to the MDF.
- 6** Connect all external cables from the MDF to the PE shelf connectors on the cabinet I/O panels and the IPE module I/O panels. Refer to the appropriate procedure in *Meridian 1 system installation procedures* (553-3001-210) for IPE module cabling procedures.
- 7** Connect the external cable to the Core/Network module I/O panel connecting the PRI/DTI to the network interface. Install one PRI/DTI card in this module to be the master card, and install the rest of the PRI/DTI cards, as slaves, in the existing cabinet CE shelf.
- 8** Verify that the PRI/DTI cards in the existing peripheral cabinet CE shelf are connected to the cross connect or network interface.

Connect all external cables from the cross connect to the PE shelf connectors on cabinet I/O panels and IPE module I/O panels. Refer to *Meridian 1 system installation procedures* (553-3001-210) for the installation procedures for the IPE module I/O panel external cable.

Turning on the power and configuring the system

Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel in Core/Net 1. If you are using only one terminal or a switch box for the CPSI ports, set the connection to Core/Net 1. Verify that the terminal is set for 9600 baud, 7 data, 1 stop bit, space parity, full duplex, XON protocol.

- 1 In Core/Net 1, set the MAINT/NORM switch on the NT9D19 CP card to MAINT.
- 2 In Core/Net 0, set the ENB/DIS switch on the NT6D65 CNI card to DIS.
- 3 Perform the appropriate step to restore power in each Core/Network module:
 - For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- 4 In Core/Net 0, set the MAINT/NORM switch on the NT9D19 CP card to MAINT.
- 5 Follow the steps below to install the customer database (converted by Northern Telecom) on Core/Net 1.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- To activate the Software Installation Tool, insert disk A1 from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT9D19 CP card in Core/Net 1.

- Select the following options in sequence, and insert the B1 disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation
 - Follow all screen directions until the database transfer is complete.
 - Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system
- 6 After the system initializes, set the ENB/DIS switch to ENB on the NT6D65 CNI card in Core/Net 0.
- 7 On the NT9D19 CP card in Core/Net 0, press and release the MAN RST button. When “SYS700” messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the following messages will appear on the LCD display:

RUNNING ROM OS ENTERING CP VOTE

Within 10 minutes, an HWI533 message from the Core/Net 1 CPSI port indicates the Core 0 memory is shadowed to the Core 1 memory. Wait until the memory synchronization is complete before continuing.

- 8 Set the NORM/MAINT switch to NORM on the CP card in Core/Net 1 and perform a redundancy sanity test:

LD 135	to load the program
STAT CNI	to get the status of all configured CNIs
STAT CPU	to get the status of both Cores
TEST CPU	to test the inactive CP card and CP-to-CP cable
TEST CNI c s	to test the CNI on the inactive side

Note: Testing the CP and CNI cards may take up to 90 seconds for each test.

- 9** Test the inactive Core, then switch Cores and test the other side:
- SCPU** to switch to Core 0
 - TEST CPU** to test the inactive CP card and CP-to-CP cable
- 10** Get the status of the CP cards and memory and of the CNIs:
- STAT CPU** to get the status of both Cores
 - STAT CNI** to get the status of all configured CNIs
 - ****** to exit LD 135
- 11** Load overlay 137 and synchronize the hard disks. To be sure the contents of the CMDU 1 are copied to the CMDU 0, verify that the CMDU 0 is disabled:
- LD 137** to load the program
 - STAT** to get the status of the CMDUs, IOPs, and redundancy (verify that the CMDU 1 is active)
 - SYNC** to synchronize the hard disks
- Note:** Synchronization may take up to 30 minutes.
- 12** Get the status of the CMDUs and be sure the CMDU 0 is active. Switch the CMDUs if necessary:
- STAT** to get the status of the CMDUs, IOPs, and redundancy
 - SWAP** to switch the CMDUs (if necessary)
 - ****** to exit LD 137
- 13** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.
- 14** Insert a B1 database disk into each IOP/CMDU for backup. Load overlay 43 and perform a data dump to the backup disks. This command creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and the floppy on the active IOP/CMDU if a disk is installed:
- LD 43** to load the program
 - EDD** to begin the data dump

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 15** Perform the appropriate step to turn off power in each Core/Network module:
 - For AC-powered systems, simultaneously set the circuit breaker on the MPDU in both Core/Network modules to OFF (down position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to OFF (down position).
- 16** Label each card that is being transferred to a Core/Network module with the shelf (0 or 1) and loop (0–31) for the card.
- 17** On all cards that are being transferred to Core/Network modules, disable the faceplate switches, disconnect all cables, and remove the cards.
- 18** Connect all cables to the cards (including the NT8D86 cables from the I/O panels to the QPC414 Network cards). Enable the faceplate switches.
- 19** Switch the cables at the PE end:
 - If NT9J96 cables inside the PE cabinets are not connected, connect them to the faceplates of the appropriate QPC659 cards.
- 20** Turn on power to the cabinet:
 - Set the AC input circuit breaker on the –48V rectifier in the cabinet to ON.
 - Set the CAB INP circuit breaker on the power control shelf in the cabinet and all other shelf circuit breakers to ON.
- 21** In the option 61C, verify that all cards are enabled (all ENB/DIS switches are set to ENB).

- 22** Perform the appropriate step to restore power in each Core/Network module.
- For AC-powered systems, simultaneously set the circuit breaker on the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- Note:** If power to both Core/Network modules is restored simultaneously, the CMDUs will still be synchronized.
- 23** After the system initializes, reenter system configuration data into the customer database, if required, in the following sequence:
- Configure network loops to match loop types and loop numbers of the current configuration.
 - Configure I/O devices to reflect the current configuration.
 - Reenter customer data blocks. System options and features must reflect the current configuration.
 - Configure station data blocks.
 - Configure route data blocks.
 - Configure trunk data blocks.
 - Configure remaining system configuration records.
 - Verify system operation before adding new equipment.
 - Configure new equipment and functions, if any.
- 24** Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 25** Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).

The Meridian 1 X11 release 21 option 61C is now operational. Install all module covers to complete the upgrade.

SL-1 ST and STE system upgrades

This chapter covers these upgrades:

- SL-1 ST system to SL-1 STE X11 release 21, below
- SL-1 ST or STE system to option 51C X11 release 21, page 4-48

Note: When upgrading an ST system to option 51C, it is recommended that ST system customers send the customer database diskettes to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this. Alternatively, you can reenter the database on the option 51C after the upgrade is complete.

- SL-1 ST or STE system to option 61C X11 release 21, page 4-73

Upgrading an ST system to an STE system

To upgrade an SL-1 ST system to an STE system, you must upgrade both the hardware and the software.

Note: X11 release 21 is the highest supported X11 software release for STE systems. STE systems must be upgraded to the Option 51C (with software generic 2211) or 61C (with software generic 2311) before converting to X11 release 22 software.

Upgrading the hardware consists of the following:

- replacing the CPU card, memory card, peripheral signaling card, floppy disk unit, and interface card
- replacing some of the common equipment with new common equipment required in the STE system

Upgrading the software consists of the following:

- transferring the customer database on the ST to extra-high-density disks

- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Table 4-1 lists the items required to upgrade an AC- or DC-powered ST system to an STE system. Some configurations may require items not included in the table. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Table 4-1
Hardware requirements for an AC- or DC-powered STE system

Quantity	Part number	Description
1	NTND01CA	ICM card w/2 MB Memory
1	NTND02BA	Misc/SDI/Peripheral Signaling card (MSPS)
1	NTND31AB	ROM card
1	NTND37AA	Dual SDI Cable
1	NT9D33 and	Small System Multi Drive Unit
1	NT9D34	Enhanced Mass Storage Interface card
1	NT9D47 and	EMSI to SMDU Data Cable
1	NT9D66	EMSI to SMDU Power Cable
1	QPC940	ROM card (Notes 1, 2)
Note 1: Not included in upgrade package. Must be ordered separately if required for on-site database conversion. Note 2: Refer to Table 4-2 for ROM cards required during on-site database conversion.		

Upgrade preparation

Upgrade preparation is required before the conversion of the ST hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to disk by doing a data dump.
- Install some of the new hardware.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks.

- 1** On the ST system, log into the system.
- 2** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media.

- 3** When “EDD000” appears on the terminal, enter **EDD** to begin the data dump
- 4** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter ******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the ST system can be sent to Northern Telecom for conversion or converted on-site. Note that conversion of the customer database on-site necessitates system downtime. If you choose to convert the database on-site, refer to Table 4-2 to determine the appropriate conversion procedure. The database conversion requires intermediate steps during which hardware and software are upgraded incrementally.

If you choose to send the database to Northern Telecom for conversion, skip the rest of this section, “Converting the customer database.” After you have received your converted database from Northern Telecom, proceed to “Preparing a system for off-site database conversion” on page 4-43.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

CAUTION

Upgrading the customer database on-site requires some system downtime. Schedule for this when planning the system upgrade.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (ST) media.

Table 4-2**Database conversion requirements, ST system to an STE system (Part 1 of 2)**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 9 customer database (Use conversion procedure beginning on page 4-7)			
9	10	QPC717B	Release 9 to release 10 conversion disk Release 10.xx ST system software disk and data cartridge
10	15	QPC940	Release 15.xx ST system software disk and data cartridge
15	18	NTND31	Release 18.xx STE system software disk and data cartridge
18	19	NTND31	Release 18.xx STE system software disk Release 19.xx STE system software disk and data cartridge
19	21	NTND31	Release 19.xx STE system software disk Release 21.xx STE system software disk and data cartridge
For converting a release 10, 12, 13, or 14 customer database (Use conversion procedure beginning on page 4-18)			
10, 12 13, 14	15	QPC940	Release 10.xx, 12.xx, 13.xx, or 14.xx ST system software disk and data cartridge Release 15.xx ST system software disk and data cartridge
15	18	NTND31	Release 18.xx STE system software disk and data cartridge
18	19	NTND31	Release 18.xx STE system software disk Release 19.xx STE system software disk and data cartridge
19	21	NTND31	Release 19.xx STE system software disk Release 21.xx STE system software disk and data cartridge

Table 4-2
Database conversion requirements, ST system to an STE system (Part 2 of 2)

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 15 or 16 customer database (Use conversion procedure beginning on page 4-28)			
15	15.57	QPC940	Release 15.xx ST system software disk and data cartridge Release 15.57 ST system software disk and data cartridge
15.57 or 16	18	NTND31	Release 18.xx STE system software disk and data cartridge
18	19	NTND31	Release 18.xx STE system software disk Release 19.xx STE system software disk and data cartridge
19	21	NTND31	Release 19.xx STE system software disk Release 21.xx STE system software disk and data cartridge
For converting a release 17 customer database (Use conversion procedure beginning on page 4-36)			
17	19	NTND31	Release 19.xx STE system software disk and data cartridge
19	21	NTND31	Release 19.xx STE system software disk Release 21.xx STE system software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 9 to release 21

1 Remove the front covers from the ST system.

2 Log into the system.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the ST system. You will install in their place the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
- an NT9D34 Enhanced Mass Storage Interface (EMSI) card

3 Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.

4 Disconnect the cable between the FDU and the QPC742 FDI card.

5 Remove the FDU and the QPC742 FDI card.

6 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS.

7 On the EMSI card, set positions 1, 5, and 7 on switch SW3 to ON. Set position 8 to OFF.

8 Install the QMM42 data cartridge for release 9 software onto the EMSI card.

Note: Reuse the QMM42 data cartridge for release 9 from the old QPC742 FDI card.

9 Insert the NT9D33 SMDU into its assigned position.

10 Connect the NT9D47 cable between connector 0 on the NT9D33 SMDU and the faceplate connector on the NT9D34 EMSI card.

11 Connect the NT9D66 cable between the power connector on the NT9D33 SMDU and the power connector on the faceplate of the NT9D34 EMSI card.

12 Install the NT9D34 EMSI card into the ST system in the same slot from which you removed the old FDI card.

13 Set the ENB/DIS switch on the EMSI card to ENB.

14 Insert the release 9 to release 10 conversion software disk into drive A.

- 15 Load the Conversion Program (LD 66):

LD 66 to load the program

When “CDD000” appears on the terminal, proceed to the next step.

- 16 Disable and remove the NT9D34 EMSI card and replace the QMM42 cartridge for release 9 with the QMM42 cartridge for release 10. Reinstall and enable the card.

- 17 Remove the disk from the SMDU drives and insert ED floppy disks with release 10 software into the drives. Insert disk A in drive A and disk B in drive B. Refer to Table 4-2 to determine the software release required for the next conversion step; for example, X11 release 10 software is required for the conversion from release 9 to release 10.

- 18 Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19 Press the RS button on the QUAA3 Power Unit to start a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 20 Log into the system.

- 21** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 22** Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 10 software with the QMM42 cartridge for release 15 software. Reinstall and enable the card.
- 23** Remove the disks containing release 10 software from the drives and insert ED floppy disks with release 15 software into the SMDU drives. Insert disk A in drive A and disk B in drive B.
- 24** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 25** Remove the QPC687 CPU card. Remove the QPC717 ROM card and replace it with the QPC940 ROM card. Reinstall the CPU Function card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 26** Remove the QPC673 Memory card and install the QPC814 Memory card.
- 27** Verify that the QPC709 Peripheral Signaling card in the ST system is vintage D or later. If it is not, install a QPC709D now.

- 28** Press the RS button on the QUAA3 Power Unit to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 29** Log into the system.
- 30** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 31** Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 18 software. Reinstall and enable the card.
- 32** Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 18 software into the SMDU drives. Insert disk A in drive A and disk B in drive B.
- 33** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 34** Shut down power to the system by switching the circuit breaker for the power supply to OFF.
- 35** If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.

- 36 Remove the QPC687 CPU card.
- 37 Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.
- 38 Remove the NT9D34 EMSI card and set positions 1, 5, 7, and 8 on switch SW3 to ON.
- 39 Reinstall the NT9D34 EMSI card and set the ENB/DIS switch to ENB.
- 40 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

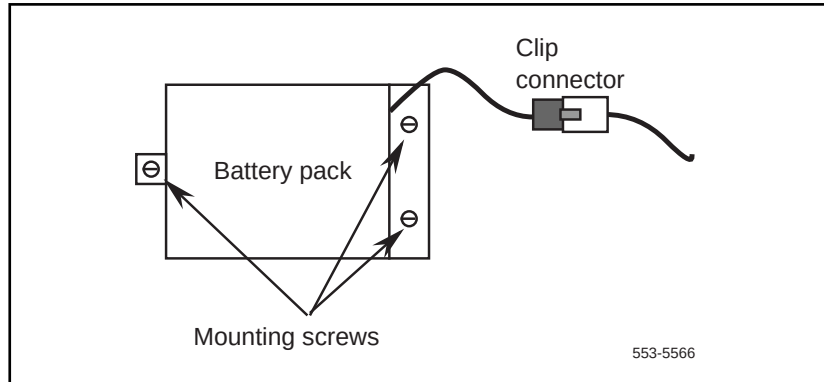
CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 41 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.
- 42 Set the switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses and determine the appropriate switch settings, refer to *Circuit card installation and testing* (553-3001-211).
- 43 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 4-1.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.
- 44 Install the NTND02 MSPS card in slot 4 and install a blank faceplate in slot 1.

Figure 4-1
Battery pack connection to the NTND02 MSPS card



45 Connect the SDI cable:

- Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
- Connect the other end of the cable to the I/O panel.

Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.

46 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Note: Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled.

47 Power up the system by switching the power supply circuit breaker to ON. The system will automatically begin a sysload. System messages similar to the following will appear:

SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 48** Log into the system.
- 49** On the ST system, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 50** Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the FDI card.
- 51** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 52** Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 53** Press the RLD button on the NTND01 ICM card to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 54** Log into the system.

- 55** On the ST system, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 56** Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the FDI card.
- 57** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.
- 58** Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 59** Press the RLD button on the NTND01 ICM card to begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

SYS000

INSERT DISK Ax INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

60 Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.

61 Log into the system.

62 Update the Configuration Record:

LD 17 to load the program

ADAN enter **CHG HDK 0** to specify a single SMDU

FTYP enter **3S** to specify 3.5-in. extra-high-density disks

******** to exit the program

63 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert additional system disks (A2, A3, etc.) in the A drive when prompted. When the restore sequence is complete, enter

******** to exit the program

64 Remove the disk from drive A and insert disk A1.

65 Set the ENB/DIS switch on the EMSI card to DIS.

66 Remove the EMSI card and set position 4 on switch SW3 to ON.

67 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

68 Define the I/O port card type for each SDI port on the MSPS card:

LD 17	to load the program
ADAN	enter OUT terminal x to remove an I/O device
ADAN data outed	is displayed
ADAN	enter NEW terminal x to specify a new I/O device
CTYP	enter MSPS to specify card type
USER	enter appropriate terminal functions
ADAN data saved	is displayed
****	to exit the program
Enable each port:	
LD 37	to load the program
ENL terminal x	to enable port x
****	to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

69 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

70 To continue upgrading the STE to release 21, proceed with step 71. If you are upgrading the STE to an option 51C or 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.

71 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.

72 Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 STE system is now operational. Install all covers to complete the upgrade.

Converting a database from release 10, 12, 13, or 14 to release 21

- 1 Remove the front covers from the ST system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the ST system. You will install in their place the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
 - an NT9D34 Enhanced Mass Storage Interface (EMSI) card
- 4 Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.
 - 5 Disconnect the cable between the FDU and the QPC742 FDI card.
 - 6 Remove the FDU and the QPC742 FDI card.
 - 7 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS.
 - 8 On the EMSI card, set positions 1, 5, and 7 on switch SW3 to ON. Set position 8 to OFF.
 - 9 Install the QMM42 data cartridge for release 15 software onto the EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.
 - 10 Insert the NT9D33 SMDU into its assigned position.
 - 11 Connect the NT9D47 cable between connector 0 on the NT9D33 SMDU and the faceplate connector on the NT9D34 EMSI card.
 - 12 Connect the NT9D66 cable between the power connector on the NT9D33 SMDU and the power connector on the faceplate of the NT9D34 EMSI card.

- 13** Install the NT9D34 EMSI card into the ST system in the same slot from which you removed the old FDI card.
- 14** Set the ENB/DIS switch on the EMSI card to ENB.
- 15** Insert ED floppy disks with release 15 software into the SMDU drives. Insert disk A in drive A and disk B in drive B.
- 16** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17** Remove the QPC687 CPU card. Remove the QPC717 ROM card and replace it with the QPC940 ROM card. Reinstall the CPU Function card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 18** Remove the QPC673 Memory card and install the QPC814 Memory card.
- 19** Verify that the QPC709 Peripheral Signaling card in the ST system is vintage D or later. If it is not, install a QPC709D now.

- 20 Press the RS button on the QUAA3 Power Unit to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 21 Log into the system.
- 22 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 23 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 18 software. Reinstall and enable the card.
- 24 Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 18 software into the SMDU drives. Insert disk A in drive A and disk B in drive B.
- 25 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 26 Shut down power to the system by switching the circuit breaker for the power supply to OFF.
- 27 If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.

- 28 Remove the QPC687 CPU card.
- 29 Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.
- 30 Remove the NT9D34 EMSI card and set positions 1, 5, 7, and 8 on switch SW3 to ON.
- 31 Reinstall the NT9D34 EMSI card and set the ENB/DIS switch to ENB.
- 32 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

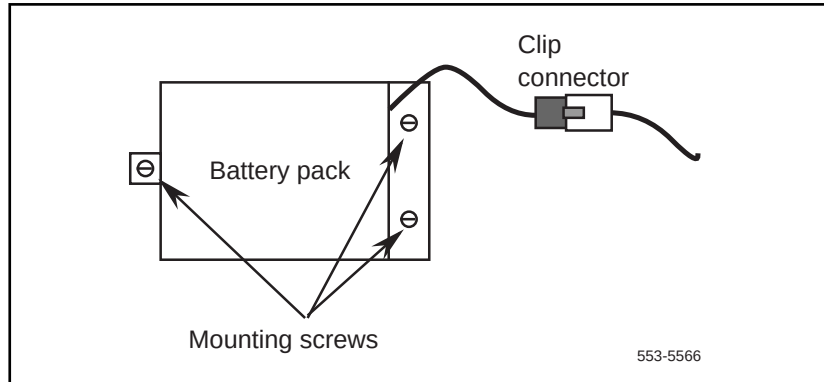
CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 33 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.
- 34 Set the switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses and determine the appropriate switch settings, refer to *Circuit card installation and testing* (553-3001-211).
- 35 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 4-2.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.
- 36 Install the NTND02 MSPS card in slot 4 and install a blank faceplate in slot 1.

Figure 4-2
Battery pack connection to the NTND02 MSPS card



37 Connect the SDI cable:

- Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
- Connect the other end of the cable to the I/O panel.

Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.

38 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Note: Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled.

39 Power up the system by switching the power supply circuit breaker to ON. The system will automatically begin a sysload. System messages similar to the following will appear:

```
SYS000  
SYSLOAD RLS: xxISSUE:x  
DONE  
INI000
```

- 40** Log into the system.
- 41** On the ST system, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 42** Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the FDI card.
- 43** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 44** Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 45** Press the RLD button on the NTND01 ICM card to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 46** Log into the system.

- 47 On the ST system, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 48 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the FDI card.

- 49 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 50 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 51 Press the RLD button on the NTND01 ICM card to begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

SYS000

INSERT DISK Ax INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

52 Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.

53 Log into the system.

54 Update the Configuration Record:

LD 17 to load the program

ADAN enter **CHG HDK 0** to specify a single SMDU

FTYP enter **3S** to specify 3.5-in. extra-high-density disks

******** to exit the program

55 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert additional system disks (A2, A3, etc.) in the A drive when prompted. When the restore sequence is complete, enter

******** to exit the program

56 remove the disk from drive A and insert disk A1.

57 Set the ENB/DIS switch on the EMSI card to DIS.

58 Remove the EMSI card and set position 4 on switch SW3 to ON.

59 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

60 Define the I/O port card type for each SDI port on the MSPS card:

LD 17	to load the program
ADAN	enter OUT terminal x to remove an I/O device
ADAN data outed	is displayed
ADAN	enter NEW terminal x to specify a new I/O device
CTYP	enter MSPS to specify card type
USER	enter appropriate terminal functions
ADAN data saved	is displayed
****	to exit the program
Enable each port:	
LD 37	to load the program
ENL terminal x	to enable port x
****	to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

61 Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

****	to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 62** To continue upgrading the STE to release 21, proceed with step 63. If you are upgrading the STE to an option 51C or 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 63** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 64** Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 STE system is now operational. Install all covers to complete the upgrade.

Converting a database from release 15.57 or 16 to release 21

To use this procedure, your ST system must currently be running version 15.57 or higher. If your system is running an earlier version of release 15 software (release 15.53, for example), you must first convert the database to release 15.57. Refer to *Software conversion procedures* (553-2001-320) for instructions on converting the database to a higher version of the same release. Use this procedure only if your system is running release 15.57 or 16.

- 1 Remove the front covers from the ST system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the ST system. You will install in their place either of the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
 - an NT9D34 Enhanced Mass Storage Interface (EMSI) card
- 4 Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.
 - 5 Disconnect the cable between the FDU and the QPC742 FDI card.
 - 6 Remove the FDU and the QPC742 FDI card.
 - 7 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS.
 - 8 On the NT9D34 EMSI card, set positions 1, 5, and 7 on switch SW3 to ON. Set position 8 to OFF.
 - 9 Install the QMM42 data cartridge for release 18 software onto the EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 10** Insert the NT9D33 SMDU into its assigned position.
- 11** Connect the NT9D47 cable between connector 0 on the NT9D33 SMDU and the faceplate connector on the NT9D34 EMSI card.
- 12** Connect the NT9D66 cable between the power connector on the NT9D33 SMDU and the power connector on the faceplate of the NT9D34 EMSI card.
- 13** Install the NT9D34 EMSI card into the ST system in the same slot from which you removed the older FDI card.
- 14** Set the ENB/DIS switch on the EMSI card to ENB.
- 15** Insert ED floppy disks with release 18 software into the SMDU drives. Insert disk A in drive A and disk B in drive B.
- 16** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17** Shut down power to the system by switching the circuit breaker for the power supply to OFF.
- 18** If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.
- 19** Remove the QPC687 CPU card.
- 20** Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.
- 21** Remove the NT9D34 EMSI card and set positions 1, 5, 7, and 8 on switch SW3 to ON.
- 22** Reinstall the EMSI card and set the ENB/DIS switch to ENB.

- 23 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

CAUTION

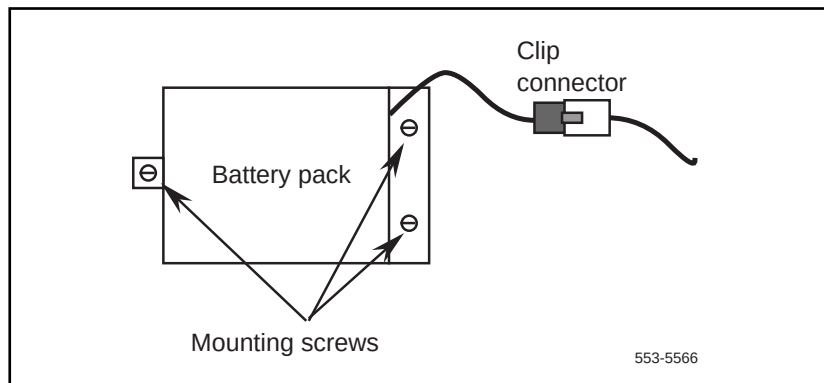
Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 24 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.
- 25 Set the switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses and determine the appropriate switch settings, refer to *Circuit card installation and testing* (553-3001-211).
- 26 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 4-3.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.

Figure 4-3

Battery pack connection to the NTND02 MSPS card



- 27 Install the NTND02 MSPS card in slot 4 and install a blank faceplate in slot 1.

28 Connect the SDI cable:

- Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
- Connect the other end of the cable to the I/O panel.

Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.

29 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Note: Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled.

30 Power up the system by switching the power supply circuit breaker to ON. The system will automatically begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

31 Log into the system.**32** On the ST system, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

33 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the FDI card.**34** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 35 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 36 Press the RLD button on the NTND01 ICM card to begin a sysload. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 37 Log into the system.
- 38 On the ST system, load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.
- 39 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the FDI card.
- 40 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 41 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 42 Press the RLD button on the NTND01 ICM card to begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

SYS000
INSERT DISK Ax INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 43 Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.
- 44 Log into the system.
- 45 Update the Configuration Record:

LD 17 to load the program
ADAN enter **CHG HDK 0** to specify a single SMDU
FTYP enter **3S** to specify 3.5-in. extra-high-density disks
******** to exit the program

- 46 Copy the contents of the data disks to the hard disk by entering
LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert additional system disks (A2, A3, etc.) in the A drive when prompted. When the restore sequence is complete, enter

******** to exit the program

- 47 Remove the disk from drive A and insert disk A1.
 48 Set the ENB/DIS switch on the EMSI card to DIS.
 49 Remove the EMSI card and set position 4 on switch SW3 to ON.
 50 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

- 51 Define the I/O port card type for each SDI port on the MSPS card:

LD 17 to load the program
ADAN enter **OUT terminal x** to remove an I/O device
ADAN data outed is displayed
ADAN enter **NEW terminal x** to specify a new I/O device
CTYP enter **MSPS** to specify card type
USER enter appropriate terminal functions
ADAN data saved is displayed
******** to exit the program
 Enable each port:
LD 37 to load the program
ENL terminal x to enable port **x**
******** to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

52 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

53 To continue upgrading the STE to release 21, proceed with step 54. If you are upgrading the STE to an option 51C or 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.

54 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.

55 Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 STE system is now operational. Install all covers to complete the upgrade.

Converting a database from release 17 to release 21

- 1 Remove the front covers from the ST system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the ST system. You will install in their place the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
 - an NT9D34 Enhanced Mass Storage Interface (EMSI) card
- 4 Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.
 - 5 Disconnect the cable between the FDU and the QPC742 FDI card.
 - 6 Remove the FDU and the QPC742 FDI card.
 - 7 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS.
 - 8 On the NT9D34 EMSI card, set positions 1, 5, 7, and 8 on switch SW3 to ON.
 - 9 Install the QMM42 data cartridge for release 19 software onto the EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.
 - 10 Insert the NT9D33 SMDU into its assigned position.
 - 11 Connect the NT9D47 cable between connector 0 on the NT9D33 SMDU and the faceplate connector on the NT9D34 EMSI card.
 - 12 Connect the NT9D66 cable between the power connector on the NT9D33 SMDU and the power connector on the faceplate of the NT9D34 EMSI card.

- 13 Install the NT9D34 EMSI card into the ST system in the same slot from which you removed the old FDI card.
- 14 Set the ENB/DIS switch on the EMSI card to ENB.
- 15 Insert ED floppy disks with release 19 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.
- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 Shut down power to the system by switching the circuit breaker for the power supply to OFF.
- 18 If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.
- 19 Remove the QPC687 CPU card.
- 20 Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.
- 21 Remove the NT9D34 EMSI card and set positions 1, 5, 7, and 8 on switch SW3 to ON.
- 22 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

- 23 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

CAUTION

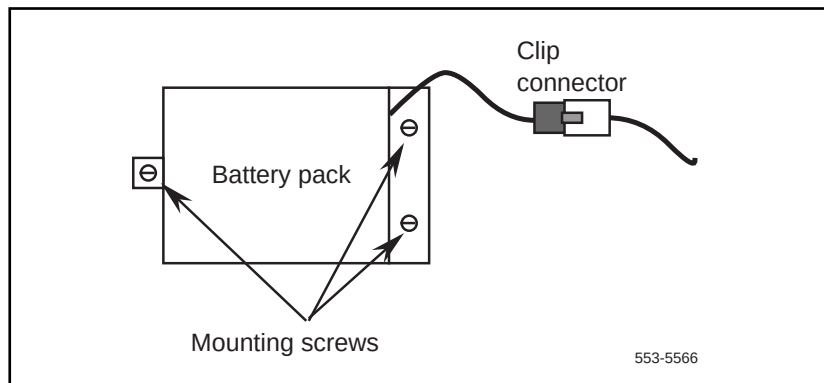
Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 24 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.
- 25 Set option switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses, determine the appropriate option switch settings. Refer to *Circuit card installation and testing* (553-3001-211).
- 26 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 4-4.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.

Figure 4-4

Battery pack connection to the NTND02 MSPS card



- 27 Install the NTND02 MSPS card in slot 3.

28 Connect the SDI cable:

- Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
- Connect the other end of the cable to the I/O panel.

Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.

29 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled.

30 Power up the system by switching the power supply circuit breaker to ON. The system will automatically begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

31 Log into the system.**32** On the ST system, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

33 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the FDI card.**34** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 35 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 36 Press the RLD button on the NTND01 ICM card to begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

SYS000
INSERT DISK Ax INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 37 Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.

- 38 Log into the system.

- 39 Update the Configuration Record:

LD 17 to load the program
ADAN enter **CHG HDK 0** to specify a single SMDU
FTYP enter **3S** to specify 3.5-in. extra-high-density disks
******** to exit the program

- 40 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 41** Remove disk A2 from drive A and insert disk A1.
- 42** Set the ENB/DIS switch on the EMSI card to DIS.
- 43** Remove the EMSI card and set position 4 on switch SW3 to ON.
- 44** Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

- 45** Define the I/O port card type for each SDI port on the MSPS card:

LD 17 to load the program

ADAN enter **OUT terminal x** to remove an I/O device

ADAN data outed is displayed

ADAN enter **NEW terminal x** to specify a new I/O device

CTYP enter **MSPS** to specify card type

USER enter appropriate terminal functions

ADAN data saved is displayed

******** to exit the program

Enable each port:

LD 37 to load the program

ENL terminal x to enable port **x**

******** to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

46 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 47** To continue upgrading the STE to release 21, proceed with step 48. If you are upgrading the STE to an option 51C or 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 48** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 49** Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 STE system is now operational. Install all covers to complete the upgrade.

Preparing a system for off-site database conversion

This section contains procedures for those systems that have had the customer database converted by Northern Telecom. After you receive your disks containing the converted database from Northern Telecom, perform these steps.

- 1 Remove the front covers from the ST system.
- 2 Shut down power to the system by switching the circuit breaker for the power supply to OFF.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the ST system. You will install in their place the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
- an NT9D34 Enhanced Mass Storage Interface (EMSI) card

- 3 Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.
- 4 Disconnect the cable between the FDU and the QPC742 FDI card.
- 5 Remove the FDU and the QPC742 FDI card.
- 6 On the NT9D34 EMSI card, set positions 1, 5, 7, and 8 on switch SW3 to ON.
- 7 Install the QMM42 data cartridge for release 21 software onto the EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 8 Insert the NT9D34 SMDU into its assigned position.
- 9 Connect the NT9D47 cable between connector 0 on the NT9D33 SMDU and the faceplate connector on the NT9D34 EMSI card.
- 10 Connect the NT9D66 cable between the power connector on the NT9D33 SMDU and the power connector on the faceplate of the NT9D34 EMSI card.
- 11 Install the NT9D34 EMSI card into the ST system in the same slot from which you removed the FDI card.

- 12 Set the ENB/DIS switch on the EMSI card to ENB.
- 13 Insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.
- 14 If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.
- 15 Remove the QPC687 CPU card.
- 16 Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.
- 17 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

CAUTION

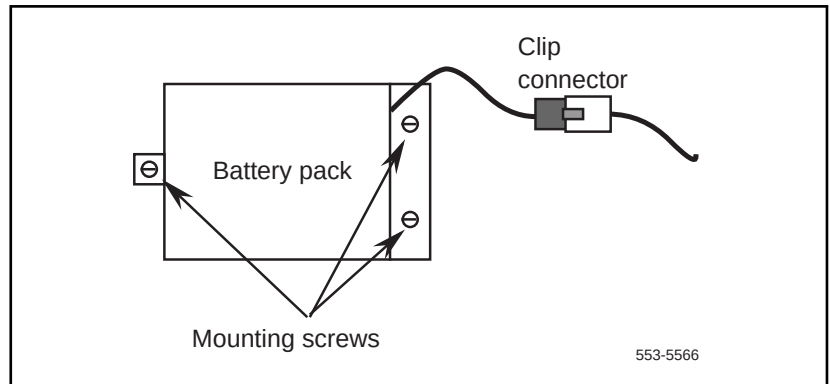
Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 18 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.
- 19 Set option switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses, determine the appropriate option switch settings. Refer to *Circuit card installation and testing* (553-3001-211).
- 20 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 4-5.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.

- 21 Install the NTND02 MSPS card in slot 3.

Figure 4-5
Battery pack connection to the NTND02 MSPS card



22 Connect the SDI cable:

- Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
- Connect the other end of the cable to the I/O panel.

Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.

23 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Note: Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled.

24 Power up the system by switching the power supply circuit breaker to ON. The system will automatically begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

```
SYS000
INSERT DISK Ax INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
```

25 Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.

26 Log into the system.

27 Update the Configuration Record:

LD 17	to load the program
ADAN	enter CHG HDK 0 to specify a single SMDU
FTYP	enter 3S to specify 3.5-in. extra-high-density disks
****	to exit the program

28 Copy the contents of the data disks to the hard disk by entering

LD 43	to load the program
RES	to copy the entire contents of the backup to the hard disk

Insert additional system disks (A2, A3, etc.) in drive A when prompted. When the restore sequence is complete, enter

****	to exit the program

29 Remove the disk from drive A and insert disk A1.

30 Set the ENB/DIS switch on the EMSI card to DIS.

31 Remove the EMSI card and set position 4 on switch SW3 to ON.

32 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

33 Define the I/O port card type for each SDI port on the MSPS card:

LD 17	to load the program
ADAN	enter OUT terminal x to remove an I/O device
ADAN data outed	is displayed
ADAN	enter NEW terminal x to specify a new I/O device
CTYP	enter MSPS to specify card type

USER	enter appropriate terminal functions
ADAN data saved	is displayed
****	to exit the program
Enable each port:	
LD 37	to load the program
ENL terminal x	to enable port x
****	to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

34 Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

****	to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 35** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 36** Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 STE system is now operational. Install all covers to complete the upgrade.

Upgrading ST and STE systems to option 51C

To upgrade an SL-1 ST or STE system to a Meridian 1 option 51C X11 release 21, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- installing a Meridian 1 option 51C next to the ST/STE cabinet
- removing the common equipment (CE) from the ST/STE cabinet
- cabling the cabinet to the option 51C column

Upgrading the software consists of the following:

- transferring the customer database on the ST/STE to extra-high-density disks
- sending the customer database disks to Northern Telecom for conversion for all ST system customers and for those STE system customers who so choose

or

converting the customer database to X11 release 21 compatibility for STE customers who choose to convert the database on-site

Alternatively, you can reenter the database on the option 51C after the upgrade is complete.

Note: It is recommended that ST system customers send the customer database diskettes to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this.

- defining the system configuration in the option 51C customer database

Equipment required

Upgrading an ST or an STE system to an option 51C requires installing the option 51C column next to the ST/STE system cabinet. The option 51C column provides CE and network equipment housing. The existing ST/STE system cabinet is used to support the PE cards including the PRI/DTI cards.

Tables 4-3 and 4-4 list the minimum items required to upgrade an AC-powered or DC-powered system to an option 51C. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect network loops in the ST/STE system cabinet to the QPC414 Network cards in the option 51C column. The number of cables required depends on the number of network cards installed. The required cables are listed below:

- NT8D86 cables connect the QPC414 Network cards to the Core/Network module I/O panels
- NT8D73 cables connect the I/O panels in the Core/Network module to the cabinet I/O panels
- NT9J98 cables connect the peripheral buffer to the cabinet I/O panels (this cable type is also used to connect the QPC414 Network cards to Meridian Mail or PRI/DTI cards)

Refer to *Upgrade engineering* (553-3001-150) for additional information on cable requirements.

Table 4-3

Hardware requirements for an AC-powered option 51C (Part 1 of 3)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
1	NT5D21AA	Core/Network module, AC
1	NT6D65AA	Core to Network Interface card (CNI)
1	NT6D66	Call Processor card (CP) (Note 1)
1	NT6D81	Power Regulator card (Note 2)
1	NT7D00AA	Top Cap, AC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card

Table 4-3
Hardware requirements for an AC-powered option 51C (Part 2 of 3)

Qty	Part number	Description
1	NT8D06AA	Peripheral Equipment Power Supply, AC
1	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal, AC
1	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment module, AC (Note 3)
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52AB	Pedestal Blower Unit, AC
1	NT8D53BB	Power Distribution Unit, AC
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
1	NTND15 and	4 MB Floppy Disk Unit (Note 4)
1	QPC742F	Floppy Disk Interface card (Note 4)
2	QPC43R	Peripheral Signaling card (PS)
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller

Table 4-3

Hardware requirements for an AC-powered option 51C (Part 3 of 3)

Qty	Part number	Description
1	QPC709D	Peripheral Signaling card (Note 4)
1	QPC814	768K Memory card (Note 4)
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT6D81 Power Regulator card is required when a QCA136 cabinet is retained as part of the upgraded system. One card is required per QCA136 and resides in any network card slot. Note 3: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 4: Not provided in the upgrade package. Parts are required for on-site database conversion.		

Table 4-4
Hardware requirements for a DC-powered option 51C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
1	NT5D21DA	Core/Network module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
1	NT6D65AA	Core to Network Interface card (CNI)
1	NT6D66	Call Processor card (CP) (Note 1)
1	NT6D81	Power Regulator card (Note 2)
1	NT7D00BA	Top Cap, AC
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
1	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment module, DC (Note 3)
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC

Table 4-4
Hardware requirements for a DC-powered option 51C (Part 2 of 2)

Qty	Part number	Description
1	NT8D77	FDI/FDU Interface cable (Note 4)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
1	NTND15 and	4 MB Floppy Disk Unit (Note 4)
1	QPC742F	Floppy Disk Interface card (Note 4)
1	QPC43R	Peripheral Signaling card (PS)
1	QPC441F	Three-Port Extender card (3PE)
1	QPC471H	Clock Controller
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT6D81 Power Regulator card is required when a QCA136 cabinet is retained as part of the upgraded system. One card is required per QCA136 and resides in any network card slot. Note 3: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 4: Not provided in the upgrade package. Parts are required for on-site database conversion.		

Upgrade preparation

Some preparation is required before the conversion of the ST/STE hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 51C.
- Back up the customer database to tape or disk by doing a data dump.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks by using the Equipment Data Dump Program (LD 43).

- 1 Log into the ST/STE system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database may be sent to Northern Telecom for conversion or converted on-site. Alternatively, you may reenter the database into the option 51C after the upgrade is complete. If you choose to convert the database on-site, refer to Table 4-5 to determine the appropriate conversion procedure. The database conversion may require intermediate steps during which software is upgraded incrementally. All on-site database conversions are performed on the STE system.

Note: It is recommended that ST system customers send the customer database diskettes to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this.

If you send the database to Northern Telecom for conversion, skip the rest of this section, “Converting the customer database.” After you have received your converted database from Northern Telecom, proceed to “Installing external cables” on page 4-71.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

CAUTION

Upgrading the customer database on-site requires some system down time. Schedule for this when planning the system upgrade.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (ST or STE) media.

Table 4-5
Database conversion requirements, ST/STE system to an option 51C

X11 release		ROM card required	Software required (see note 1)
From	To		
For converting a release 18 customer database (Use conversion procedure beginning on page 4-57)			
18	19	NA	Release 19.xx STE system software disk and data cartridge
19	21	NA	Software Installation Tool
For converting a release 19 or 20 customer database (Proceed with “Installing option 51C hardware” on page 4-58)			
19,20	21	NA	Software Installation Tool
Note 1: Use the latest software release (e.g., 21.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 20.53 and 20.57), it must be used.			

Converting a database from release 18 to release 19

To use this procedure, your STE system must currently be running version 18.20 or higher.

Note: If your system is already running release 19, you do not have to perform these conversion procedures. Skip this section and continue with “Converting the ST/STE system hardware” on page 4-69.

- 1 Remove the front covers from the STE system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4 Set the ENB/DIS switch on the QPC742 FDI or NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the FDI card or EMSI card.
- 5 Remove the disks containing release 18 software from the drives and insert floppy disks with release 19 software into the FDU or SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.
- 6 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 7 Press the RS button on the QUAA3 Power Unit to begin a sysload. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 8 Log into the system.
- 9 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 10 Remove the database diskettes from the FDU or SMDU drives on the STE.

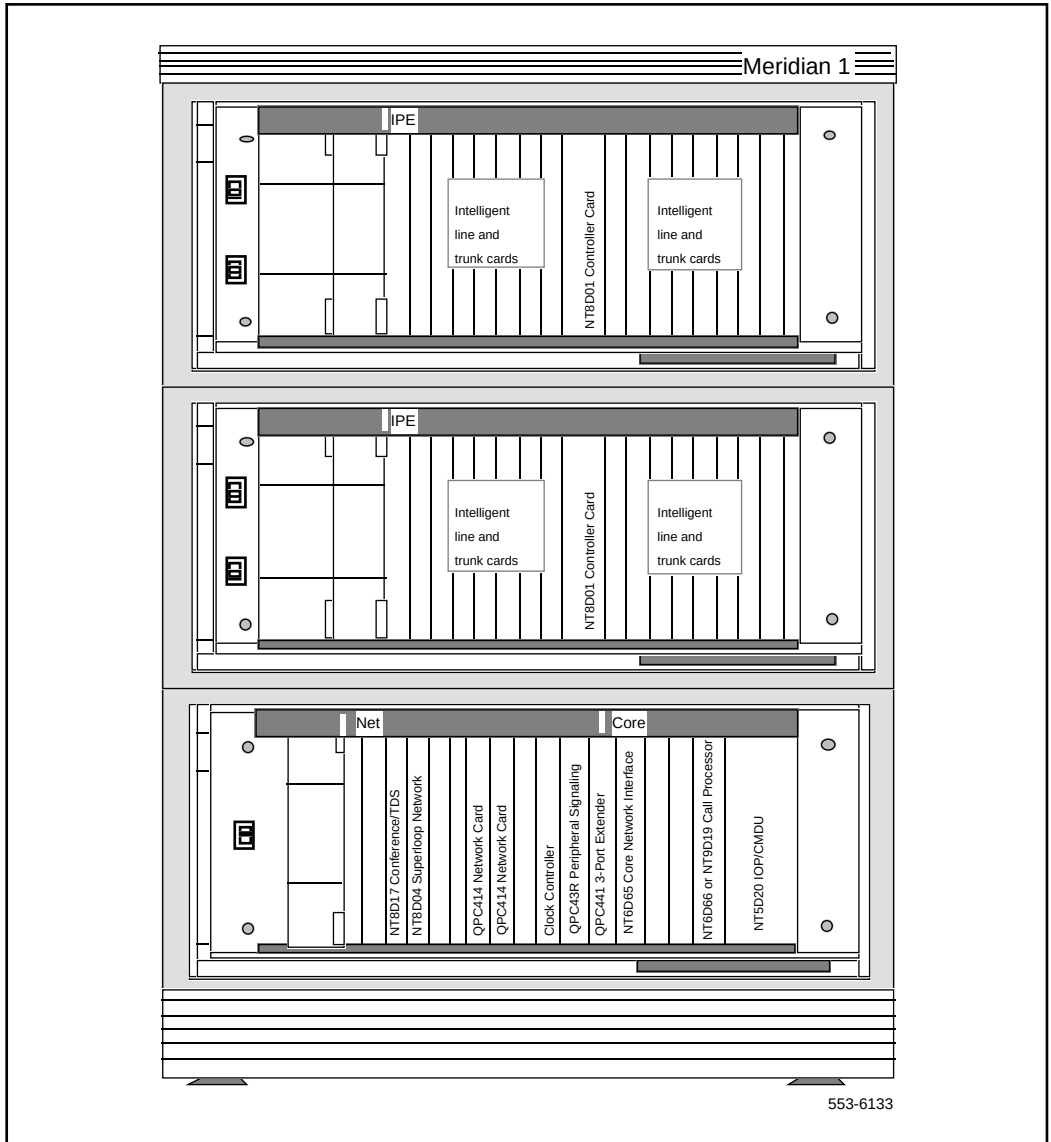
You will complete converting the database to release 21 later in these procedures after you upgrade the hardware. Proceed to “Installing option 51C hardware” to continue with the upgrade.

Installing option 51C hardware

Option 51C equipment is configured at the factory according to customer requirements. This equipment includes the pedestal, Core/Network module, IPE module, cards, and top cap. Some cards, such as the IOP/CMDUs and power supplies, are shipped in separate packages to prevent damage to the cards.

Figure 4-6 shows option 51C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

Figure 4-6
Meridian 1 option 51C



To install the option 51C at your site, follow the procedures in *Meridian 1 system installation procedures* (553-3001-210). For upgrade purposes, do not perform the following procedures during the installation process:

- do not install cabling
- do not provide power to the option 51C
- do not perform the acceptance tests
- do not replace the covers and grills on the front and rear of the system

When the option 51C hardware is installed, continue with the procedures on the following pages of this chapter.

Turning on the power and configuring the system

Before you power up the system, review installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel in the Core/Network module. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.

Connecting power for AC-powered systems

- 1 Set the MAINT/NORM switch on the NT6D66 CP card to MAINT.
- 2 Test the commercial power source for proper voltage. See *Meridian 1 installation planning* (553-3001-120) for voltage requirements.
- 3 Set the main circuit breaker in the rear of the each pedestal to OFF.
- 4 Set the circuit breakers on each MPDU, or the switch on each module power supply, to OFF in each module.
- 5 Set the circuit breaker on the blower unit in the front of each pedestal to OFF.
- 6 Connect the AC power cord for each pedestal to its associated commercial power outlet.

Note: If a problem is found in any of the following steps, resolve that problem before continuing.

- 7 If not already done, in the power panel set the circuit breaker that provides service for Column 0 to ON.
- 8 Set the main circuit breaker in Column 0 to ON.
- 9 Set the circuit breaker on the blower unit in Column 0 to ON. You should hear the blower running.

Note: On initial power-up, the blower may rotate slower than expected. As the sensor detects heat, the blower will rotate faster.

- 10 Set the circuit breaker on the MPDU, or the switch on the module power supply, to ON in Module 0. After a few seconds, the green LED on the power supply should light.

Repeat this step for each module in the column, one module at a time. (If the module is equipped with a ringing generator, set the breakers or switches for both the power supply and the ringing generator to ON.)

Note: It may take up to 90 seconds for the green LED to light on a ringing generator. This is normal operation.

- 11 If additional columns are present, repeat steps 7 through 10 for each column.
- 12 Once the green LED is lit on all module power supplies and ringing generators (if equipped), set the main circuit breaker for each column to OFF except on the CPU columns, wait at least 30 seconds, then set the breaker back to ON (leave CPU columns off).
 - The breaker should not trip. The blower unit in each column should be running and the green LED on all module power supplies and ringing generators (if equipped) should be lit. All red column LEDs should also be lit.
 - Set the main circuit breakers for the CPU columns to ON.

At power-up, a sysload starts and completes. At this point the terminal connected to the CPIO port becomes active. Watch for system reload (SYS) and initialization (INI) messages.

When the sysload is complete, the system automatically invokes the initialization program. The red column LEDs should go off. When the initialization is complete, the system automatically runs the programs in the midnight routine.

Note: The red LEDs on the NT8D04 and QPC414 network cards remain lit until the network loops are configured and enabled.

Connecting power for DC-powered systems

- 1 Set the MAINT/NORM switch on the NT6D66 CP card to MAINT.
- 2 Set the main AC circuit breaker to each rectifier to OFF.
- 3 For each rectifier, test the commercial power source for proper voltage (see *Meridian 1 installation planning* (553-3001-120) for voltage requirements).
- 4 Remove all distribution fuses, or set all distribution breakers to OFF, on the DC power source for each column.
- 5 Set all circuit breakers in the rear of each pedestal to OFF.
- 6 Set the switch on each module power supply and ringing generator (if equipped) to OFF.
- 7 Set the switch on the blower unit in the front of each pedestal to OFF.

Note 1: If a problem is found in any of the following steps, resolve that problem before continuing.

Note 2: If reserve batteries are equipped, the volt meter on the DC power source should show approximately -48 V.

- 8 If not already done, connect each rectifier to its associated AC outlet and set the breakers in the power panel to ON.
- 9 Turn on the rectifiers, one at a time, waiting about 10 seconds between one rectifier and the next. Voltage at the distribution meter should go to about 54 V (equalize voltage) or 52 V (if equalize voltage has not been set up).

Note: Perform steps 10 through 13 for each column *with the CPU columns last*.

- 10 Replace the distribution fuses, or set the distribution breakers to ON, on the DC power source for the column.
- 11 Set the circuit breaker for the blower unit (the far left breaker in the rear of the pedestal) to ON in the column.
- 12 Set the switch on the blower unit (in the front of the pedestal) in the column to ON. You should hear the blower running.

Note: On initial power-up, the blower may rotate slower than expected. As the sensor detects heat, the blower will rotate faster.

- 13 Set the switch on the module power supply to ON in the column. After a few seconds, the green LED on the power supply should light.

Repeat this step for each module in the column, one at a time. (If the module is equipped with a ringing generator, set the switch on both the power supply and the ringing generator to ON).

Note: It may take up to 90 seconds for the green LED to light on a ringing generator. This is normal operation.

At power-up, a sysload starts and completes. At this point the terminal connected to the CPIO port becomes active. Watch for system reload (SYS) and initialization (INI) messages.

When the sysload is complete, the system automatically invokes the initialization program. The red column LEDs should go off. When the initialization is complete, the system automatically runs the programs in the midnight routine.

Note: The red LED on NT8D04 and QPC414 Network cards remains lit until the network loops are configured and enabled.

Installing the customer database

Note 1: Start with step 1 only if you sent your database to Northern Telecom for conversion. Otherwise, if you are converting your database on-site from release 19, start with step 2.

Note 2: The following step only installs the customer database, it does not update the software. The software on the floppy disks is normally shipped preinstalled on the hard disks in the IOP/CMDU. If you receive hardware and software separately, or if there is any indication that the software on the floppy disks is a different release than the software on the hard disk, you must upgrade the software on the hard disk, the CP ROM, and the IOP ROM. Use the instructions in “Procedure 11: Software Installation Tool,” *Software conversion procedures* (553-2001-320), to do this before proceeding.

- 1 Follow the steps below to install the customer database (converted by Northern Telecom).

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- To activate the Software Installation Tool, insert disk A1 from the software upgrade package into the NT5D20 IOP/CMDU.
- Press the MAN RST button on the NT6D66 CP card.
- Select the following options in sequence, and insert the B1 disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation

- Follow all screen directions until the database transfer is complete.
- Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system

When you have rebooted the system, proceed with step 7.

- 2 Follow the steps below to convert the database to release 21, and install the customer database on the option 51C. You will need the B disk previously created when you performed a data dump.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- To activate the Software Installation Tool, insert disk 1 (from the release 21 disk set) from the software upgrade package into the NT5D20 IOP/CMDU.
- Press the MAN RST button on the NT6D66 CP card.

- 3 When the install screen appears, select the following commands to install the software, customer database, and ROM requirements:

- to install all components
- <y> to confirm that you want to install all the components
- <a> to start the upgrade

Follow the screen directions requiring disk insertion. A number of disks will be requested. When everything except the database has been installed, the database installation menu appears. You will use the B disk previously created when you performed a data dump.

- 4 From the menu, select the following:
- <d> to install customer database
 - <c> to transfer the database to hard disk
 - <a> to transfer the database from floppy to hard disk
 - <a> to convert from 2 MB floppy disk
 - or
 - to convert from 4 MB floppy disk
 - <y> to begin the installation
 - <a> to confirm database conversion

Follow all screen directions until the database transfer is successful.

- 5 Following the database installation, install the CP and IOP ROMs. From the menu select the following:

For CP ROM:

- <a> to install CP ROM
- <y> to start installation

Follow screen directions until the main menu returns.

For IOP ROM:

- <a> to install IOP ROM
- <y> to start installation

Follow screen directions until the main menu returns. When an installation status summary appears on the terminal and indicates a successful installation, remove the B disk from the disk drive.

- 6 Select the following options to quit and reload the system:

- <q> to quit
- <yes> to confirm quit
- <a> to reboot the system

When you have rebooted the system, proceed with the next step.

- 7 Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, the option 51C core is operational. If the sysload or initialization fails, refer to Appendix C: “Troubleshooting” on page C-1.
- 8 Clear displays, major alarms, and minor alarms:

LD 135	to load the program
CDSP	to clear the display
CMAJ	to clear all major alarms
CMIN ALL	to clear all minor alarms
CDSP	to clear the display
****	to exit LD 135
- 9 Load overlay 137 to verify status of the CMDU and IOP:

LD 137	to load the program
STAT	to get the status of the CMDU and IOP.
****	to exit the program
- 10 In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.
- 11 Insert a B1 database disk (from the release 21 disk set) into the IOP/CMDU for backup.
- 12 Load the Equipment Data Dump Program (LD 43). This command creates backups on both the hard disk and the floppy disk in the IOP/CMDU if a floppy disk is installed. At the prompt, enter

LD 43	to load the program
- 13 When “EDD000” appears on the terminal, enter

EDD	to begin the data dump
- 14 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter

****	to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Defining the option 51C system software

The following steps describe how to define the option 51C software configuration.

- 1 Reassign the configuration data from the network loop(s) in the option 21 to the appropriate loop(s) in the option 51C.
 - Define the target Controller card using the Configuration Record 2 (LD 97).
 - Define the network loop(s) using the Configuration Record 2 (LD 97) and Configuration Record (LD 17).

Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97 and LD 17.

- 2 Move the network loops using the Move Data Blocks Program (LD 25).
Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 25.
- 3 Configure the I/O devices to reflect the current configuration (if required).
- 4 Reenter customer data blocks (if required). System options and features must reflect the current configuration.
- 5 Configure station data blocks (if required).
- 6 Configure route data blocks (if required).
- 7 Configure trunk data blocks (if required).
- 8 Configure remaining system configuration records (if required).
- 9 Verify system operation before adding new equipment (if required).
- 10 Configure new equipment and functions, if any.

- 11** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 12** When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 13** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the ST/STE system hardware**CAUTION**

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed.

- 1** Set the ENB/DIS switches on all cards in the ST/STE system to DIS.
- 2** Set all shelf circuit breakers to OFF.
- 3** Disconnect all network loop cables connected to the QPC414 Network cards and cables connected to the SDI cards.
- 4** Set the CAB INP circuit breaker at the front of the cabinet to OFF.
- 5** Disconnect AC power for the cabinet by setting the commercial AC power supply circuit breaker at the service panel to OFF.
- 6** Disconnect and remove any remaining cables connected to cards in the CE shelf.

- 7 Disconnect cables from the MSU faceplate, release the locking devices and remove the MSU.
- 8 Disconnect the MSU shelf alarm connector.
- 9 Remove remaining cards from the main CE shelf and store them in a safe place.
- 10 If you are using the ST/STE CE shelf for PRI/DTI cards, install the PRI/DTI cards into the CE shelf card slots. Refer to *ISDN Primary Rate Interface installation* (553-2901-200) for PRI installation procedures.
- 11 Install the NT6D81 Power Regulation card into the CE shelf of the ST/STE cabinet. The NT6D81 Power Regulation card is required only when a QCA136 cabinet is retained as part of the upgraded system. One card is required per QCA136 cabinet and resides in any network card slot.

Moving the network cards

The following steps describe how to move the network cards from the ST/STE system to the option 51C.

- 1 Label each card that is being transferred to a Core/Network module with loop 0–15 for the card.
- 2 If not already done, remove the network cards that are being transferred from the ST/STE system shelf to the option 51C Core/Network module.
- 3 Install the network cards in the option 51C Core/Network module and hook the locking devices.
- 4 Cable the network loops.

For QPC414 Network cards and associated QPC659 Dual Loop Peripheral Buffer (DLB) cards:

- If the columns containing the network and DLB cards are in the same row, the network loop is cabled from the faceplate of the network card to the faceplate of the DLB card.
- If the columns containing the network and DLB cards are in different rows, the cards require I/O panel connections, and a shielded cable to connect the network card I/O panel to the DLB card I/O panel.

For NT8D04 Superloop Network cards and associated NT8D01 Controller cards:

- If the columns containing the network and controller cards are in the same row, the network loop is cabled from the faceplate of the network card to the backplane for the controller card.
- If the columns containing the network and controller cards are in different rows, the cards require I/O panel connections, and a shielded cable to connect the network card I/O panel to the controller card I/O panel.

Refer to *Meridian 1 system installation procedures* (553-3001-210) for more information on cabling network loops. For external cabling procedures, refer to “Installing external cables” on page 4-71.

- 5 Enable the faceplate switches.

Installing external cables

After the option 51C column is installed and the ST/STE peripheral cabinet is prepared, you must connect them with external cables.

- 1 Install network cables between the ST/STE cabinet and the option 51C column. The network cables connect the QPC414 Network cards in the Core/Network module to a dual loop peripheral buffer (DLB) card, DTI/PRI card, or Meridian Mail.

Each QPC414 Network card connection requires three cables:

- Connect the NT8D86 cable from the faceplate connector of the QPC414 Network card to the I/O panel connector at the rear of the Core/Network module.
- Connect the NT8D73 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network Module to the I/O panel of the ST/STE cabinet.
- Connect the NT9J98 cable from the faceplate connector of the QPC659 Dual Loop Peripheral Buffer card to the I/O panel on the ST/STE cabinet (the same cable type is used to connect QPC414 Network cards to Meridian Mail and PRI/DTI cards).

Refer to *Upgrade engineering* (553-3001-150) for a detailed explanation of the cables required to connect network loops between a cabinet and an option 51C column.

- 2 Connect the system monitor in the option 51C to the power monitor in the ST/STE cabinet. Refer to “System monitor upgrade installation” on page 13-1.
- 3 If you are using PRI/DTI cards, connect the PRI cables. Refer to *ISDN Primary Rate Interface installation* (553-2901-200) for PRI cabling requirements and procedures.
- 4 Connect all external cables from the MDF to the PE shelf connectors on the cabinet I/O panels and the IPE module I/O panels. Refer to the appropriate procedure in *Meridian 1 system installation procedures* (553-3001-210) for IPE module I/O panel external cabling procedures.

Completing the upgrade

- 1 Verify that all cards in the option 51C are enabled (all ENB/DIS switches are set to ENB) and that the MAINT/NORM switch on the NT6D66 CP card is set to NORM.
- 2 Perform a system reload by pressing the RLD button on the NT6D66 CP card. Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, the option 51C core is operational. If the sysload or initialization fails, refer to “Troubleshooting” on page C-1.
- 3 Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 4 Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).
- 5 Restore power to the ST/STE system.

The option 51C X11 release 21 system is now operational. Install all module covers to complete the upgrade.

Upgrading ST and STE systems to option 61C

To upgrade an SL-1 ST or STE system to a Meridian 1 option 61C X11 release 21, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- installing a Meridian 1 option 61C next to the SL-1 cabinet
- removing the common equipment (CE) from the SL-1 cabinet
- connecting the cabinet to the option 61C column

Upgrading the software consists of the following:

- transferring the customer database on the ST to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Tables 4-6 and 4-7 list the minimum items required to upgrade an AC-powered or DC-powered system to an option 61C. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect network loops in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D86 cables that connect network cards to the Core/Network module I/O panels
- NT8D73 cables that connect the I/O panels in the Core/Network module to the cabinet I/O panels
- NT9J98 cables that connect the peripheral buffer to the cabinet I/O panels

Refer to *Upgrade engineering* (553-3001-150) for additional information on cable requirements.

An NT8D01 Controller card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 4-6
Hardware requirements for an AC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21AA	Core/Network module, AC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT6D66	Call Processor card (CP) (Note 1)
1	NT7D00AA	Top Cap, AC
1	NT7D06AA	Filler Panel
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal, AC
2	NT8D29AB	Common Equipment Power Supply , AC
1	NT8D37BA	Intelligent Peripheral Equipment module, AC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
3	NT8D44AA	SDI Paddle Board to I/O Cable
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)

Table 4-6

Hardware requirements for an AC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
1	NT8D52AB	Pedestal Blower Unit, AC
1	NT8D53BB	Power Distribution Unit, AC
1	NT8D77	FDI/FDU Interface cable (Note 3)
2	NT8D80AZ	CPU Interface Cable (5 ft.)
1	NT8D81	Power Regulation card
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
6	NTND21AA	Module Side Cover
1	NTND15 and	4 MB Floppy Disk Unit (Note 3)
1	QPC742F	Floppy Disk Interface card (Note 3)
2	QPC43R	Peripheral Signaling card (PS)
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
1	QPC709D	Peripheral Signaling card (Note 3)
1	QPC814	768K Memory card (Note 3)
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required.		
Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used.		
Note 3: Not provided in the upgrade package. Parts are required for on-site database conversion.		

Table 4-7
Hardware requirements for a DC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21DA	Core/Network module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT6D66	Call Processor card (CP) (Note 1)
1	NT7D00BA	Top Cap, AC
1	NT7D06AA	Filler Panel
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment module, DC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC
1	NT8D77	FDI/FDU Interface cable (Note 3)
2	NT8D80AZ	CPU Interface Cable (5 ft.)
1	NT8D81	Power Regulation card

Table 4-7**Hardware requirements for a DC-powered option 61C (Part 2 of 2)**

Qty	Part number	Description
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
6	NTND21AA	Module Side Cover
1	NTND15 and	4 MB Floppy Disk Unit (Note 3)
1	QPC742F	Floppy Disk Interface card (Note 3)
2	QPC43R	Peripheral Signaling card (PS)
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
1	QPC709D	Peripheral Signaling card (Note 3)
1	QPC814	768K Memory card (Note 3)
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT6D42CC Ringing Generator, DC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Not provided in the upgrade package. Parts are required for on-site database conversion.		

Upgrade preparation

Some preparation is required before the conversion of the ST or STE hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 61C.
- Install the option 61C hardware.
- Back up the customer database to tape or disk by doing a data dump.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Installing option 61C hardware

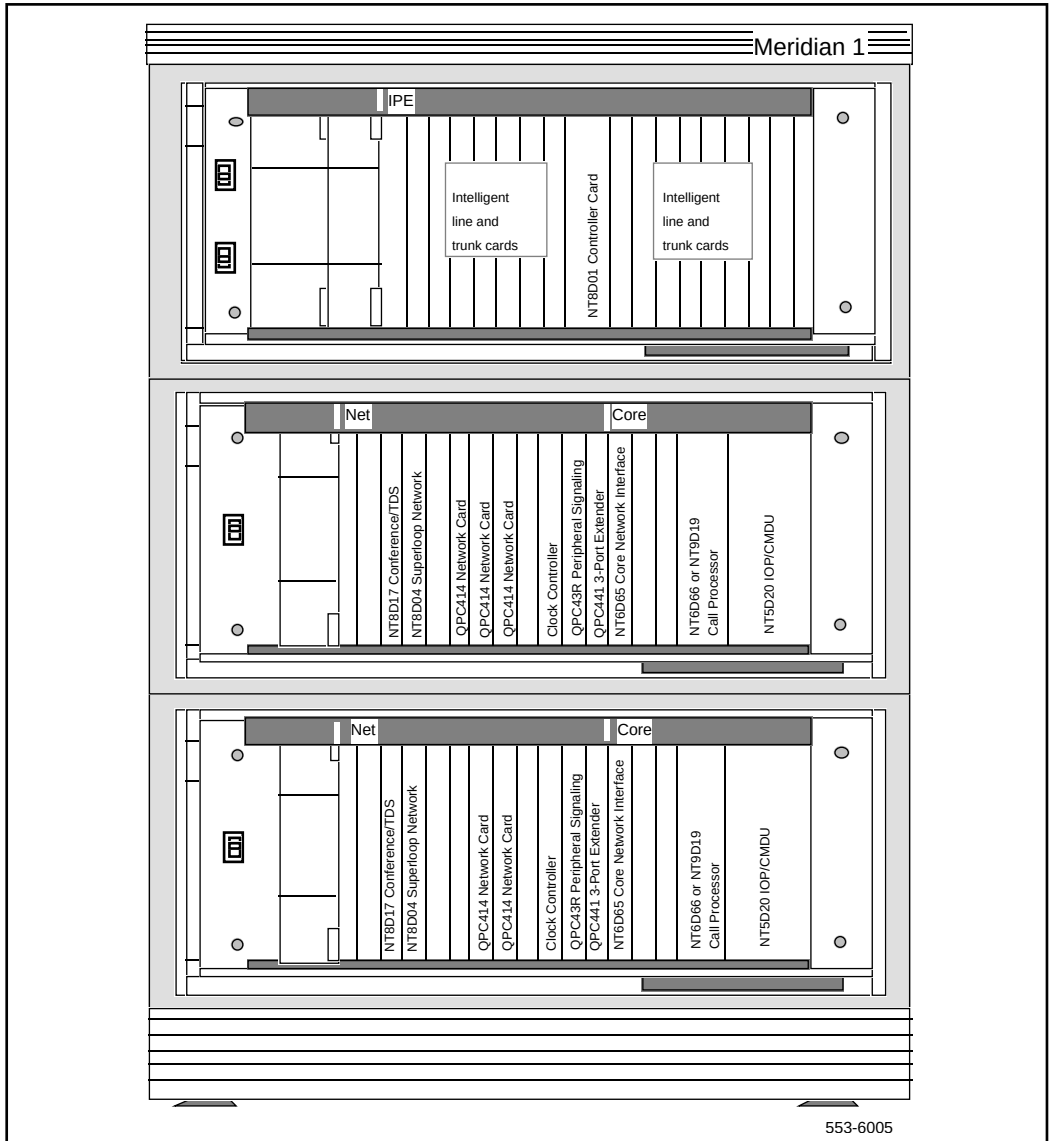
Option 61C equipment is configured at the factory according to customer requirements. This equipment includes the pedestal, Core/Network module, IPE module, cards, and top cap. Some cards, such as the MDUs and power supplies, are shipped in separate packages to prevent damage to the cards.

Figure 4-7 shows option 61C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

To install the option 61C at your site, first follow the procedures in *Meridian 1 system installation procedures* (553-3001-210) and then continue with the procedures on the following pages of this chapter.

Also install any external cables that can be installed at this time without interrupting service (see “Installing external cables” on page 4-96).

Figure 4-7
Meridian 1 option 61C



Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks by using the Equipment Data Dump Program (LD 43).

- 1 Log into the ST/STE system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the ST and STE systems can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 4-8 to determine the appropriate conversion procedure. The database conversion requires intermediate steps during which hardware and software are upgraded incrementally. All database conversions are performed on-site on the ST or STE system.

If you choose to send the database to Northern Telecom for conversion, skip the rest of this section, “Converting the customer database.” After you have received your converted database from Northern Telecom, proceed to “Installing external cables” on page 4-96.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

CAUTION

Upgrading the customer database on-site requires some system down time. Schedule for this when planning the system upgrade.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (ST or STE) media.

Table 4-8**Database conversion requirements, ST or STE system to an option 61C (Part 1 of 2)**

X11 release		ROM card required	Software required (see note 1)
From	To		
For converting a release 9 customer database (Use conversion procedure beginning on page 4-84)			
9	10	QPC717B	Release 9 to Release 10 conversion disk Release 9.xx ST system software disk and data cartridge Release 10.xx ST system software disk and data cartridge
10	15	QPC940 (note 2)	Release 15.57 ST system software disk and data cartridge
15	17	QPC940 (note 2)	Release 17.xx ST system software disk and data cartridge
17	19	NA	Software Installation Tool
19	21	NA	Software Installation Tool
For converting a release 10, 12, 13, or 14 customer database (Use conversion procedure beginning on page 4-89)			
10,12 13,14	15	QPC940 (note 2)	Release 10.xx, 12.xx, 13.xx, or 14.xx ST system software disk and data cartridge Release 15.xx ST system software disk and data cartridge
15	17	QPC940 (note 2)	Release 17.xx ST system software disk and data cartridge
17	19	NA	Software Installation Tool
19	21	NA	Software Installation Tool

Table 4-8**Database conversion requirements, ST or STE system to an option 61C (Part 2 of 2)**

X11 release		ROM card required	Software required (see note 1)
From	To		
For converting a release 15.57 or 16 customer database (Use conversion procedure beginning on page 4-93)			
15.xx	15.57	QPC940	Release 15.xx ST system software disk and data cartridge Release 15.57 ST system software disk and data cartridge
15.57 or 16	17	QPC940	Release 17.xx ST system software disk and data cartridge
17	19	NA	Software Installation Tool
19	21	NA	Software Installation Tool
For converting a release 17 or 18 customer database (Use conversion procedure beginning on page 4-95)			
17,18	19	NA	Software Installation Tool
19	21	NA	Software Installation Tool
For converting a release 19 or 20 customer database (Use conversion procedure beginning on page 4-95)			
1920	21	NA	Software Installation Tool
Note 1: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			
Note 2: When converting to release 15 and above on the ST system, a QPC709D Peripheral Signaling card and a QPC814 768K Memory card are required. These are not provided in the upgrade package.			

Converting a database from release 9 to release 21

1 Remove the front covers from the ST system.

2 Log into the system.

Note: In the next steps you will remove the floppy disk drives and QPC742 Floppy Disk Interface (FDI) card that are currently installed in the ST system. You will install in their place the NTND15 Floppy Disk Unit (FDU) and QPC742F or later vintage FDI card, which supports 4MB ED 3.5-inch floppy disks.

3 Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.

4 Disconnect the cable between the FDU and the QPC742 FDI card.

5 Remove the FDU and the QPC742 FDI card.

6 Set the ENB/DIS switch on the new QPC742 FDI card to DIS.

7 On the new QPC742 FDI card, set positions 1, 5, and 7 on switch 3 to ON. Set position 8 to OFF.

8 Remove the QMM42 data cartridge for release 9 from the old QPC742 FDI card. Install the cartridge onto the new QPC742 FDI card.

9 Insert the NTND15 FDU into its assigned position.

10 Connect one end of an NT8D77 cable to connector 0 on the NTND15 FDU. Connect the other end to the faceplate connector on the QPC742 FDI card.

CAUTION

To prevent damage to the disk drives, do not install the new QPC742 FDI card until you have connected the NT8D77 cable at both ends.

11 Install the QPC742 FDI card into the ST system in the same slot from which you removed the older FDI card.

Note: The QPC742 FDI card installed in the ST system must be vintage F or later.

12 Set the ENB/DIS switch on the QPC742 FDI card to ENB.

13 Insert the release 9 to release 10 conversion software disk into drive A.

14 Load the Conversion Program (LD 66):

LD 66 to load the program

When “CDD000” appears on the terminal, proceed to the next step.

15 Disable and remove the QPC742 FDI card and replace the QMM42 cartridge for release 9 with the QMM42 cartridge for release 10. Reinstall and enable the QPC742 FDI card.

16 Remove the disk from the FDU drives and insert ED floppy disks with release 10 software into the drives. Insert disk A in drive A and disk B in drive B. Refer to Table 4-8 to determine the software release required for the next conversion step; for example, X11 release 10 software is required for the conversion from release 9 to release 10.

17 Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

18 Press the RS button on the QUAA3 Power Unit to start a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

19 Log into the system.

- 20** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 21** Set the ENB/DIS switch on the QPC742 FDI card to DIS and remove the card. Replace the QMM42 cartridge for release 10 software with the QMM42 cartridge for release 15 software. Reinstall and enable the FDI card.
- 22** Remove the disks containing release 10 software from the drives and insert ED floppy disks with release 15 software into the FDU drives. Insert disk A in drive A and disk B in drive B.
- 23** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 24** Remove the QPC687 CPU card. Remove the QPC717 ROM card and replace it with the QPC940 ROM card. Reinstall the CPU Function card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 25** Remove the QPC673 Memory card and install the QPC814 Memory card.

26 Verify that the QPC709 Peripheral Signaling card in the ST system is vintage D or later. If it is not, install a QPC709D now.

27 Press the RS button on the QUAA3 Power Unit to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

28 Log into the system.

29 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

30 Set the ENB/DIS switch on the QPC742 FDI card to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 17 software. Reinstall and enable the FDI card.

31 Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 17 software into the FDU drives. Insert disk A in drive A and disk B in drive B.

32 Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 33 Press the RS button on the QUAA3 Power Unit to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 34 Log into the system.
- 35 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- LD 43** to load the program
- EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 36 Remove the database diskettes from the NTND15 FDU drives on the ST.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Converting the SL-1 hardware” on page 4-95 to continue with the upgrade.

Converting a database from release 10, 12, 13, or 14 to release 21

- 1 Remove the front covers from the ST system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the ST system. You will install in their place the NTND15 FDU and QPC742F or later vintage FDI card, which supports 4MB ED 3.5-inch floppy disks.

- 4 Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.
- 5 Disconnect the cable between the FDU and the QPC742 FDI card.
- 6 Remove the FDU and the QPC742 FDI card.
- 7 Set the ENB/DIS switch on the new QPC742 FDI card to DIS.
- 8 On the new QPC742 FDI card, set positions 1, 5, and 7 on switch 3 to ON. Set position 8 to OFF.
- 9 Install the QMM42 data cartridge for release 15 software onto the new QPC742 FDI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 10 Insert the NTND15 FDU into its assigned position.
- 11 Connect the NT8D77 cable between connector 0 on the NTND15 FDU and the faceplate connector on the new QPC742 FDI card.

CAUTION

To prevent damage to the disk drives, do not install the new QPC742 FDI card until you have connected the NT8D77 cable at both ends.

- 12 Install the new QPC742 FDI card into the ST system in the same slot from which you removed the older FDI card.

Note: The QPC742 FDI card installed in the ST system must be vintage F or later.

- 13 Set the ENB/DIS switch on the QPC742 FDI card to ENB.
- 14 Insert ED floppy disks with release 15 software into the FDU drives. Insert disk A in drive A and disk B in drive B.
- 15 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 16 Remove the QPC687 CPU card. Remove the QPC717 ROM card and replace it with the QPC940 ROM card. Reinstall the CPU function card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 17 Remove the QPC673 Memory card and install the QPC814 Memory card.
- 18 Verify that the QPC709 Peripheral Signaling card in the ST system is vintage D or later. If it is not, install a QPC709D now.

- 19** Press the RS button on the QUAA3 Power Unit to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 20** Log into the system.
- 21** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 22** Set the ENB/DIS switch on the QPC742 FDI card to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 17 software. Reinstall and enable the FDI card.
- 23** Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 17 software into the FDU drives. Insert disk A in drive A and disk B in drive B.
- 24** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 25 Press the RS button on the QUAA3 Power Unit to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 26 Log into the system.
- 27 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- LD 43** to load the program
- EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 28 Remove the database diskettes from the NTND15 FDU drives on the ST.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Converting the SL-1 hardware” on page 4-95 to continue with the upgrade.

Converting a database from release 15.57 or 16 to release 21

To use this procedure, your ST system must currently be running version 15.57 or higher. If your system is running an earlier version of release 15 software (release 15.53, for example), you must first convert the database to release 15.57. Refer to *Software conversion procedures* (553-2001-320) for instructions on converting the database to a higher version of the same release. Only those systems running release 15.57 or 16 can be used with this procedure.

- 1** Remove the front covers from the ST system.
- 2** Log into the system.
- 3** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4** Set the ENB/DIS switch on the QPC742 FDI card to DIS and remove the card. Replace the QMM42 cartridge for release 15.57 or 16 software with the QMM42 cartridge for release 17 software. Reinstall and enable the FDI card.
- 5** Remove the disks containing release 15.57 or 16 software from the drives and insert floppy disks with release 17 software into the FDU drives. Insert disk A in drive A and disk B in drive B.
- 6** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 7 Press the RS button on the QUAA3 Power Unit to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 8 Log into the system.
- 9 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- LD 43** to load the program
- EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 10 Remove the database diskettes from the FDU drives on the ST.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Converting the SL-1 hardware” on page 4-95 to continue with the upgrade.

Converting a database from release 17, 18, 19 or 20 to release 21

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 3 Remove the database diskettes from the disk drives in the ST/STE system.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Converting the SL-1 hardware” to continue with the upgrade.

Converting the SL-1 hardware**CAUTION**

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed.

- 1 Set the ENB/DIS switches on all CE cards to DIS.
- 2 Disconnect all network loop cables connected to the QPC414 Network cards and cables connected to the SDI cards.
- 3 Disconnect and remove any remaining cables connected to cards in the CE shelf.

- 4 Disconnect cables from the MSU faceplate, release the locking devices, and remove the MSU.
- 5 Disconnect the MSU shelf alarm connector.
- 6 Remove remaining cards from the CE shelf and store them in a safe place.
- 7 Install the NT8D81 Power Regulation card into slot 2 of the CE shelf in the ST cabinet.

Installing external cables

After the option 61C columns are installed and the peripheral cabinet has been prepared, you must connect them with external cables.

- 1 Install network cables between the SL-1 cabinet and the option 61C modular column. These cables connect network cards in the Core/Network module to the peripheral buffer card in the PE shelf in the cabinet. Refer to *Upgrade engineering* (553-3001-150) for a detailed explanation of connector kits and cables required to connect network loops between a cabinet and an option 61C column.

Each network loop connection requires three cables:

- Connect the NT8D86 cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
 - Connect the NT8D73 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network module to the I/O panel on the top or the side of the SL-1 cabinet. A connector housing kit is required for the cabinet to accept the cable.
 - Connect the NT9J98 cable from the faceplate connector of the peripheral buffer to the I/O panel connector at the top or the side of the cabinet.
- 2 Install alarm cables as outlined in “System monitor upgrade installation” on page 13-1.
 - 3 Connect the external cable to the Core/Network module I/O panel connecting PRI/DTI to the network interface.
 - 4 Install one PRI/DTI card in this module to be the master card and install the rest of the PRI/DTI cards, as slaves, in the SL-1 cabinet CE shelf.

- 5 Install one PRI/DTI card in this module as the primary clock reference, and install the rest of the PRI/DTI cards in the peripheral cabinet CE shelf. For installation procedures, refer to *Circuit card installation and testing* (553-3001-211).
- 6 Verify that PRI/DTI cards in the SL-1 peripheral cabinet CE shelf are connected to the MDF or network interface.
- 7 Connect all external cables from the MDF to IPE shelf connectors in cabinet I/O panels and IPE module I/O panels. Refer to *Meridian 1 system installation procedures* (553-3001-210) for the installation procedures for the IPE module I/O panel external cable.

Turning on the power and configuring the system

Before you power up the system, review installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel in Core/Net 1. If you are using only one terminal or a switch box for the CPSI ports, set the connection to Core/Net 1. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.

- 1 In Core/Net 1, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.
- 2 In Core/Net 0, set the ENB/DIS switch on the NT6D65 CNI card to DIS.
- 3 Perform the appropriate step to restore power in each Core/Network module:
 - For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- 4 In Core/Net 0, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.

Note: Continue with step 5 only if you sent your database to Northern Telecom for conversion. Otherwise, if you are converting your database on-site from release 17 or 18, continue with step 6; or, if you are converting your database on-site from release 19 (or higher), continue with step 12.

- 5 Follow the steps below to install the customer database (converted by Northern Telecom) on Core 1.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled before proceeding to the next step.

- To activate the Software Installation Tool, insert disk A1 from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the B1 disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation
- Follow all screen directions until the database transfer is complete.
- Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system

When you have rebooted the system, proceed with step 12.

Note: Perform step 6 only if you are converting your database on-site from release 17 or 18; go to step 12 if you are converting your database on-site from release 19 (or higher).

- 6** Follow the steps below to convert the release 17 or 18 database to release 19 and then to release 21 and install the customer database on the option 61C Core 1. You will need the B disk previously removed from the ST/STE system.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 19 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled before proceeding to the next step.

- To activate the Software Installation Tool, insert disk 1 (from the release 19 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all screen directions until the software, database, CP-ROM and IOP-ROM installations are complete.

- When the main menu appears, select the following options:
 <q> to quit
 <yes> to confirm quit
- Remove any diskettes from the floppy drive, and type
 <a> to reboot the system

When you have rebooted the system, proceed with step 13.

- 7 Log into the system.
- 8 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 9 Set the ENB/DIS switch on the NT5D20 IOP/CMDU card in Core 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled before proceeding to the next step.

- 10 Insert a B1 disk (from the release 20 disk set) titled “DATABASE BACKUP DISK” into the floppy drive in the IOP/CMDU in Core 1.
- 11 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 12 Follow the steps below to convert the release 19 database to release 20, and install the customer database on the option 61C Core 1. You will need the B disk previously created when you performed a data dump in step 11.

Note: Refer to “Software installation tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled before proceeding to the next step.

- To activate the Software Installation Tool, insert disk 1 (from the release 21 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all screen directions until the software, database, CP-ROM and IOP-ROM installations are complete.
- When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit

```

STAT CPU    to get the status of both Cores
STAT CNI   to get the status of all configured CNIs
****        to exit LD 135

```

- 18** Synchronize the hard disks. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137 to load the program
STAT to get the status of CMDUs, IOPs, and redundancy
 (verify that CMDU 1 is active)
SYNC to synchronize the hard disks

Note: Synchronization may take up to 30 minutes.

- 19** Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs if necessary:

STAT to get the status of CMDUs, IOPs, and redundancy
SWAP to switch CMDUs (if necessary)
******** to exit LD 137

- 20** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.

- 21** Insert a B1 database disk into each CMDU for backup. Load overlay 43 and perform a data dump to the backup disks. This command creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active IOP/CMDU if a disk is installed.

Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

- 22** When “EDD000” appears on the terminal, enter

EDD to begin the data dump

- 23** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 24** Perform the appropriate step to turn off power in each Core/Network module:
 - For AC-powered systems, set the circuit breaker on the MPDU in the module to OFF (down position).
 - For DC-powered systems, set the switch on the module power supply to OFF (down position).
- 25** Label each card that is being transferred to a Core/Network module with the shelf (0 or 1) and loop (0–31) for the card.
- 26** On all cards that are being transferred to Core/Network modules, disable the faceplate switches, disconnect all cables, and remove the cards.
- 27** Connect all cables to the cards (including the NT8D88 cables from the I/O panels to the NT8D04 Superloop cards). Enable the faceplate switches.
- 28** Switch the cables at the PE end:
 - If NT8D92 cables inside the IPE modules are not connected, connect them to the faceplates of the appropriate NT8D01 Controller cards.
- 29** Turn on power to the cabinet:
 - Set the AC input circuit breaker on the –48V rectifier in the cabinet to ON.
 - Set the CAB INP circuit breaker on the power control shelf in the cabinet and all other shelf circuit breakers to ON.
- 30** In the option 61C, verify that all cards are enabled (all ENB/DIS switches are set to ENB).
- 31** Follow the appropriate step below to restore power in each Core/Network module.

Note: If power to both Core/Network modules is restored simultaneously, the CMDUs should still be synchronized.

- For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
- For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).

32 Reenter system configuration data into the customer database, if required, in the following sequence:

- Balance the network loops between both Core/Network shelves. To do this, do the following:
 - Define the target loop using the Configuration Program (LD 17).
 - Move the loops using the Move Data Blocks Program (LD 25).

Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 17 and LD 25.

Note: You may have to add one or more network loops in the database for network shelf 1 (loops 16 through 31) to make the network shelf operational.

- Move the network cards from the ST/STE system to the network card slots previously defined.
- Configure I/O devices to reflect the current configuration.
- Reenter customer data blocks. System options and features must reflect the current configuration.
- Configure station data blocks.
- Configure route data blocks.
- Configure trunk data blocks.
- Configure remaining system configuration records.
- Verify system operation before adding new equipment.
- Configure new equipment and functions, if any.

- 33** Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 34** Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).

The option 61C X11 release 21 system is now operational. Install all module covers to complete the upgrade.

SL-1 RT system upgrades

This chapter covers these SL-1 RT system upgrades:

- SL-1 RT system to RT X11 release 21 system, below
- SL-1 RT system to Meridian 1 option 61C X11 release 21, page 5-43

Upgrading an RT system to X11 release 21

To upgrade an SL-1 RT system to X11 release 21, you must upgrade both the hardware and the software.

Note: X11 release 21 is the highest supported X11 software release for SL-1 RT systems. RT systems must be upgraded to the option 61C (with software generic 2311) before converting to X11 release 22 software.

Upgrading the hardware consists of the following:

- Replacing the memory card, peripheral signaling card, and floppy disk unit and interface card. Two different disk units are available for the RT system upgrade:
 - NTND15AA Floppy Disk Unit (FDU) with QPC742F Floppy Disk Interface (FDI) cards
 - NTND16AA Multi Disk Unit (MDU) with a QPC584L Mass Storage Interface (MSI) card or an NT9D34 Enhanced Mass Storage Interface (EMSI) card

Equipment requirements and conversion procedures are different for the two disk drive configurations.

- Replacing some of the common equipment with new common equipment required by the new software release.

Upgrading the software consists of the following:

- transferring the customer database to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Table 5-1 lists the minimum items required to upgrade an AC-powered or DC-powered RT system using an NTND15 FDU. Table 5-2 lists the items required to upgrade an AC-powered or DC-powered RT system using an NTND16 MDU. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Note: If the MDU is located in card slots next to a power converter, EMI shields P0727842-1 and P0727843-1 must be installed.

Table 5-1
Hardware required to upgrade an RT system using an FDU

Quantity	Part number	Description
2	NTND08AA	ROM card
2	NTND09CA	12 MB Memory card
2	NTND10AA	Changeover & Memory Arbitrator card
1	NTND15AA	4MB Floppy Disk Unit
1	NT8D77AA	Floppy Disk Interface to FDU
1	NT8D77AC	Floppy Disk Interface to FDU
(Note 3)	QPC441	3-Port Extender card (Note 3)
2	QPC742F	Floppy Disk Interface card
1	QPC939A	ROM card (Notes 1, 2)
Note 1: Not included in upgrade package. Must be ordered separately if required for on-site database conversion. Note 2: Refer to Table 5-3 for ROM cards required during on-site database conversion. Note 3: Not included in upgrade package. Acceptable vintages of 3PE cards required for use with release 21: B1, D, E (series B), E1 (series B), or F. If any existing 3PE card in system is not one of these vintages, replace with correct vintage card before performing upgrade. All 3PE cards in system must be of same vintage. Quantity required depends on system.		

Table 5-2
Hardware required to upgrade an RT system using an MDU

Quantity	Part number	Description
2	NTND08AA	ROM card
2	NTND09BA	6 MB Memory card
2	NTND09CA	12 MB Memory card
2	NTND10AA	Changeover & Memory Arbitrator card
1	NTND16AA	4MB Multi Disk Unit
2	QPC584L and	Mass Storage Interface (MSI)Card
1	NT8D80AC and	MSI/MDU Interface Cable, 2ft
1	NT8D80AD	MSI/MDU Interface Cable, 5ft
	or	
2	NT9D34 and	Enhanced MSI card
1	NT9D89AB and	EMSI/MDU Interface Cable, 2ft
1	NT9D89AD	EMSI/MDU Interface Cable, 5ft
1	QPC939A	ROM card (Notes 1, 2)
Note 1: Not included in upgrade package. Must be ordered separately if required for on-site database conversion. Note 2: Refer to Table 5-3 for ROM cards required during on-site database conversion.		

Upgrade preparation

Some preparation is required before the conversion of the SL-1 hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to disk by doing a data dump.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the RT system can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 5-3 to determine the appropriate conversion procedure.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (RT) media.

CAUTION

Performing this database conversion procedure will result in disruption of call processing. If disruption is unacceptable, perform the appropriate parallel reload procedure in *Software conversion procedures* (553-2001-320) rather than this procedure.

Table 5-3**Database conversion requirements, RT system upgrade to X11 release 21 (Part 1 of 2)**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 12, 13, or 14 customer database (Use conversion procedure beginning on page 5-9)			
12,13 14	15	QPC939	Release 12.xx, 13.xx, or 14.xx RT system software disk and data cartridge Release 15.xx RT system software disk and data cartridge
15	18	NTND08	Release 18.xx RT system software disk and data cartridge
18	19	NTND08	Release 19.xx RT system software disk and data cartridge
19	21	NTND08	Release 21.xx RT system software disk and data cartridge
For converting a release 15.57 or 16 customer database (Use conversion procedure beginning on page 5-20)			
15, 16	18	NTND08	Release 18.xx RT system software disk and data cartridge
18	19	NTND08	Release 19.xx RT system software disk and data cartridge
19	21	NTND08	Release 21.xx RT system software disk and data cartridge

Table 5-3
Database conversion requirements, RT system upgrade to X11 release 21 (Part 2 of 2)

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 17 customer database (Use conversion procedure beginning on page 5-29)			
17	19	NTND08	Release 19.xx RT system software disk and data cartridge
19	21	NTND08	Release 21.xx RT system software disk and data cartridge
For converting a release 18 customer database (Use conversion procedure beginning on page 5-36)			
18	19	NTND08	Release 19.xx NT system software disk and data cartridge
19	21	NTND08	Release 21.xx NT system software disk and data cartridge
For converting a release 19 or 20 customer database (Use conversion procedure beginning on page 5-40)			
19, 20	21	NTND08	Release 21.xx NT system software disk and data cartridge
19	21	NTND08	Release 21.xx NT system software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 12, 13, or 14 to release 21

- 1 Remove the front covers from the RT cabinet.
- 2 Log into the system.
- 3 If the RT system has an NT8D69 MDU installed, skip this step. If no NT8D69 MDU is installed in the RT system, make room in the system for installation of the NTND16 MDU. If three consecutive network slots are not available, use the Move Data Blocks Program (LD 25) to move any network loop cards required to make these slots available. Refer to the *X11 input/output guide* (553-3001-400) for instructions.
- 4 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs

SCPU to swap the CPUs

Verify the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 5 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
 - 6 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 7 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 8 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 9 If an NT8D69 MDU is installed in the RT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 10 In CPU 1, install the QMM42 cartridge for release 15 software on the new MSI or EMSI card.

Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.
- 11 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 12 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 13 Install the NTND16 MDU into its assigned position in the network shelf card slots. Install the MDU in the three slots made available in step 3 or the slots vacated by the NT8D69 MDU (if equipped) in step 9.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.
- 14 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 15 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.

- 16 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 17 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 18 Insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 19 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 20 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 21 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 22 In CPU 1, remove the QPC579 CPU card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 23 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 24 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 25 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 26 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 27 Log into the system.
- 28 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.
- 29 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 18 software. Reinstall and enable the card.
- 30 Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 31** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 32** In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 33** In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 34** Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 35** In CPU 1, remove the QPC581 CMA card.
- 36** On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 37** Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 38** Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 39** Remove the QPC583 Memory card from CPU 1.
- 40** Install the NTND09 Memory card in CPU 1.
- 41** In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 42** In CPU 1, remove the QPC579 CPU card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 43** In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 44** Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 45** Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 46** In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 47** In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 48** Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 49** On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 50** Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 51** Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 52** Remove the QPC583 Memory card from CPU 0.
- 53** Install the NTND09 Memory card in CPU 0.
- 54** In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 55** In CPU 0, remove the QPC579 CPU card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 56** In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 57** Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 58** Log into the system.
- 59** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 60** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 61** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 62** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 63 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 64 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.
- 65 In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.
- 66 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 67 Log into the system.
- 68 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 69 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.

- 70 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 71 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 72 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 73 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:
SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 74 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 75 Log into the system.

76 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

77 Remove disk A2 from drive A and insert disk A1.

78 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

79 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

80 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

81 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

82 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 83** To continue upgrading the RT to release 21, proceed with step 84. If you are upgrading the RT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 84** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 85** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 RT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 15.57 or 16 to release 21

To use this procedure, your RT system must currently be running version 15.57 or higher. If your system is running an earlier version of release 15 software (release 15.53, for example), you must first convert the database to release 15.57. Refer to *Software conversion procedures* (553-2001-320) for instructions on converting the database to a higher version of the same release. Only those systems running release 15.57 or 16 can use this procedure.

- 1 Remove the front covers from the RT cabinet.
- 2 Log into the system.
- 3 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Verify the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, the enter

******** to exit the program

- 4 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
- 5 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 8 If an NT8D69 MDU is installed in the RT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Install the QMM42 cartridge for release 18 software on the new MSI or EMSI card for CPU 1.
Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.
- 10 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 11 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.
Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.
- 13 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 14 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.

- 15 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 17 Insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 18 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 20 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 21 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 22 In CPU 1, remove the QPC581 CMA card.
- 23 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 24 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 25 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 26 Remove the QPC583 Memory card from CPU 1.

- 27 Install the NTND09 Memory card in CPU 1.
- 28 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 29 In CPU 1, remove the QPC579 CPU card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 30 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 31 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 32 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 33 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 34 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 35 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 36 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 37 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 38 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 39 Remove the QPC583 Memory card from CPU 0.
- 40 Install the NTND09 Memory card in CPU 0.
- 41 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 42 In CPU 0, remove the QPC579 CPU card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 43 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 44 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 45 Log into the system.
- 46 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 47 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 48 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 49 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 50** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 51** Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.
- 52** In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.
- 53** Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 54** Log into the system.
- 55** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 56** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.

- 57 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 58 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 59 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 60 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:
SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 61 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 62 Log into the system.

- 63** Copy the contents of the data disks to the hard disk by entering
- | | |
|--------------|--|
| LD 43 | to load the program |
| RES | to copy the entire contents of the backup to the hard disk |
- Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter
- | | |
|-------------|---------------------|
| **** | to exit the program |
|-------------|---------------------|
- 64** remove disk A2 from drive A and insert disk A1.
- 65** Set the ENB/DIS switch on each MSI or EMSI card to DIS.
- 66** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 67** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 68** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:
- | | |
|--------------|--|
| LD 17 | to load the program |
| IOTB | enter YES to change I/O devices |
| ADAN | enter CHG HDK 0 to add a hard disk unit |
| **** | to exit the program |
- 69** Perform a data dump:
- | | |
|--------------|------------------------|
| LD 43 | to load the program |
| EDD | to begin the data dump |
- When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter
- | | |
|-------------|---------------------|
| **** | to exit the program |
|-------------|---------------------|

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 70** To continue upgrading the RT to release 21, proceed with step 71. If you are upgrading the RT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 71** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 72** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 RT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 17 to release 21

- 1 Remove the front covers from the RT cabinet.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 5 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 6 If an NT8D69 MDU is installed in the RT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 7 Install the QMM42 cartridges for release 19 software on both new MSI or EMSI cards.
Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.
- 8 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 9 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.

- 10 Install the NTND16 MDU into its assigned position in the network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 11 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 12 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 13 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 14 Set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 15 Insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 18 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 19 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 20 In CPU 1, remove the QPC581 CMA card.
- 21 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 22 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 23 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 24 Remove the QPC583 Memory card from CPU 1.
- 25 Install the NTND09 Memory card in CPU 1.
- 26 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 27 In CPU 1, remove the QPC579 CPU card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 28 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 29 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 30 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 31 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.

- 32 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 33 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 34 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 35 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 36 Remove the QPC583 Memory card from CPU 0.
- 37 Install the NTND09 Memory card in CPU 0.
- 38 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 39 In CPU 0, remove the QPC579 CPU card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 40 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 41 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB.
- 42 Verify that the MAINT/NORM switch on both QPC580 CPU Interface cards are set to NORM.
- 43 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 44** Log into the system.
- 45** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 46** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 47** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 48** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 49** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 50 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000

INSERT DISK A2 INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 51 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 52 Log into the system.

- 53 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 54 Remove disk A2 from drive A and insert disk A1.

- 55 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 56 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 57 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 58 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

59 Perform a data dump:**LD 43** to load the program**EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 60** To continue upgrading the RT to release 21, proceed with step 61. If you are upgrading the RT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 61** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 62** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 RT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 18 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the RT system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software.
- 5 For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall and enable the card.
- 6 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software.
- 7 For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall and enable the card.
- 8 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 9 Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 10** Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 11** Log into the system.
- 12** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 13** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 14** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 15** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.

- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 18 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 19 Log into the system.

- 20 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 21 Remove disk A2 from drive A and insert disk A1.

- 22 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 23 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 24 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 25 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17	to load the program
IOTB	enter YES to change I/O devices
ADAN	enter CHG HDK 0 to add a hard disk unit
****	to exit the program
- 26 Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 27 To continue upgrading the RT to release 21, proceed with step 28. If you are upgrading the RT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 28 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 29 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 RT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 19 or 20 to release 21

- 1** Remove the front covers from the CPU/Network cabinet in the RT system.
- 2** Log into the system.
- 3** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 5** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 6** Remove the disks from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 7** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 8** Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

```
SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
```

- 9** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 10** Log into the system.
- 11** Copy the contents of the data disks to the hard disk by entering
- | | |
|--------------|--|
| LD 43 | to load the program |
| RES | to copy the entire contents of the backup to the hard disk |

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

```
****          to exit the program
```

- 12** Remove disk A2 from drive A and insert disk A1.
- 13** Set the ENB/DIS switch on each MSI or EMSI card to DIS.
- 14** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 15** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 16** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:
- | | |
|--------------|--|
| LD 17 | to load the program |
| IOTB | enter YES to change I/O devices |
| ADAN | enter CHG HDK 0 to add a hard disk unit |
| **** | to exit the program |

- 17 Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 18 To continue upgrading the RT to release 21, proceed with step 19. If you are upgrading the RT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 19 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 20 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 RT system is now operational. Install all covers to complete the upgrade.

Upgrading an RT system to option 61C

This section describes how to upgrade an SL-1 RT system to a Meridian 1 option 61C X11 release 21.

To upgrade an RT system, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- installing a Meridian 1 option 61C cabinet next to the RT cabinet
- cabling the cabinet to the option 61C column
- removing the common equipment (CE) from the RT cabinet

Upgrading the software consists of the following:

- transferring the customer database on the SL-1 to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those RT system customers who choose to convert the database on-site, converting the customer database to a higher release on the RT system, and converting it to X11 release 21 on the option 61C

Equipment required

Tables 5-4 and 5-5 list the items required to upgrade an AC- or DC-powered RT system to a Meridian 1 option 61C. Some configurations may require items not included in the tables. All required items must be identified and on hand before the upgrade can start.

Letters at the end of a part number represent the minimum vintage equipment that can be used in the upgrade; only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect peripheral shelves in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D86AC cables that connect the network card and the peripheral buffer card to the I/O panel
- NT9J96 cables that connect the I/O panel in the Core/Network module to the cabinet I/O panel

An NT8D01 Controller card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 5-4
Hardware requirements for an AC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21AA	Core/Network module, AC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT6D66	Call Processor card (CP) (Note 1)
1	NT7D00AA	Top Cap, AC
1	NT7D06AA	Filler Panel
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal, AC
2	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment module, AC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
3	NT8D44AA	SDI Paddle Board to I/O Cable
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52AB	Pedestal Blower Unit, AC
1	NT8D53BB	Power Distribution Unit, AC
2	NT8D80AZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)

Table 5-4
Hardware requirements for an AC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
6	NTND21AA	Module Side Cover
1	NTND15 and	4 MB Floppy Disk Unit (Note 3)
1	QPC742F and	Floppy Disk Interface card (Note 3)
1	NT8D77	Interface cable (Note 3)
	or	
1	NTND16 and	4 MB Multi Disk Unit (Note 3)
1	QPC584L and	Mass Storage Interface card (Note 3)
1	NT8D80	Interface cable (Note 3)
	or	
1	NTND16 and	4 MB Multi Disk Unit (Note 3)
1	NT9D34 and	Enhanced MSI card (Note 3)
1	NT9D89	Interface cable (Note 3)
2	QPC43R	Peripheral Signaling card (PS)
1	QPC84S	Power Monitor
1	NT8D80	CPU/MDU Interface Cable (Note 3)
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Not provided in the upgrade package. Parts are required for on-site database conversion.		

Table 5-5
Hardware requirements for a DC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21DA	Core/Network module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT6D66	Call Processor card (CP) (Note 1)
1	NT7D00BA	Top Cap, DC
1	NT7D06AA	Filler Panel
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment module, DC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC
2	NT8D80AZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)

Table 5-5
Hardware requirements for a DC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI Cable (6 ft.)
6	NTND21AA	Module Side Cover
1	NTND15 and	4 MB Floppy Disk Unit (Note 3)
1	QPC742F and	Floppy Disk Interface card (Note 3)
1	NT8D77	Interface cable (Note 3)
	or	
1	NTND16 and	4 MB Multi Disk Unit (Note 3)
1	QPC584L and	Mass Storage Interface card (Note 3)
1	NT8D80	Interface cable (Note 3)
	or	
1	NTND16 and	4 MB Multi Disk Unit (Note 3)
1	NT9D34 and	Enhanced MSI card (Note 3)
1	NT9T89	Interface cable (Note 3)
2	QPC43R	Peripheral Signaling card (PS)
1	QPC84S	Power Monitor
1	NT8D80	CPU/MDU Interface Cable (Note 3)
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT6D42CC Ringing Generator, DC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Not provided in the upgrade package. Parts are required for on-site database conversion.		

Upgrade preparation

Some preparation is required before the conversion of the RT hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 61C.
- Install the option 61C hardware.
- Back up the customer database to disk by doing a data dump.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Installing option 61C hardware

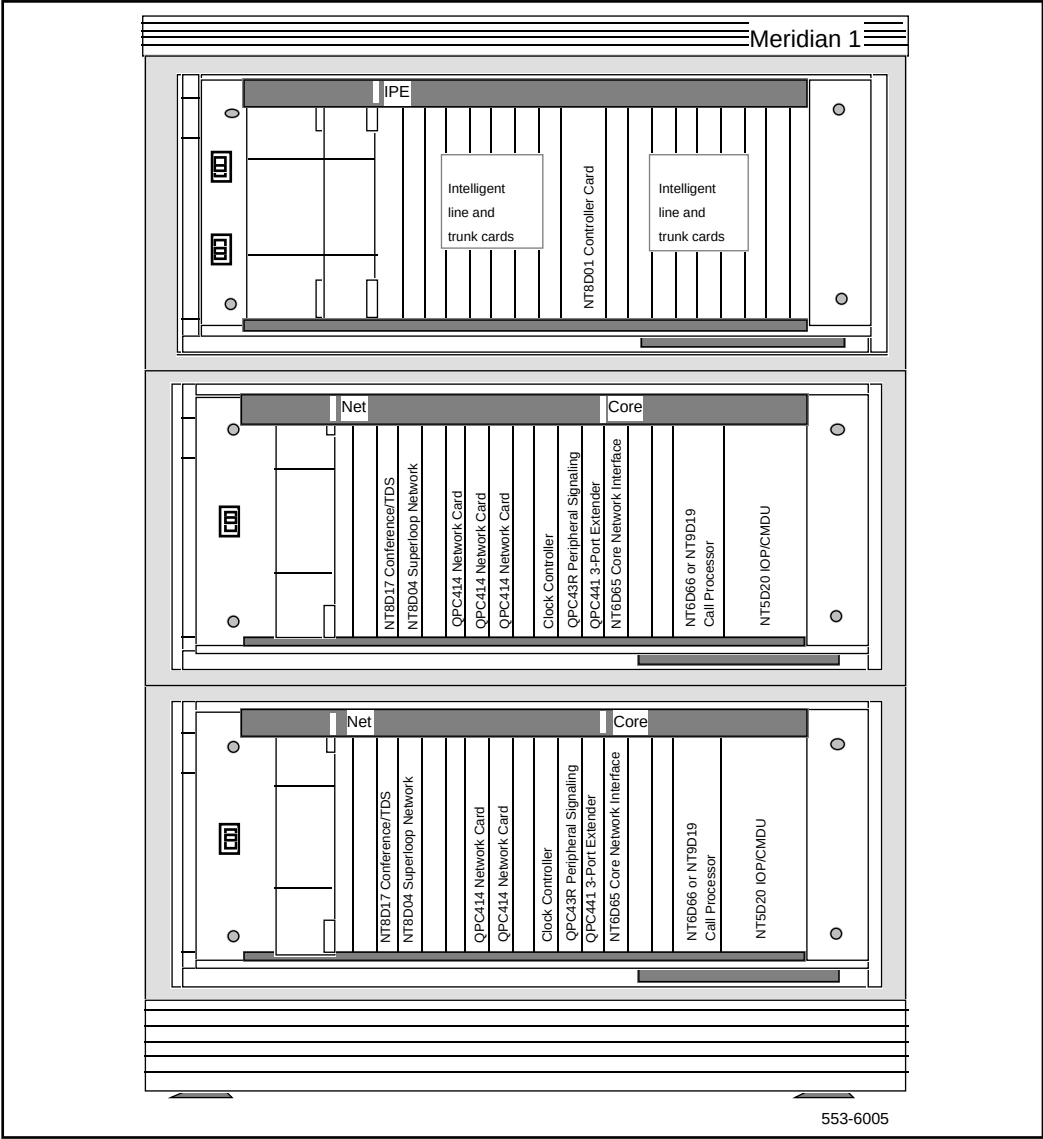
The option 61C equipment is preconfigured at the factory according to your requirements. The equipment includes the pedestal, Core/Network modules, IPE module, cards, and top cap. Cards such as MDUs and power supplies are shipped in separate packages to prevent damage to the cards.

Figure 5-1 shows the option 61C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

To install the option 61C at your site, first follow the procedures in *Meridian 1 system installation procedures* (553-3001-210) and then continue with the procedures in this chapter.

Also install any external cables that can be installed at this time without interrupting service (see “Installing external cables” on page 5-64).

Figure 5-1
Meridian 1 option 61C



Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1 On the RT system, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the RT system can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 5-6 to determine the appropriate conversion procedure.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (RT) media.

CAUTION

Performing this database conversion procedure will result in disruption of call processing. If disruption is unacceptable, perform the appropriate parallel reload procedure in *Software conversion procedures* (553-2001-320) rather than this procedure.

Table 5-6
Database conversion requirements, RT system upgrade to option 61C

RT X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 12, 13, or 14 customer database (Use conversion procedure beginning on page 5-54)			
12, 13, 14	15	QPC939	Release 12.xx, 13.xx, or 14.xx RT system software disk and data cartridge Release 15.xx RT system software disk and data cartridge
15	17	QPC939	Release 17.xx RT system software disk and data cartridge
17	19	N/A	Software Installation Tool
19	21	N/A	Software Installation Tool
For converting a release 15 or 16 customer database (Use conversion procedure beginning on page 5-59)			
15, 16	17	QPC939	Release 17.xx RT system software disk and data cartridge
17	19	N/A	Software Installation Tool
19	21	N/A	Software Installation Tool
For converting a release 17 or 18 customer database (Use conversion procedure beginning on page 5-62)			
17,18	19	N/A	Software Installation Tool
19	21	N/A	Software Installation Tool
For converting a release 19 or 20 customer database (Use conversion procedure beginning on page 5-62)			
19, 20	21	N/A	Software Installation Tool
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 12, 13, or 14 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the RT system.
- 2 Log into the system.
- 3 If the RT system has an NT8D69 MDU installed, skip this entire step. If no NT8D69 MDU is installed in the RT system, make room in the system for installation of the NTND16 MDU. If three consecutive CPU slots are not available, use three slots in the network shelf. Disable and remove the cards from the system.
- 4 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs

SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 5 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
- 6 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 7 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 8 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 9 If an NT8D69 MDU is installed in the RT system, remove it by gently pulling the unit forward two or three inches.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 10 In CPU 1, install the QMM42 cartridge for release 15 software on the new MSI or EMSI card.

Note: If the new card is a QPC584 MSI card, it must be vintage L or later.
- 11 Set the ENB/DIS switch on the new MSI or EMSI card to DIS.
- 12 On the MSI or EMSI card, set positions 1, 5, and 7 on switch SW3 to ON.
- 13 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the three slots made available in step 3 or the slots vacated by the NT8D69 MDU (if equipped) in step 9.
- 14 With the ENB/DIS switch set to DIS, insert the new MSI or EMSI card into its assigned position.
- 15 For systems using MSI cards, connect an NT8D80 cable between the faceplate connector on the MSI card and connector 0 on the NTND16 MDU. For systems using EMSI cards, connect an NT9D89 cable between the faceplate connector on the EMSI card and connector 0 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on the MSI or EMSI card to ENB.
- 17 Insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 18** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19** In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 20** In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 21** In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 22** In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 23** Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 24** Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.

- 25** Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 26** Log into the system.
- 27** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 28** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 17 software. Reinstall and enable the card.
- 29** Remove the disks containing release 15 software from the drives, and insert ED floppy disks with release 17 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 30** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 31 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 32 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 33 Remove the database diskettes from the NTND16 MDU drives on the RT.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Converting the SL-1 hardware” on page 5-62 to continue with the upgrade.

Converting a database from release 15 or 16 to release 21

- 1** Remove the front covers from the CPU/Network cabinet in the RT system.
- 2** Log into the system.
- 3** Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, the enter

******** to exit the program

- 4** In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
- 5** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6** Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7** Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.

- 8 If an NT8D69 MDU is installed in the RT system, remove it by gently pulling the unit forward two or three inches.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Install the QMM42 cartridge for release 17 software on the new MSI or EMSI card for CPU 1.

Note: If the new card is a QPC584 MSI card, it must be vintage L or later.
- 10 Set the ENB/DIS switch on the new MSI or EMSI card to DIS.
- 11 On the MSI or EMSI card, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.
- 13 With the ENB/DIS switch set to DIS, insert the new MSI or EMSI card into its assigned position.
- 14 For systems using MSI cards, connect an NT8D80 cable between the faceplate connector on the MSI card and connector 0 on the NTND16 MDU. For systems using EMSI cards, connect an NT9D89 cable between the faceplate connector on the EMSI card and connector 0 on the NTND16 MDU.
- 15 In CPU 1, set the ENB/DIS switch on the MSI or EMSI card to ENB.
- 16 Insert ED floppy disks with release 17 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 17** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 18** Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 19** Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 20** Remove the database diskettes from the NTND16 MDU drives on the RT.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Converting the SL-1 hardware” on page 5-62 to continue with the upgrade.

Converting a database from release 17, 18, 19, or 20 to release 21

Obtain the diskettes from the RT system that contain the database.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed with “Converting the SL-1 hardware” to continue with the upgrade.

Converting the SL-1 hardware

CAUTION

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed.

Preparing an RT system for upgrade

- 1 Remove the covers from the front and rear of the cabinet.
- 2 Set ENB/DIS switches to DIS.
- 3 Set all shelf circuit breakers to OFF.
- 4 Disconnect all network loop cables connected to QPC414 Network cards and the cables connected to QPC139 SDI cards.
- 5 Set the CAB INP circuit breaker at the front of the cabinet to OFF.
- 6 Disconnect the AC power for the cabinet by setting the commercial AC power supply circuit breaker at the service panel to OFF.
- 7 Disconnect and remove any remaining cables connected to cards in the CE shelf.
- 8 Disconnect cables from the MSU faceplate, release the locking devices, and remove the MSU.
- 9 Disconnect the MSU shelf alarm connector.

- 10** Remove remaining cards from the main CE shelf and store them in a safe place.
- 11** If you are using the CE shelf for PRI/DTI cards, do the following:
 - Install PRI/DTI cards into card slots 3, 5, 7, 9, and 11 of the CE shelf.
 - Install at least one PRI/DTI card, as a primary clock reference, in the Core/Network module of the option 61C column. This provides the clock reference for the PRI/DTI cards. For installation procedures, refer to *Circuit card installation and testing* (553-3001-211).
- 12** Do the following, if you are not going to use the CE shelf for PRI/DTI cards:
 - Tag and disconnect power connectors and alarm connectors from the QSD18, QSD19, or QSD2 shelf, if equipped. Tape all exposed power leads with electrical insulation tape.

Note: If the cabinet is equipped with an expansion CE shelf (a second CE shelf), disconnect and remove the wiring between the +5V, +12V, -12V, and LGND connections on the CE shelf.

- Tag and disconnect all CE alarm connectors.
- Remove the QPC84 Power Monitor and set the switches to disable power monitoring in the CE shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setting information.
- Install the QPC84S Power Monitor.

Installing external cables

Now that the option 61C column is installed and the peripheral cabinet has been prepared, you must connect them with external cables.

- 1 Install network cables between the peripheral cabinet and the new modular column. This connects network cards in the Core/Network module to the peripheral buffer card in the PE shelf of the cabinet. Refer to *Upgrade engineering* (553-3001-150) for a detailed explanation of the connector kits and cables required to connect peripheral shelves in a cabinet to an option 61C column.

Each network loop connection requires that three cables be installed:

- Connect the NT8D86 cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
- Connect the NT8D73 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network module to the I/O panel on the top or the side of the peripheral cabinet.
- Connect the NT9J98 cable from the faceplate connector of the peripheral buffer to the I/O panel connector at the top or the side of the cabinet.

- 2 Install alarm cables as outlined in “System monitor upgrade installation” on page 13-1.
- 3 Connect the external cable from the Core/Network module I/O panel connector (labeled “PRI/DTI”) to the network interface.
- 4 Install one PRI/DTI card in this module as the primary clock reference and install the rest of the PRI/DTI cards in the peripheral cabinet CE shelf. For installation procedures, refer to *Circuit card installation and testing* (553-3001-211).
- 5 Verify that the PRI/DTI cards in the peripheral cabinet CE shelf are connected to the MDF.
- 6 Connect all external cables from the MDF to the PE shelf connectors on the cabinet I/O panels and the IPE module I/O panels. Refer to the appropriate procedure in *Meridian 1 system installation procedures* (553-3001-210) for IPE module cabling procedures.

- 7 Connect the external cable to the Core/Network module I/O panel connecting PRI/DTI to the network interface. Install one PRI/DTI card in this module to be the master card and install the rest of the PRI/DTI cards, as slaves, in the existing cabinet CE shelf.
- 8 Verify that PRI/DTI cards in the existing peripheral cabinet CE shelf are connected to the cross connect or network interface.

Connect all external cables from the cross connect to the PE shelf connectors on cabinet I/O panels and IPE module I/O panels. Refer to the appropriate procedure in *Meridian 1 system installation procedures* (553-3001-210) for IPE module I/O panel external cable installation procedures.

Turning on the power and configuring the system

Before you power up the system, review installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel in Core 1. If you are using only one terminal or a switch box for the CPSI ports, set the connection to Core/Net 1. Verify that the terminal is set for 9600 baud, 7 data, 1 stop bit, space parity, full duplex, XON protocol.

- 1 In Core/Net 1, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.
- 2 In Core/Net 0, set the ENB/DIS switch on the NT6D65 CNI card to DIS.
- 3 Perform the appropriate step to restore power in each Core/Network module:
 - For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- 4 In Core/Net 0, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.

Note: Continue with step 5 only if you sent your database to Northern Telecom for conversion. Otherwise, if you are converting your database on-site from release 17 or 18, continue with step 6; or, if you are converting your database on-site from release 19, continue with step 12.

- 5 Follow the steps below to install the customer database (converted by Northern Telecom) on Core 1.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 20 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled, before proceeding to the next step.

- To activate the Software Installation Tool, insert disk A1 from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the B1 disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation
- Follow all screen directions until the database transfer is complete.
- Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system

When you have rebooted the system, proceed with step 13.

Note: Perform step 6 only if you are converting your database on-site from release 17 or 18; go to step 12 if you are converting your database on-site from release 19 or higher.

- 6 Follow the steps below to convert the release 17 or 18 database to release 19 and then to release 21, and to install the customer database on the option 61C Core 1. You will need the B disk previously removed from the RT system.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 19 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled, before proceeding to the next step.

- To activate the Software Installation Tool, insert disk 1 (from the release 19 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all screen directions until the software, database, CP-ROM and IOP-ROM installations are complete.

- When the main menu appears, select the following options:
 <q> to quit
 <yes> to confirm quit
- Remove any diskettes from the floppy drive, and type
 <a> to reboot the system

When you have rebooted the system, proceed with the next step.

7 Log into the system.

8 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

9 Set the ENB/DIS switch on the NT5D20 IOP/CMDU card in Core 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 20 software. Reinstall and enable the card.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled, before proceeding to the next step.

10 Insert a B1 disk (from the release 20 disk set) titled “DATABASE BACKUP DISK” into the floppy drive in the IOP/CMDU in Core 1.

11 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 12 Follow the steps below to convert the release 19 or higher database to release 21, and install the customer database on the option 61C Core 1. You will need the B disk previously created when you performed a data dump in step 11.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- To activate the Software Installation Tool, insert disk 1 (from the release 20 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all screen directions until the software, database, CP-ROM and IOP-ROM installations are complete.
- When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit
- Remove any diskettes from the floppy drive, and type
 - <a> to reboot the system

When you have rebooted the system, proceed with step 13.

- 13 After the system initializes, set the ENB/DIS switch to ENB on the NT6D65 CNI card in Core/Net 0.

- 14** On the NT6D66 CP card in Core/Net 0, press and release the MAN RST button. When “SYS700” messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the following messages will appear on the LCD display:

**RUNNING ROM OS
ENTERING CP VOTE**

Within 10 minutes, an HWI533 message from the Core 1 CPSI port indicates the Core 0 memory is shadowed to the Core 1 memory. Wait until the memory synchronization is complete before continuing.

- 15** Set the NORM/MAINT switch to NORM on the CP card in Core/Net 1 and perform a redundancy sanity test:

LD 135 to load the program
STAT CNI to get the status of all configured CNIs
STAT CPU to get the status of both Cores
TEST CPU to test the inactive CP card and CP-to-CP cable
TEST CNI c s to test the CNI on the inactive side

Note: Testing the CP and CNI cards may take up to 90 seconds for each test.

- 16** Test the inactive Core, then switch Cores and test the other side:

SCPU to switch to Core 0
TEST CPU to test the inactive CP card and CP-to-CP cable

- 17** Get the status of the CP cards and memories and of the CNIs:

STAT CPU to get the status of both Cores
STAT CNI to get the status of all configured CNIs
******** to exit LD 135

- 18** Load overlay 137 and synchronize the hard disks. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137 to load the program
STAT to get the status of CMDUs, IOPs, and redundancy
 (verify that CMDU 1 is active)
SYNC to synchronize the hard disks

Note: Synchronization may take up to 30 minutes.

- 19** Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs if necessary:

STAT to get the status of CMDUs, IOPs, and redundancy
SWAP to switch CMDUs (if necessary)
******** to exit LD 137

- 20** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.

- 21** Insert a B1 database disk into each IOP/CMDU for backup. Load overlay 43 and perform data dump to the backup disks. This command creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active CMDU if a disk is installed:

LD 43 to load the program
EDD to begin the data dump

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 22 Follow the appropriate step below to turn off power in each Core/Network module:
 - With AC power, set the circuit breaker on the MPDU in the module to OFF (down position).
 - With DC power, set the switch on the module power supply to OFF (down position).
- 23 Label each card that is being transferred to a Core/Network module with the shelf (0 or 1) and loop (0–31) for the card.
- 24 On all cards that are being transferred to Core/Network modules, disable the faceplate switches, disconnect all cables, and remove the cards.
- 25 Connect all cables to the cards (including the NT8D86 cables from the I/O panels to the QPC414 Network cards). Enable the faceplate switches.
- 26 Switch the cables at the PE end:
 - If NT9J96 cables inside the PE cabinets are not connected, connect them to the faceplates of the appropriate QPC659 cards.
- 27 Turn on power to the cabinet:
 - Set the AC input circuit breaker on the –48V rectifier in the cabinet to ON.
 - Set the CAB INP circuit breaker on the power control shelf in the cabinet and all other shelf circuit breakers to ON.
- 28 In the option 61C, verify that all cards are enabled (all ENB/DIS switches are set to ENB).
- 29 Follow the appropriate step below to restore power in each Core/Network module.

Note: If power to both Core/Network modules is restored simultaneously, the CMDUs should still be synchronized.

 - For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).

- 30** After the system initializes, reenter system configuration data into the customer database, if required, in the following sequence:
- Configure network loops to match loop types and loop numbers of the current configuration.
 - Configure I/O devices to reflect the current configuration.
 - Reenter customer data blocks. System options and features must reflect the current configuration.
 - Configure station data blocks.
 - Configure route data blocks.
 - Configure trunk data blocks.
 - Configure remaining system configuration records.
 - Verify system operation before adding new equipment.
 - Configure new equipment and functions, if any.
- 31** Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 32** Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).

The Meridian 1 X11 release 21 option 61C is now operational. Install all module covers to complete the upgrade.

SL-1 NT system upgrades

This chapter covers these upgrades:

- SL-1 NT system to X11 release 21, below
- SL-1 NT system to Meridian 1 option 61C X11 release 21, page 6-69

Upgrading an NT system to X11 release 21

To upgrade an SL-1 NT system to X11 release 21, you must upgrade both the hardware and the software.

Note: X11 release 21 is the highest supported X11 software release for SL-1 NT systems. NT systems must be upgraded to the option 61C (with software generic 2311) before converting to X11 release 22 software.

Upgrading the hardware consists of the following:

- replacing the memory card, peripheral signaling card, and floppy disk unit and interface card
- replacing some of the common equipment with new common equipment required by the new software release

Upgrading the software consists of the following:

- transferring the customer database to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Table 6-1 lists the items required to upgrade an AC-powered or DC-powered NT system. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Note: If the MDU is located in card slots next to a power converter, EMI shields P0727842-1 and P0727843-1 must be installed.

Table 6-1
Hardware required to upgrade an NT system using an MDU

Quantity	Part number	Description
2	NTND08AA	ROM card
2	NTND09CA	12 MB Memory card
2	NTND10AA	Changeover & Memory Arbitrator card
1	NTND16AA	4MB Multi Disk Unit
(Note 3)	QPC441	3-Port Extender card (Note 3)
2	QPC584L and	Mass Storage Interface (MSI)Card
1	NT8D80AC and	MSI/MDU Interface Cable, 2 ft.
1	NT8D80AD	MSI/MDU Interface Cable, 5 ft.
	or	
2	NT9D34 and	Enhanced MSI card
1	NT9D89AB and	EMSI/MDU Interface Cable, 2 ft.
1	NT9D89AD	EMSI/MDU Interface Cable, 5 ft.
1	QPC602A	ROM card (Notes 1, 2)
1	QPC939A	ROM card (Notes 1, 2)
Note 1: Not included in upgrade package. Must be ordered separately if required for on-site database conversion.		
Note 2: Refer to Table 6-2 for ROM cards required during on-site database conversion.		
Note 3: Not included in upgrade package. Acceptable vintages of 3PE cards required for use with release 21: B1, D, E (series B), E1 (series B), or F. If any existing 3PE card in system is not one of these vintages, replace with correct vintage card before performing upgrade. All 3PE cards in system must be of same vintage. Quantity required depends on system.		

Upgrade preparation

Some preparation is required before the conversion of the SL-1 hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to disk by performing a data dump.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1** Log into the system.
- 2** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3** When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the NT system can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 6-2 to determine the appropriate conversion procedure.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (NT) media.

CAUTION

Performing this database conversion procedure will result in disruption of call processing. If disruption is unacceptable, perform the appropriate parallel reload procedure in *Software conversion procedures* (553-2001-320) rather than this procedure.

Table 6-2**Database conversion requirements, NT system upgrade to X11 release 21 (Part 1 of 3)**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 8 customer database			
(Use conversion procedure beginning on page 6-8)			
8	9	QPC602	Release 8 to release 9 conversion disk Release 8.xx NT system software disk and data cartridge Release 9.xx NT system software disk and data cartridge
9	10	QPC602	Release 9 to release 10 conversion disk Release 10.xx NT system software disk and data cartridge
10	15	QPC939	Release 15.xx NT system software disk and data cartridge
15	18	NTND08	Release 18.xx NT system software disk and data cartridge
18	19	NTND08	Release 19.xx NT system software disk and data cartridge
19	21	NTND08	Release 21.xx NT system software disk and data cartridge
For converting a release 9 customer database			
(Use conversion procedure beginning on page 6-22)			
9	10	QPC602	Release 9 to release 10 conversion disk Release 9.xx NT system software disk and data cartridge Release 10.xx NT system software disk and data cartridge
10	15	QPC939	Release 15.xx NT system software disk and data cartridge
15	18	NTND08	Release 18.xx NT system software disk and data cartridge
18	19	NTND08	Release 19.xx NT system software disk and data cartridge
19	21	NTND08	Release 21.xx NT system software disk and data cartridge

Table 6-2
Database conversion requirements, NT system upgrade to X11 release 21 (Part 2 of 3)

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 10, 12, 13, or 14 customer database (Use conversion procedure beginning on page 6-34)			
10,12 13,14	15	QPC939	Release 10.xx, 12.xx, 13.xx, or 14.xx NT system software disk and data cartridge Release 15.xx NT system software disk and data cartridge
15	18	NTND08	Release 18.xx NT system software disk and data cartridge
18	19	NTND08	Release 19.xx NT system software disk and data cartridge
19	21	NTND08	Release 21.xx NT system software disk and data cartridge
For converting a release 15 or 16 customer database (Use conversion procedure beginning on page 6-45)			
15,16	18	NTND08	Release 18.xx NT system software disk and data cartridge
18	19	NTND08	Release 19.xx NT system software disk and data cartridge
19	21	NTND08	Release 21.xx NT system software disk and data cartridge
For converting a release 17 customer database (Use conversion procedure beginning on page 6-54)			
17	19	NTND08	Release 19.xx NT system software disk and data cartridge
19	21	NTND08	Release 21.xx NT system software disk and data cartridge
For converting a release 18 customer database (Use conversion procedure beginning on page 6-61)			
18	19	NTND08	Release 19.xx NT system software disk and data cartridge
19	21	NTND08	Release 21.xx NT system software disk and data cartridge

Table 6-2**Database conversion requirements, NT system upgrade to X11 release 21 (Part 3 of 3)**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 19 or 20 customer database (Use conversion procedure beginning on page 6-65)			
19,20	21	NTND08	Release 21.xx NT system software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 8 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the NT system.
- 2 Log into the system.
- 3 If the NT system has an NT8D69 MDU installed, skip this entire step. If no NT8D69 MDU is installed in the NT system, make room in the system for installation of the NTND16 MDU. If three consecutive CPU slots are not available, use three slots in the network shelf. Disable and remove the cards from the system.

If your upgrade package does not include an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, use the Move Data Blocks Program (LD 25) to move any network loop cards required to make these slots available. Refer to the *X11 input/output guide* (553-3001-400) for instructions.

- 4 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 5 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 8 If an NT8D69 MDU is installed in the NT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Remove the QMM42 cartridge for release 8 software from either of the old MSI cards and install the cartridge on the new MSI or EMSI card for CPU 1.

Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.
- 10 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 11 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the three slots made available in step 3 or the slots vacated by the NT8D69 MDU (if equipped) in step 8.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.
- 13 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.

- 14 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 15 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 17 Insert the disk for conversion from release 8 to release 9 into DRV A.
- 18 Load the Conversion Program (LD 66):
LD 66 to load the program

When "CDD000" appears on the terminal, proceed to the next step.

- 19 Disable and remove the MSI or EMSI card from CPU 1, and replace the current QMM42 cartridge with the QMM42 cartridge for the next required release. Reinstall and enable the card. Refer to Table 6-2, "Database conversion requirements, NT system upgrade to X11 release 21," on page 6-5 to determine the cartridge required for the next conversion step; for example, the X11 release 9 cartridge is required for the conversion from release 8 to release 9.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 20 Remove the disk from the NTND16 MDU drives and insert ED floppy disks with the next required release software into the drives. Insert disk A in DRV A and disk B in DRV B. Refer to Table 6-2, "Database conversion requirements, NT system upgrade to X11 release 21," on page 6-5 to determine the software release required for the next conversion step; for example, X11 release 9 software is required for the conversion from release 8 to release 9.

- 21** Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 22** Simultaneously press the RLD buttons on both QPC581 CMA cards to start a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 23** Log into the system.
- 24** Insert the disk for conversion from release 9 to release 10 into DRV A.
- 25** Load the Conversion Program (LD 66):

LD 66 to load the program

When “CDD000” appears on the terminal, proceed to the next step.

- 26** Disable and remove the MSI or EMSI card from CPU 1, and replace the current QMM42 cartridge with the QMM42 cartridge for the next required release. Reinstall and enable the card. Refer to Table 6-2, “Database conversion requirements, NT system upgrade to X11 release 21,” on page 6-5 to determine the cartridge required for the next conversion step; for example, the X11 release 10 cartridge is required for the conversion from release 9 to release 10.

- 27 Remove the disk from the NTND16 MDU drives and insert ED floppy disks with the next required release software into the drives. Insert disk A in DRV A and disk B in DRV B. Refer to Table 6-2, “Database conversion requirements, NT system upgrade to X11 release 21,” on page 6-5 to determine the software release required for the next conversion step; for example, X11 release 10 software is required for the conversion from release 9 to release 10.
- 28 Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 29 Simultaneously press the RLD buttons on both QPC581 CMA cards to start a sysload. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 30 Log into the system.
- 31 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 32 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 10 software with the QMM42 cartridge for release 15 software. Reinstall and enable the card.
- 33 Remove the disks containing release 10 software from the drives and insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 34 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 35 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 36 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 37 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 38 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 39 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 40 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 41 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 42 Log into the system.
- 43 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.
- 44 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 18 software. Reinstall and enable the card.
- 45 Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 46** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 47** In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 48** In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 49** Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 50** On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 51** Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 52** Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 53** Remove the QPC583 Memory card from CPU 1.
- 54** Install the NTND09 Memory card in CPU 1.
- 55** In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 56** In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 57** In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 58** Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 59** Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 60** In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 61** In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 62** Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 63** On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 64** Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 65** Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 66** Remove the QPC583 Memory card from CPU 0.
- 67** Install the NTND09 Memory card in CPU 0.
- 68** In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 69** In CPU 0, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 70** In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 71** Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 72** Log into the system.
- 73** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

- 74** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 75** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 76** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 77 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 78 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.
- 79 In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.
- 80 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 81 Log into the system.
- 82 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 83 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.

- 84 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 85 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 86 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 87 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:
SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 88 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 89 Log into the system.

- 90** Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 91** Remove disk A2 from drive A and insert disk A1.

- 92** Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 93** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 94** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 95** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

- 96** Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 97** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 98** To continue upgrading the NT to release 21, proceed with step 99. If you are upgrading the NT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 99** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 100** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 NT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 9 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the NT system.
- 2 Log into the system.
- 3 If the NT system has an NT8D69 MDU installed, skip this entire step. If no NT8D69 MDU is installed in the NT system, make room in the system for installation of the NTND16 MDU. If three consecutive CPU slots are not available, use three slots in the network shelf. Disable and remove the cards from the system.

If your upgrade package does not include an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, use the Move Data Blocks Program (LD 25) to move any network loop cards required to make these slots available. Refer to the *X11 input/output guide* (553-3001-400) for instructions.

- 4 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, the enter

******** to exit the program

- 5 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 8 If an NT8D69 MDU is installed in the NT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Remove the QMM42 cartridge for release 9 software from either of the old MSI cards and install the cartridge on the new MSI or EMSI card for CPU 1.

Note: If the new MSI card is a QPC584 MSI card, it must be vintage L or later.
- 10 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 11 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the three slots made available in step 3 or the slots vacated by the NT8D69 MDU (if equipped) in step 8.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.
- 13 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.

- 14 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 15 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 17 Insert the disk for conversion from release 9 to release 10 into DRV A.
- 18 Load the Conversion Program (LD 66):
LD 66 to load the program

When "CDD000" appears on the terminal, proceed to the next step.

- 19 Disable and remove the MSI or EMSI card from CPU 1, and replace the current QMM42 cartridge with the QMM42 cartridge for the next required release. Reinstall and enable the card. Refer to Table 6-2, "Database conversion requirements, NT system upgrade to X11 release 21," on page 6-5 to determine the cartridge required for the next conversion step; for example, the X11 release 10 cartridge is required for the conversion from release 9 to release 10.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 20 Remove the disk from the NTND16 MDU drives and insert ED floppy disks with the next required release software into the drives. Insert disk A in DRV A and disk B in DRV B. Refer to Table 6-2, "Database conversion requirements, NT system upgrade to X11 release 21," on page 6-5 to determine the software release required for the next conversion step; for example, X11 release 10 software is required for the conversion from release 9 to release 10.

- 21** Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 22** Simultaneously press the RLD buttons on both QPC581 CMA cards to start a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 23** Log into the system.
- 24** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 25** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 10 software with the QMM42 cartridge for release 15 software. Reinstall and enable the card.
- 26** Remove the disks containing release 10 software from the drives and insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 27 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 28 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 29 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 30 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 31 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 32 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 33 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.

- 34** Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 35** Log into the system.
- 36** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 37** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 18 software. Reinstall and enable the card.
- 38** Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 39** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 40** In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 41** In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.

- 42 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 43 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 44 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 45 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 46 Remove the QPC583 Memory card from CPU 1.
- 47 Install the NTND09 Memory card in CPU 1.
- 48 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 49 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 50 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 51 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 52 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 53 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 54 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 55 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.

- 56 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 57 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 58 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 59 Remove the QPC583 Memory card from CPU 0.
- 60 Install the NTND09 Memory card in CPU 0.
- 61 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 62 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the QPC602 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 63 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 64 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 65 Log into the system.
- 66 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 67 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 68 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 69 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 70 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 71 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.
- 72 In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.
- 73 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 74** Log into the system.
- 75** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 76** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 77** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 78** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 79** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 80** Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000

INSERT DISK A2 INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 81** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 82** Log into the system.

- 83** Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 84** Remove disk A2 from drive A and insert disk A1.

- 85** Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 86** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 87** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 88** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

89 Perform a data dump:**LD 43** to load the program**EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 90** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 91** To continue upgrading the NT to release 21, proceed with step 92. If you are upgrading the NT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 92** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 93** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 NT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 10, 12, 13, or 14 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the NT system.
- 2 Log into the system.
- 3 If the NT system has an NT8D69 MDU installed, skip this entire step. If no NT8D69 MDU is installed in the NT system, make room in the system for installation of the NTND16 MDU. If three consecutive CPU slots are not available, use three slots in the network shelf. Disable and remove the cards from the system.

If your upgrade package does not include an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, use the Move Data Blocks Program (LD 25) to move any network loop cards required to make these slots available. Refer to the *X11 input/output guide* (553-3001-400) for instructions.

- 4 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, and enter

******** to exit the program

- 5 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.

- 6 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 7 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 8 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 9 If an NT8D69 MDU is installed in the NT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 10 In CPU 1, install the QMM42 cartridge for release 15 software on the new MSI or EMSI card.
Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.
- 11 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 12 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 13 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the three slots made available in step 3 or the slots vacated by the NT8D69 MDU (if equipped) in step 9.
Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 14 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 15 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 16 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 17 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 18 Insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 19 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 20 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 21 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 22 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 23 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 24 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 25 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 26 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 27 Log into the system.
- 28 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

- 29 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 18 software. Reinstall and enable the card.

30 Remove the disks containing release 15 software from the drives, and insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

31 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

32 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.

33 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.

34 Disconnect both cables from the QPC581 CMA card faceplate connectors.

35 In CPU 1, remove the QPC581 CMA card.

36 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.

37 Connect the cables to the NTND10 CMA card; connect the bottom cable first.

38 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.

39 Remove the QPC583 Memory card from CPU 1.

40 Install the NTND09 Memory card in CPU 1.

41 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 42** In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 43** In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 44** Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 45** Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 46** In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 47** In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 48** Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 49** On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 50** Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 51** Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 52** Remove the QPC583 Memory card from CPU 0.
- 53** Install the NTND09 Memory card in CPU 0.
- 54** In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 55 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 56 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 57 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 58 Log into the system.
- 59 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 60 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 61 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 62 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 63** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 64** Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.
- 65** In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.
- 66** Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 67** Log into the system.
- 68** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 69** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.

- 70 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 71 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 72 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 73 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:
- SYS000**
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 74 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 75 Log into the system.

76 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

77 Remove disk A2 from drive A and insert disk A1.

78 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

79 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

80 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

81 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

82 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 83** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 84** To continue upgrading the NT to release 21, proceed with step 85. If you are upgrading the NT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 85** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 86** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 NT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 15 or 16 to release 21

- 1** Remove the front covers from the CPU/Network cabinet in the NT system.
- 2** Log into the system.
- 3** Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, the enter

******** to exit the program

- 4** In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
- 5** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6** Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7** Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.

- 8 If an NT8D69 MDU is installed in the NT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Install the QMM42 cartridge for release 18 software on the new MSI or EMSI card for CPU 1.

Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.

- 10 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 11 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 13 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 14 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.

- 15 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 17 Insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 18 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 20 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 21 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 22 In CPU 1, remove the QPC581 CMA card.
- 23 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 24 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 25 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 26 Remove the QPC583 Memory card from CPU 1.

- 27** Install the NTND09 Memory card in CPU 1.
- 28** In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 29** In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 30** In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 31** Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 32** Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 33** In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 34** In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 35** Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 36** On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 37** Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 38** Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 39** Remove the QPC583 Memory card from CPU 0.
- 40** Install the NTND09 Memory card in CPU 0.

- 41 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 42 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 43 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 44 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 45 Log into the system.
- 46 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 47 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 48 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.

- 49 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 50 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 51 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.

- 52 In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.

- 53 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 54 Log into the system.

- 55 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 56 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 57 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 58 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 59 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 60 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:
SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 61 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 62 Log into the system.

- 63** Copy the contents of the data disks to the hard disk by entering
- | | |
|--------------|--|
| LD 43 | to load the program |
| RES | to copy the entire contents of the backup to the hard disk |

Insert the additional system disk (A2) when requested. When the RESTORE sequence is complete, enter

******** to exit the program

- 64** Remove disk A2 from drive A and insert disk A1.
- 65** Set the ENB/DIS switch on each MSI or EMSI card to DIS.
- 66** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 67** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 68** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:
- | | |
|--------------|--|
| LD 17 | to load the program |
| IOTB | enter YES to change I/O devices |
| ADAN | enter CHG HDK 0 to add a hard disk unit |
| **** | to exit the program |

- 69** Perform a data dump:
- | | |
|--------------|------------------------|
| LD 43 | to load the program |
| EDD | to begin the data dump |

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 70** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 71** To continue upgrading the NT to release 21, proceed with step 72. If you are upgrading the NT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 72** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 73** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 NT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 17 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the NT system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 5 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 6 If an NT8D69 MDU is installed in the NT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 7 Install the QMM42 cartridges for release 19 software on both new MSI or EMSI cards.
Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.
- 8 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 9 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.

- 10** Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 11** With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 12** For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 13** For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 14** Set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 15** Insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 16** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 18 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 19 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 20 In CPU 1, remove the QPC581 CMA card.
- 21 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 22 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 23 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 24 Remove the QPC583 Memory card from CPU 1.
- 25 Install the NTND09 Memory card in CPU 1.
- 26 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 27 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 28 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 29 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 30 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 31 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.

- 32 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 33 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 34 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 35 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 36 Remove the QPC583 Memory card from CPU 0.
- 37 Install the NTND09 Memory card in CPU 0.
- 38 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 39 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 40 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 41 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB.
- 42 Verify that the MAINT/NORM switch on both QPC580 CPU Interface cards is set to NORM.
- 43 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 44 Log into the system.
- 45 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 46 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 47 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 48 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 49 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 50** Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

```
SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
```

- 51** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 52** Log into the system.

- 53** Copy the contents of the data disks to the hard disk by entering

```
LD 43          to load the program
RES           to copy the entire contents of the backup to the
                  hard disk
```

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

```
****           to exit the program
```

- 54** Remove disk A2 from drive A and insert disk A1.

- 55** Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 56** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 57** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 58** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

```
LD 17          to load the program
IOTB          enter YES to change I/O devices
ADAN          enter CHG HDK 0 to add a hard disk unit
****          to exit the program
```

59 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 60** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 61** To continue upgrading the NT to release 21, proceed with step 62. If you are upgrading the NT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 62** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 63** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 NT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 18 to release 21

- 1** Remove the front covers from the CPU/Network cabinet in the NT system.
- 2** Log into the system.
- 3** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software.
- 5** For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall and enable the card.
- 6** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software.
- 7** For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall and enable the card.
- 8** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 9 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 10 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 11 Log into the system.
- 12 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.
- 13 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 14 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.

- 15 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.

- 16 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 18 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 19 Log into the system.

- 20 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 21 Remove disk A2 from drive A and insert disk A1.
- 22 Set the ENB/DIS switch on each MSI or EMSI card to DIS.
- 23 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 24 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 25 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program
IOTB enter **YES** to change I/O devices
ADAN enter **CHG HDK 0** to add a hard disk unit
******** to exit the program

- 26 Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 27 To continue upgrading the NT to release 21, proceed with step 28. If you are upgrading the NT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.

- 28 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 29 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 NT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 19 or 20 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the NT system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 5 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 6 Remove the disks from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.

- 7 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 8 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 9 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 10 Log into the system.

- 11 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 12 Remove disk A2 from drive A and insert disk A1.

- 13 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 14** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 15** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 16** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17	to load the program
IOTB	enter YES to change I/O devices
ADAN	enter CHG HDK 0 to add a hard disk unit
****	to exit the program
- 17** Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 18** To continue upgrading the NT to release 21, proceed with step 19. If you are upgrading the NT to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 19** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 20** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 NT system is now operational. Install all covers to complete the upgrade.

Upgrading an NT system to option 61C

This section covers upgrades from an NT system to a Meridian 1 option 61C X11 release 21.

To upgrade an NT system, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- installing a Meridian 1 option 61C cabinet next to the NT cabinet
- installing new connector housings on the NT cabinet
- cabling the cabinet to the option 61C column
- removing the common equipment (CE) from the NT cabinet

Upgrading the software consists of the following:

- transferring the customer database on the SL-1 to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to a higher release on the NT system, and converting it to X11 release 21 on the option 61C

Equipment required

Tables 6-3 and 6-4 list the items required to upgrade an AC- or DC-powered system to an X11 release 21 Meridian 1 option 61C. Some configurations may require items not included in the tables. All required items must be identified and on hand before the upgrade can start.

Letters at the end of a part number represent the minimum vintage equipment that can be used in the upgrade; only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect peripheral shelves in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D86AC cables that connect the network card and the peripheral buffer card to the I/O panel
- NT9J96 cables that connect the I/O panel in the Core/Network module to the cabinet I/O panel

An NT8D01 Controller card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 6-3
Hardware requirements for an AC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21AA	Core/Network module, AC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT6D66	Call Processor card (CP) (Note 1)
1	NT7D00AA	Top Cap, AC
1	NT7D06AA	Filler Panel
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal, AC
2	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment module, AC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
3	NT8D44AA	SDI Paddle Board to I/O Cable
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52AB	Pedestal Blower Unit, AC
1	NT8D53BB	Power Distribution Unit, AC
2	NT8D80AZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)

Table 6-3
Hardware requirements for an AC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI Cable (6 ft.)
6	NTND21AA	Module Side Cover
1	NTND15 and	4 MB Floppy Disk Unit (Note 3)
1	QPC742F and	Floppy Disk Interface card (Note 3)
1	NT8D77	Interface cable (Note 3)
	or	
1	NTND16 and	4 MB Multi Disk Unit (Note 3)
1	QPC584L and	Mass Storage Interface card (Note 3)
1	NT8D80	Interface cable (Note 3)
	or	
1	NTND16 and	4 MB Multi Disk Unit (Note 3)
1	NT9D34 and	Enhanced MSI card (Note 3)
1	NT9D89	Interface cable (Note 3)
2	QPC43R	Peripheral Signaling card (PS)
1	QPC84S	Power Monitor
1	NT8D80	CPU/MDU Interface Cable (Note 3)
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Not provided in the upgrade package. Parts are required for on-site database conversion.		

Table 6-4
Hardware requirements for a DC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Drive Unit
2	NT5D21DA	Core/Network module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT6D66	Call Processor card (CP) (Note 1)
1	NT7D00BA	Top Cap, DC
1	NT7D06AA	Filler Panel
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment module, DC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC
2	NT8D80AZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)

Table 6-4
Hardware requirements for a DC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI Cable (6 ft.)
6	NTND21AA	Module Side Cover
1	NTND15 and	4 MB Floppy Disk Unit (Note 3)
1	QPC742F and	Floppy Disk Interface card (Note 3)
1	NT8D77	Interface cable (Note 3)
	or	
1	NTND16 and	4 MB Multi Disk Unit (Note 3)
1	QPC584L and	Mass Storage Interface card (Note 3)
1	NT8D80	Interface cable (Note 3)
	or	
1	NTND16 and	4 MB Multi Disk Unit (Note 3)
1	NT9D34 and	Enhanced MSI card (Note 3)
1	NT9D89	Interface cable (Note 3)
2	QPC43R	Peripheral Signaling card (PS)
1	QPC84S	Power Monitor
1	NT8D80	CPU/MDU Interface Cable (Note 3)
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT6D42CC Ringing Generator, DC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Not provided in the upgrade package. Parts are required for on-site database conversion.		

Upgrade preparation

Some preparation is required before the conversion of the NT hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 61C.
- Install the option 61C hardware.
- Back up the customer database to disk by doing a data dump.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Installing option 61C hardware

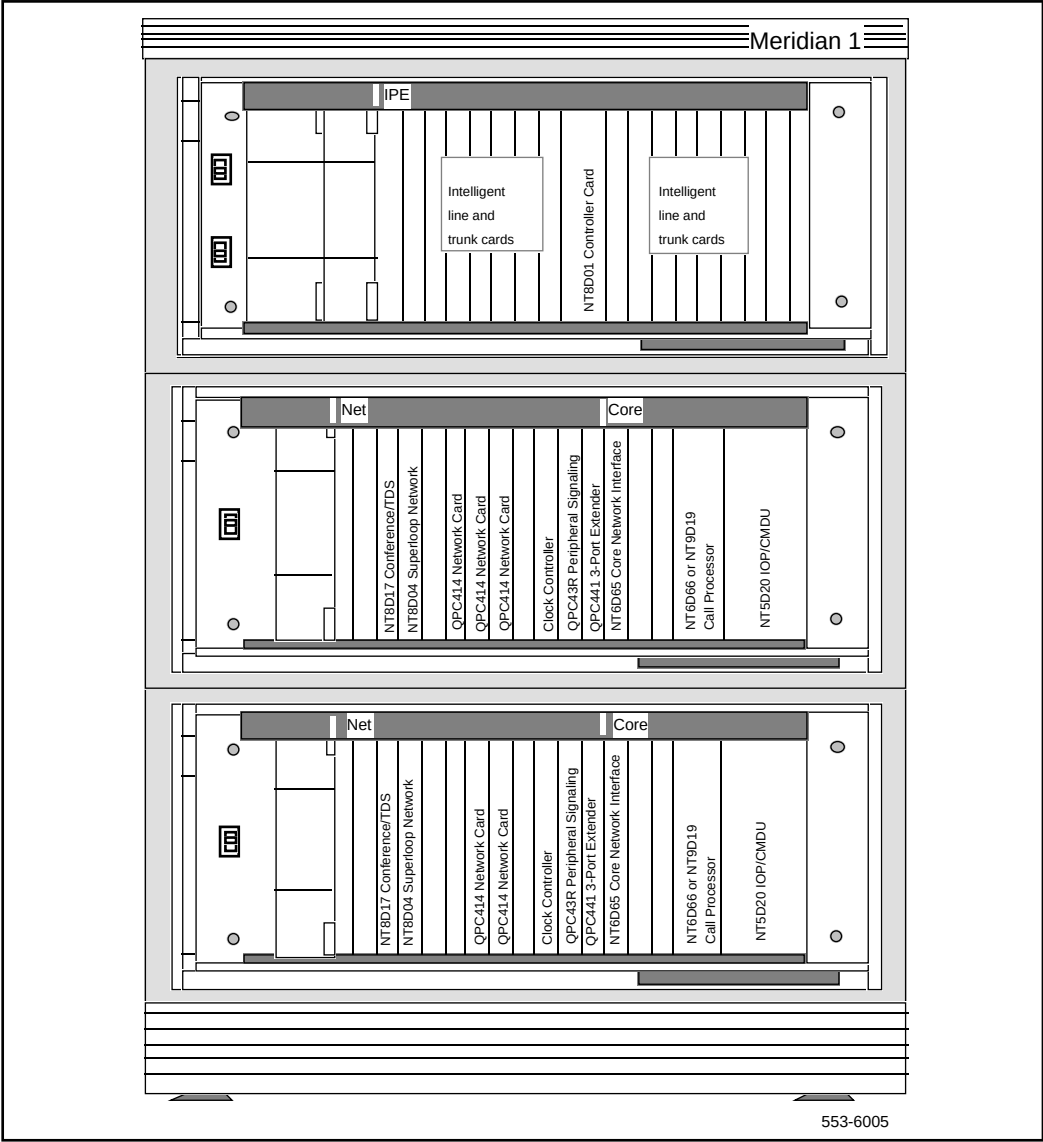
The option 61C equipment is preconfigured at the factory according to your requirements. The equipment includes the pedestal, Core/Network modules, IPE module, cards, and top cap. Cards such as IOP/CMDUs and power supplies are shipped in separate packages to prevent damage to the cards.

Figure 6-1 shows the option 61C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

To install the option 61C at your site, first follow the procedures in *Meridian 1 system installation procedures* (553-3001-210) and then continue with the procedures in this chapter.

Also install any external cables that can be installed at this time without interrupting service (see “Installing the connector housings” on page 6-103).

Figure 6-1
Meridian 1 option 61C



Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks.

- 1 On the NT system, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the NT system can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 6-5 to determine the appropriate conversion procedure.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (NT) media.

CAUTION

Performing this database conversion procedure will result in disruption of call processing. If disruption is unacceptable, perform the appropriate parallel reload procedure in *Software conversion procedures* (553-2001-320) rather than this procedure.

Table 6-5**Database conversion requirements, NT system upgrade to option 61C (Part 1 of 2)**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 8 customer database			
(Use conversion procedure beginning on page 6-81)			
8	9	QPC602	Release 8 to release 9 conversion disk Release 8.xx NT system software disk and data cartridge Release 9.xx NT system software disk and data cartridge
9	10	QPC602	Release 9 to release 10 conversion disk Release 10.xx NT system software disk and data cartridge
10	15	QPC939	Release 15.xx NT system software disk and data cartridge
15	17	QPC939	Release 17.xx NT system software disk and data cartridge
17	19	N/A	Software Installation Tool
19	21	N/A	Software Installation Tool
For converting a release 9 customer database			
(Use conversion procedure beginning on page 6-88)			
9	10	QPC602	Release 9 to release 10 conversion disk Release 9.xx NT system software disk and data cartridge Release 10.xx NT system software disk and data cartridge
10	15	QPC939	Release 15.xx NT system software disk and data cartridge
15	17	QPC939	Release 17.xx NT system software disk and data cartridge
17	19	N/A	Software Installation Tool
19	21	N/A	Software Installation Tool

Table 6-5**Database conversion requirements, NT system upgrade to option 61C (Part 2 of 2)**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 10, 12, 13, or 14 customer database (Use conversion procedure beginning on page 6-95)			
10, 12, 13, 14	15	QPC939	Release 10.xx, 12.xx, 13.xx, or 14.xx NT system software disk and data cartridge Release 15.xx NT system software disk and data cartridge
15	17	QPC939	Release 17.xx NT system software disk and data cartridge
17	19	N/A	Software Installation Tool
19	21	N/A	Software Installation Tool
For converting a release 15 or 16 customer database (Use conversion procedure beginning on page 6-100)			
15, 16	17	QPC939	Release 17.xx NT system software disk and data cartridge
17	19	N/A	Software Installation Tool
19	21	N/A	Software Installation Tool
For converting a release 17 or 18 customer database (Use conversion procedure beginning on page 6-103)			
17, 18	19	N/A	Software Installation Tool
19	21	N/A	Software Installation Tool
For converting a release 19, 20 customer database (Use conversion procedure beginning on page 6-103)			
19, 20	21	N/A	Software Installation Tool
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 8 to release 21

- 1** Remove the front covers from the CPU/Network cabinet in the NT system.
- 2** Log into the system.
- 3** In the NT system, make room in the Network shelf for temporary installation of the NTND16 Multi Disk Unit (MDU). Three consecutive network slots are required. If three consecutive network slots are not available, choose three slots, disable the cards, using the appropriate overlays, and then remove the cards.
- 4** Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs

SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 5** In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6** Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7** Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.

- 8 Remove the QMM42 cartridge for release 8 software from either of the old MSI or EMSI cards and install the cartridge on the new MSI or EMSI card for CPU 1.

Note: If the new card is a QPC584 MSI card, it must be vintage L or later.

- 9 Set the ENB/DIS switch on the new MSI or EMSI card to DIS.
- 10 On the MSI or EMSI card, set positions 1, 5, and 7 on switch SW3 to ON.
- 11 Install the NTND16 MDU into its assigned position in the Network shelf card slots. Install the MDU in the three slots made available in step 3.
- 12 With the ENB/DIS switch set to DIS, insert the new MSI or EMSI card into its assigned position.
- 13 For systems using MSI cards, connect an NT8D80 cable between the faceplate connector on the MSI card and connector 0 on the NTND16 MDU. For systems using EMSI cards, connect an NT9D89 cable between the faceplate connector on the EMSI card and connector 0 on the NTND16 MDU.
- 14 In CPU 1, set the ENB/DIS switch on the MSI or EMSI card to ENB.
- 15 Insert the ED floppy disk for conversion from release 8 to release 9 into DRV A.
- 16 Load the Conversion Program (LD 66):
LD 66 to load the program

When “CDD000” appears on the terminal, proceed to the next step.

- 17 Disable and remove the MSI or EMSI card from CPU 1, and replace the current QMM42 cartridge with the QMM42 cartridge for the next required release. Reinstall and enable the card. Refer to Table 6-5, “Database conversion requirements, NT system upgrade to option 61C,” on page 6-79 to determine the cartridge required for the next conversion step; for example, the X11 release 9 cartridge is required for the conversion from release 8 to release 9.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 18 Remove the disk from the NTND16 MDU drives and insert ED floppy disks with the next required release software into the drives. Insert disk A in DRV A and disk B in DRV B. Refer to Table 6-5, "Database conversion requirements, NT system upgrade to option 61C," on page 6-79 to determine the software release required for the next conversion step; for example, X11 release 9 software is required for the conversion from release 8 to release 9.
- 19 Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 20 Simultaneously press the RLD buttons on both QPC581 CMA cards to start a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 21 Log into the system.
- 22 Insert the ED floppy disk for conversion from release 9 to release 10 into DRV A.
- 23 Load the Conversion Program (LD 66):

LD 66 to load the program

When "CDD000" appears on the terminal, proceed to the next step.

- 24 Disable and remove the MSI or EMSI card from CPU 1, and replace the current QMM42 cartridge with the QMM42 cartridge for the next required release. Reinstall and enable the card. Refer to Table 6-5, “Database conversion requirements, NT system upgrade to option 61C,” on page 6-79 to determine the cartridge required for the next conversion step; for example, the X11 release 10 cartridge is required for the conversion from release 9 to release 10.
- 25 Remove the disk from the NTND16 MDU drives and insert ED floppy disks with the next required release software into the drives. Insert disk A in DRV A and disk B in DRV B. Refer to Table 6-5, “Database conversion requirements, NT system upgrade to option 61C,” on page 6-79 to determine the software release required for the next conversion step; for example, X11 release 10 software is required for the conversion from release 9 to release 10.
- 26 Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 27 Simultaneously press the RLD buttons on both QPC581 CMA cards to start a sysload. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 28 Log into the system.

- 29** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 30** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 10 software with the QMM42 cartridge for release 15 software. Reinstall and enable the card.
- 31** Remove the disks containing release 10 software from the drives and insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 32** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 33** In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 34** In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 35 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 36 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 37 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 38 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 39 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 40 Log into the system.
- 41 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

- 42 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 17 software. Reinstall and enable the card.
- 43 Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 17 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 44** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 45** Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 46** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 47** Remove the database diskettes from the NTND16 MDU drives on the NT.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Installing the connector housings” on page 6-103 to continue with the upgrade.

Converting a database from release 9 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the NT system.
- 2 Log into the system.
- 3 In the NT system, make room in the Network shelf for temporary installation of the NTND16 Multi Disk Unit (MDU). Three consecutive network slots are required. If three consecutive network slots are not available, choose three slots, disable the cards, using the appropriate overlays, and then remove the cards.
- 4 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 5 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.
- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.

- 8** Remove the QMM42 cartridge for release 9 software from either of the old MSI or EMSI cards, and install the cartridge on the new MSI or EMSI card for CPU 1.

Note: If the new card is a QPC584 MSI card, it must be vintage L or later.
- 9** Set the ENB/DIS switch on the new MSI or EMSI card to DIS.
- 10** On the MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 11** Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the three slots made available in step 3.
- 12** With the ENB/DIS switch set to DIS, insert the new MSI or EMSI card into its assigned position.
- 13** Connect an NT8D80 cable between the faceplate connector on the MSI or EMSI card in CPU 1 and connector 1 on the NTND16 MDU.
- 14** In CPU 1, set the ENB/DIS switch on the MSI or EMSI card to ENB.
- 15** Insert the ED floppy disk for conversion from release 9 to release 10 into DRV A.
- 16** Load the Conversion Program (LD 66):
LD 66 to load the program

When "CDD000" appears on the terminal, proceed to the next step.

- 17** Disable and remove the MSI or EMSI card from CPU 1, and replace the current QMM42 cartridge with the QMM42 cartridge for the next required release. Reinstall and enable the card. Refer to Table 6-5, "Database conversion requirements, NT system upgrade to option 61C," on page 6-79 to determine the cartridge required for the next conversion step; for example, the X11 release 10 cartridge is required for the conversion from release 9 to release 10.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 18** Remove the disk from the NTND16 MDU drives and insert ED floppy disks with the next required release software into the drives. Insert disk A in DRV A and disk B in DRV B. Refer to Table 6-5, “Database conversion requirements, NT system upgrade to option 61C,” on page 6-79 to determine the software release required for the next conversion step; for example, X11 release 10 software is required for the conversion from release 9 to release 10.
- 19** Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 20** Simultaneously press the RLD buttons on both QPC581 CMA cards to start a sysload. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 21** Log into the system.
- 22** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 23 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 10 software with the QMM42 cartridge for release 15 software. Reinstall and enable the card.
- 24 Remove the disks containing release 10 software from the drives and insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 25 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 26 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 27 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 28 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 29 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 30 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 31 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 32 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 33 Log into the system.
- 34 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.
- 35 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 17 software. Reinstall and enable the card.
- 36 Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 17 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 37** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 38** Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 39** Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 40** Remove the database diskettes from the NTND16 MDU drives on the NT.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Installing the connector housings” on page 6-103 to continue with the upgrade.

Converting a database from release 10, 12, 13, or 14 to release 21

- 1** Remove the front covers from the CPU/Network cabinet in the NT system.
- 2** Log into the system.
- 3** If the NT system has an NT8D69 MDU installed, skip this entire step. If no NT8D69 MDU is installed in the NT system, make room in the system for installation of the NTND16 MDU. If three consecutive CPU slots are not available, use three slots in the network shelf. Disable and remove the cards from the system.
- 4** Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs

SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 5** In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
- 6** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 7 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 8 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 9 If an NT8D69 MDU is installed in the NT system, remove it by gently pulling the unit forward two or three inches.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 10 In CPU 1, install the QMM42 cartridge for release 15 software on the new MSI or EMSI card.
Note: If the new card is a QPC584 MSI card, it must be vintage L or later.
- 11 Set the ENB/DIS switch on the new MSI or EMSI card to DIS.
- 12 On the MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 13 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the three slots made available in step 3 or the slots vacated by the NT8D69 MDU (if equipped) in step 9.
- 14 With the ENB/DIS switch set to DIS, insert the new MSI or EMSI card into its assigned position.
- 15 Connect an NT8D80 cable between the faceplate connector on the MSI or EMSI card in CPU 1 and connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on the MSI or EMSI card to ENB.
- 17 Insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 18** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19** In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 20** In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 21** In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 22** In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 23** Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 24** Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.

- 25 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 26 Log into the system.
- 27 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 28 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 17 software. Reinstall and enable the card.
- 29 Remove the disks containing release 15 software from the drives, and insert ED floppy disks with release 17 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 30 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 31** Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 32** Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 33** Remove the database diskettes from the NTND16 MDU drives on the NT.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Installing the connector housings” on page 6-103 to continue with the upgrade.

Converting a database from release 15 or 16 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the NT system.
- 2 Log into the system.
- 3 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 4 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
- 5 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.

- 8 If an NT8D69 MDU is installed in the NT system, remove it by gently pulling the unit forward two or three inches.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Install the QMM42 cartridge for release 17 software on the new MSI or EMSI card for CPU 1.

Note: If the new card is a QPC584 MSI card, it must be vintage L or later.
- 10 Set the ENB/DIS switch on the new MSI or EMSI card to DIS.
- 11 On the MSI or EMSI card, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.
- 13 With the ENB/DIS switch set to DIS, insert the new MSI or EMSI card into its assigned position.
- 14 Connect an NT8D80 cable between the faceplate connector on the MSI or EMSI card in CPU 1 and connector 1 on the NTND16 MDU.
- 15 In CPU 1, set the ENB/DIS switch on the MSI or EMSI card to ENB.
- 16 Insert ED floppy disks with release 17 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 17 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 18 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 19 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 20 Remove the database diskettes from the NTND16 MDU drives on the NT.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Installing the connector housings” on page 6-103 to continue with the upgrade.

Converting a database from release 17, 18, 19, or 20 to release 21

Obtain the diskettes from the NT system that contain the database.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed with “Installing the connector housings” to continue with the upgrade.

Installing the connector housings

The connector housings connect cables in the peripheral cabinets to cables from the option 61C, while also reducing electromagnetic interference (EMI). Housings are installed on the peripheral cabinet: on cabinets with a top I/O panel, the housing is installed on top of the cabinet; On cabinets with cover plates on the cabinet side panel, the housing is installed on the side panel. Both housings can accommodate six cables. These are the connector housing kits:

- P0696547 side-mounted connector housing
- P0702380 top-mounted connector housing

Note: For a detailed description of connector housings and installation procedures, refer to *Upgrade engineering* (553-3001-150).

Converting the SL-1 hardware

CAUTION

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed.

Preparing the NT system for upgrade

To prepare an NT system for conversion to an option 61C:

- 1 Set all shelf circuit breakers to OFF.
- 2 Set the CAB INP circuit breaker on the QSP43 power control shelf in the QCA58 cabinet and all other shelf circuit breakers to OFF.
- 3 Set the AC input circuit breaker on the -48V rectifier in the QCA58 cabinet to OFF.
- 4 Disconnect all network loop cables connected to QPC414 Network cards and cables connected to QPC139 SDI cards.
- 5 Set the ENB/DIS switch on the faceplate of the QPC33 Tape Unit Interface (TUI) card located in the CPU/MEM shelf to DIS. If equipped with a mass storage unit, repeat this step for the mass storage unit interface card.
- 6 Remove the tape and set the power switch on the faceplate of the tape unit to OFF or 0. If equipped with a mass storage unit, repeat this step by removing the disks and turning the MSU power switch to OFF.
- 7 Disconnect and remove the cable from the faceplate of the QPC33 card to the tape unit. If equipped with a mass storage unit, disconnect the cable between the MSU and the MSI or EMSI faceplates.
- 8 Disconnect cables from the faceplate connectors on cards located in the CPU/MEM and network shelves.
- 9 Remove cards from the CPU/MEM shelf and store them in a safe place.

10 Disconnect power and alarm connections:

- Disconnect all alarm connectors from the harness to the CPU/MEM shelf.
- Unplug all power converter cards and all common equipment cards from the CPU/MEM shelf.
- Disconnect power connections and the power monitor connector from the cabinet power distribution harness of the backplane on the QSP41 shelf.
- Tape all exposed power leads with electrical insulation tape.
- Remove the QPC84 Power Monitor and set switches to disable power monitoring in the CPU/MEM shelf. A QPC84 Power Monitor vintage S or later is required. Refer to *Circuit card installation and testing* (553-3001-211) for switch setup.
- Reinstall the QPC84S Power Monitor.

11 Remove cards from network shelves and store them in a safe place.**12** Disconnect the tape unit or the mass storage unit power monitor and alarm connectors. To do this, you must first remove the tape unit or the mass storage unit and then disconnect the connectors. Tape all exposed power leads with electrical insulation tape.**13** If you are using network shelves for PRI/DTI cards, do the following:

- Install the PRI/DTI cards in network shelf card slots 2, 4, 6, 8, 10, and 12.
- Plan to install at least one PRI/DTI card, as a master card with clock reference, in the Core/Network module of the option 61C column to obtain clock reference for the PRI/DTI cards.

- 14** If you are not going to use network shelves for PRI/DTI cards, do the following:
- Disconnect alarm connectors from the harness to network shelves.
 - Unplug all power converter cards from each network shelf.
 - Disconnect power connections and the power monitor connector from the cabinet power distribution harness to the backplane on QSD39 and QSD40 shelves.
 - Tape all exposed power leads with electrical insulation tape.

Installing external cables

Now that the option 61C column is installed and the peripheral cabinet has been prepared, you must connect them with external cables.

- 1** Install network cables between the peripheral cabinet and the new modular column. This connects network cards in the Core/Network module to the peripheral buffer card in the PE shelf of the cabinet. Refer to *Upgrade engineering* (553-3001-150) for a detailed explanation of the connector kits and cables required to connect peripheral shelves in a cabinet to an option 61C column.

Each network loop connection requires that three cables be installed:

- Connect the NT8D86AC cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
 - Connect the NT9J96 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network module to the I/O panel on the top or the side of the peripheral cabinet. A connector housing kit is required for the cabinet to accept the cable connector.
 - Connect the NT8D86AC cable from the faceplate connector of the peripheral buffer to the I/O panel connector at the top or the side of the cabinet.
- 2** Install alarm cables as outlined in “System monitor upgrade installation” on page 13-1.

- 3 Connect the external cable from the Core/Network module I/O panel connector (labeled “PRI/DTI”) to the network interface.
- 4 Install one PRI/DTI card in this module as the primary clock reference and install the rest of the PRI/DTI cards in the peripheral cabinet CE shelf. For installation procedures, refer to *Circuit card installation and testing* (553-3001-211).
- 5 Verify that the PRI/DTI cards in the peripheral cabinet CE shelf are connected to the MDF.
- 6 Connect all external cables from the MDF to the PE shelf connectors on the cabinet I/O panels and the IPE module I/O panels. Refer to *Meridian 1 system installation procedures* (553-3001-210) for IPE module cabling procedures.
- 7 Connect the external cable to the Core/Network module I/O panel connecting PRI/DTI to the network interface. Install one PRI/DTI card in this module to be the master card and install the rest of the PRI/DTI cards, as slaves, in the existing cabinet CE shelf.
- 8 Verify that PRI/DTI cards in the existing peripheral cabinet CE shelf are connected to the cross connect or network interface.

Connect all external cables from the cross connect to the PE shelf connectors on cabinet I/O panels and IPE module I/O panels. Refer to *Meridian 1 system installation procedures* (553-3001-210) for the installation procedures for the IPE module I/O panel external cable.

Turning on the power and configuring the system

Before you power up the system, review installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel in Core 1. If you are using only one terminal or a switch box for the CPSI ports, set the connection to Core/Net1. Verify that the terminal is set for 9600 baud, 7 data, 1 stop bit, space parity, full duplex, XON protocol.

- 1 In Core/Net 1, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.
- 2 In Core/Net 0, set the ENB/DIS switch on the NT6D65 CNI card to DIS.
- 3 Perform the appropriate step to restore power in each Core/Network module:
 - For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- 4 In Core/Net 0, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.

Note: Continue with step 5 only if you sent your database to Northern Telecom for conversion. Otherwise, if you are converting your database on-site from release 17 or 18, continue with step 6; or, if you are converting your database on-site from release 19, continue with step 11.

- 5 Follow the steps below to install the customer database (converted by Northern Telecom) on Core 1.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 20 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- To activate the Software Installation Tool, insert disk A1 from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the B1 disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation
- Follow all screen directions until the database transfer is complete.
- Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system

When you have rebooted the system, proceed with step 12.

Note: Perform step 6 only if you are converting your database on-site from release 17 or 18; go to step 11 if you are converting your database on-site from release 19.

- 6 Follow the steps below to convert the release 17 or 18 database to release 19 and then to release 21, and install the customer database on the option 61C Core 1. You will need the B disk previously removed from the NT system.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 19 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled, before proceeding to the next step.

- To activate the Software Installation Tool, insert disk 1 (from the release 19 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:

	to install software, database, CP-ROM, and IOP-ROM
<a>	yes, start installation
<a>	continue with upgrade

- Follow all screen directions until the software, database, CP-ROM and IOP-ROM installations are complete.
- When the main menu appears, select the following options:
 <q> to quit
 <yes> to confirm quit
- Remove any diskettes from the floppy drive, and type
 <a> to reboot the system

When you have rebooted the system, proceed with the next step.

- 7 Log into the system.
- 8 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
 LD 43 to load the program
- 9 Insert a B1 disk (from the release 21 disk set) titled “DATABASE BACKUP DISK” into the floppy drive in the IOP/CMDU in Core 1.
- 10 Perform a data dump. At the prompt, enter
 EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed step 12.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 11** Follow the steps below to convert the release 19 database to release 21, and install the customer database on the option 61C Core 1. You will need the B disk (release 19) previously created when you performed a data dump in step 10.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- To activate the Software installation tool, insert disk 1 (from the release 21 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all screen directions until the software, database, CP-ROM and IOP-ROM installations are complete.
- When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit
- Remove any diskettes from the floppy drive, and type
 - <a> to reboot the system

When you have rebooted the system, proceed with the next step.

- 12** After the system initializes, set the ENB/DIS switch to ENB on the NT6D65 CNI card in Core/Net 0.

- 13** On the NT6D66 CP card in Core/Net 0, press and release the MAN RST button. When “SYS700” messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the following messages will appear on the LCD display:

**RUNNING ROM OS
ENTERING CP VOTE**

Within 10 minutes, an HWI533 message from the Core 1 CPSI port indicates the Core 0 memory is shadowed to the Core 1 memory. Wait until the memory synchronization is complete before continuing.

- 14** Set the NORM/MAINT switch to NORM on the CP card in Core/Net 1 and perform a redundancy sanity test:

LD 135 to load the program
STAT CNI to get the status of all configured CNIs
STAT CPU to get the status of both Cores
TEST CPU to test the inactive CP card and CP-to-CP cable
TEST CNI c s to test the CNI on the inactive side

Note: Testing the CP and CNI cards may take up to 90 seconds for each test.

- 15** Test the inactive Core, then switch Cores and test the other side:

SCPU to switch to Core 0
TEST CPU to test the inactive CP card and CP-to-CP cable

- 16** Get the status of the CP cards and memories and of the CNIs:

STAT CPU to get the status of both Cores
STAT CNI to get the status of all configured CNIs
******** to exit LD 135

- 17** Load overlay 137 and synchronize the hard disks. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137 to load the program
STAT to get the status of CMDUs, IOPs, and redundancy
 (verify that CMDU 1 is active)
SYNC to synchronize the hard disks

Note: Synchronization may take up to 30 minutes.

- 18** Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs if necessary:

STAT to get the status of CMDUs, IOPs, and redundancy
SWAP to switch CMDUs (if necessary)
******** to exit LD 137

- 19** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.

- 20** Insert a B1 database disk into each IOP/CMDU for backup. Load overlay 43 and perform data dump to the backup disks. This command creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active IOP/CMDU if a disk is installed:

LD 43 to load the program
EDD to begin the data dump

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 21 Follow the appropriate step below to turn off power in each Core/Network module:
 - With AC power, set the circuit breaker on the MPDU in the module to OFF (down position).
 - With DC power, set the switch on the module power supply to OFF (down position).
- 22 Label each card that is being transferred to a Core/Network module with the shelf (0 or 1) and loop (0–31) for the card.
- 23 On all cards that are being transferred to Core/Network modules, disable the faceplate switches, disconnect all cables, and remove the cards.
- 24 Connect all cables to the cards (including the NT8D86 cables from the I/O panels to the QPC414 Network cards). Enable the faceplate switches.
- 25 Switch the cables at the PE end:
 - If NT9J96 cables inside the PE cabinets are not connected, connect them to the faceplates of the appropriate QPC659 cards.
- 26 Turn on power to the cabinet:
 - Set the AC input circuit breaker on the –48V rectifier in the cabinet to ON.
 - Set the CAB INP circuit breaker on the power control shelf in the cabinet and all other shelf circuit breakers to ON.
- 27 In the option 61C, verify that all cards are enabled (all ENB/DIS switches are set to ENB).
- 28 Follow the appropriate step below to restore power in each Core/Network module.

Note: If power to both Core/Network modules is restored simultaneously, the CMDUs should still be synchronized.

 - For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).

- 29** After the system initializes, reenter system configuration data into the customer database, if required, in the following sequence:
- Configure network loops to match loop types and loop numbers of the current configuration.
 - Configure I/O devices to reflect the current configuration.
 - Reenter customer data blocks. System options and features must reflect the current configuration.
 - Configure station data blocks.
 - Configure route data blocks.
 - Configure trunk data blocks.
 - Configure remaining system configuration records.
 - Verify system operation before adding new equipment.
 - Configure new equipment and functions, if any.
- 30** Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 31** Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).

The Meridian 1 X11 release 21 option 61C is now operational. Install all module covers to complete the upgrade.

SL-1 XT system upgrade

This chapter covers the upgrade of the SL-1 XT system to X11 release 21.

Note: X11 release 21 is the highest supported X11 software release for XT systems. XT systems must be upgraded to the option 81C before converting to X11 release 22 software.

Upgrading an XT system to X11 release 21

To upgrade an SL-1 XT system to an XT X11 release 21 system, you must upgrade both the hardware and the software.

Upgrading the hardware consists of the following:

- replacing the memory card, peripheral signaling card, and floppy disk unit and interface cards
- replacing some of the common equipment with new common equipment required by the new software release

Upgrading the software consists of the following:

- transferring the customer database to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Table 7-1 lists the items required to upgrade an AC-powered or DC-powered XT system. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Note: If the MDU is located in card slots next to a power converter, EMI shields P0727842-1 and P0727843-1 must be installed.

Table 7-1
Hardware required to upgrade an XT system using an MDU

Quantity	Part number	Description
2	NTND08AA	ROM Card
2	NTND09CA	12 Mbyte Memory Card
2	NTND10AA	Changeover & Memory Arbitrator Card
1	NTND16AA	4MB Multi Disk Unit
(Note 3)	QPC441	3-Port Extender Card (Note 3)
2	QPC584L and	Mass Storage Interface (MSI) Card
1	NT8D80AC and	MSI/MDU Interface Cable, 2ft
1	NT8D80AD	MSI/MDU Interface Cable, 5ft
	or	
2	NT9D34 and	Enhanced MSI Card
1	NT9D89AB and	EMSI/MDU Interface Cable, 2ft
1	NT9D89AD	EMSI/MDU Interface Cable, 5ft
1	QPC602A	ROM Card (Notes 1, 2)
1	QPC939A	ROM Card (Notes 1, 2)
Note 1: Not included in upgrade package. Must be ordered separately if required for on-site database conversion. Note 2: Refer to Table 7-2 for ROM cards required during on-site database conversion. Note 3: Not included in upgrade package. Acceptable vintages of 3PE cards required for use with release 21: B1, D, E (series B), E1 (series B), or F. If any existing 3PE card in system is not one of these vintages, replace with correct vintage card before performing upgrade. All 3PE cards in system must be of same vintage. Quantity required depends on system.		

Upgrade preparation

Some preparation is required before the conversion of the SL-1 hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to disk by doing a data dump.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the XT system can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 7-2 to determine the appropriate conversion procedure.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (XT) media.

CAUTION

Performing this database conversion procedure will result in disruption of call processing. If disruption is unacceptable, perform the appropriate parallel reload procedure in *Software conversion procedures* (553-2001-320) rather than this procedure.

Table 7-2**Database conversion requirements, XT system upgrade to X11 release 21 (Part 1 of 3)**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 8 customer database (Use conversion procedure beginning on page 7-9)			
8	9	QPC602	Release 8 to release 9 conversion disk Release 8.xx XT system software disk and data cartridge Release 9.xx XT system software disk and data cartridge
9	10	QPC602	Release 9 to release 10 conversion disk Release 10.xx XT system software disk and data cartridge
10	15	QPC939	Release 15.xx XT system software disk and data cartridge
15	18	NTND08	Release 18.xx XT system software disk and data cartridge
18	19	NTND08	Release 19.xx XT system software disk and data cartridge
19	21	NTND08	Release 21.xx XT system software disk and data cartridge
For converting a release 9 customer database (Use conversion procedure beginning on page 7-22)			
9	10	QPC602	Release 9 to release 10 conversion disk Release 9.xx XT system software disk and data cartridge Release 10.xx XT system software disk and data cartridge
10	15	QPC939	Release 15.xx XT system software disk and data cartridge
15	18	NTND08	Release 18.xx XT system software disk and data cartridge
18	19	NTND08	Release 19.xx XT system software disk and data cartridge
19	21	NTND08	Release 21.xx XT system software disk and data cartridge

Table 7-2**Database conversion requirements, XT system upgrade to X11 release 21 (Part 2 of 3)**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 10, 12, 13, or 14 customer database (Use conversion procedure beginning on page 7-34)			
10,12 13,14	15	QPC939	Release 10.xx, 12.xx, 13.xx, or 14.xx XT system software disk and data cartridge Release 15.xx XT system software disk and data cartridge
15	18	NTND08	Release 18.xx XT system software disk and data cartridge
18	19	NTND08	Release 19.xx XT system software disk and data cartridge
19	21	NTND08	Release 21.xx XT system software disk and data cartridge
For converting a release 15 or 16 customer database (Use conversion procedure beginning on page 7-46)			
15,16	18	NTND08	Release 18.xx XT system software disk and data cartridge
18	19	NTND08	Release 19.xx XT system software disk and data cartridge
19	21	NTND08	Release 21.xx XT system software disk and data cartridge
For converting a release 17 customer database (Use conversion procedure beginning on page 7-55)			
17	19	NTND08	Release 19.xx XT system software disk and data cartridge
19	21	NTND08	Release 21.xx XT system software disk and data cartridge
For converting a release 18 customer database (Use conversion procedure beginning on page 7-62)			
18	19	NTND08	Release 19.xx XT system software disk and data cartridge
19	21	NTND08	Release 21.xx XT system software disk and data cartridge

Table 7-2**Database conversion requirements, XT system upgrade to X11 release 21 (Part 3 of 3)**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 19 or 20 customer database (Use conversion procedure beginning on page 7-66)			
19,20	21	NTND08	Release 21.xx XT system software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 8 to release 21

- 1 Remove the front and rear covers from the CPU/Network cabinet in the XT system.
- 2 Log into the system.
- 3 If the XT system has an NT8D69 MDU installed, skip this entire step. If no NT8D69 MDU is installed in the XT system, make room in the system for installation of the NTND16 MDU. If three consecutive CPU slots are not available, use three slots in the network shelf. Disable and remove the cards from the system.

If your upgrade package does not include an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, use the Move Data Blocks Program (LD 25) to move any network loop cards required to make these slots available. Refer to the *X11 input/output guide* (553-3001-400) for instructions.

- 4 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 5 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 8 If an NT8D69 MDU is installed in the XT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Remove the QMM42 cartridge for release 8 software from either of the old MSI or EMSI cards and install the cartridge on the new MSI or EMSI card for CPU 1.

Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.
- 10 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 11 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the three slots made available in step 3 or the slots vacated by the NT8D69 MDU (if equipped) in step 8.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.
- 13 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.

- 14 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 15 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 17 Insert the disk for conversion from release 8 to release 9 into DRV A.
- 18 Load the Conversion Program (LD 66):
LD 66 to load the program

When "CDD000" appears on the terminal, proceed to the next step.

- 19 Disable and remove the MSI or EMSI card from CPU 1 and replace the current QMM42 cartridge with the QMM42 cartridge for the next required release. Reinstall and enable the card. Refer to Table 7-2, "Database conversion requirements, XT system upgrade to X11 release 21," on page 7-6 to determine the cartridge required for the next conversion step; for example, the X11 release 9 cartridge is required for the conversion from release 8 to release 9.

Note: QMM42 data cartridges are shipped with the disks for each software release.
- 20 Remove the disk from the NTND16 MDU drives and insert ED floppy disks with the next required release software into the drives. Insert disk A in DRV A and disk B in DRV B. Refer to Table 7-2, "Database conversion requirements, XT system upgrade to X11 release 21," on page 7-6 to determine the software release required for the next conversion step; for example, X11 release 9 software is required for the conversion from release 8 to release 9.

- 21 Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 22 Simultaneously press the RLD buttons on both QPC581 CMA cards to start a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 23 Log into the system.
- 24 Insert the disk for conversion from release 9 to release 10 into DRV A.

- 25 Load the Conversion Program (LD 66):

LD 66 to load the program

When “CDD000” appears on the terminal, proceed to the next step.

- 26 Disable and remove the MSI or EMSI card from CPU 1, and replace the current QMM42 cartridge with the QMM42 cartridge for the next required release. Reinstall and enable the card. Refer to Table 7-2, “Database conversion requirements, XT system upgrade to X11 release 21,” on page 7-6 to determine the cartridge required for the next conversion step; for example, the X11 release 10 cartridge is required for the conversion from release 9 to release 10.

- 27** Remove the disk from the NTND16 MDU drives and insert ED floppy disks with the next required release software into the drives. Insert disk A in DRV A and disk B in DRV B. Refer to Table 7-2, “Database conversion requirements, XT system upgrade to X11 release 21,” on page 7-6 to determine the software release required for the next conversion step; for example, X11 release 10 software is required for the conversion from release 9 to release 10.
- 28** Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 29** Simultaneously press the RLD buttons on both QPC581 CMA cards to start a sysload. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 30** Log into the system.
- 31** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 32 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 10 software with the QMM42 cartridge for release 15 software. Reinstall and enable the card.
- 33 Remove the disks containing release 10 software from the drives and insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 34 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 35 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 36 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 37 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 38 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 39 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 40 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 41 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 42 Log into the system.
- 43 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 44 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 18 software. Reinstall and enable the card.
- 45 Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 46 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 47 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 48 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 49 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 50 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 51 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 52 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 53 Remove the QPC583 Memory card from CPU 1.
- 54 Install the NTND09 Memory card in CPU 1.

Note: There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.

- 55 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 56 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 57 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 58 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.

- 59 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 60 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 61 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 62 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 63 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 64 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 65 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 66 Remove the QPC583 Memory card from CPU 0.
- 67 Install the NTND09 Memory card in CPU 0.

Note: There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.
- 68 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 69 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 70 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.

- 71 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 72 Log into the system.

- 73 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 74 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 75 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 76 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 77 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 78** Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.
- 79** In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.
- 80** Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 81** Log into the system.
- 82** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 83** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 84** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 85** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 86** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 87** Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000

INSERT DISK A2 INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 88** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 89** Log into the system.

- 90** Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 91** Remove disk A2 from drive A and insert disk A1.

- 92** Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 93** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 94** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 95** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program
IOTB enter **YES** to change I/O devices
ADAN enter **CHG HDK 0** to add a hard disk unit
******** to exit the program

- 96** Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 97** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 98** To continue upgrading the XT to release 21, proceed with step 99. If you are upgrading the XT to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 99** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 100** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 XT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 9 to release 21

- 1 Remove the front and rear covers from the CPU/Network cabinet in the XT system.
- 2 Log into the system.
- 3 If the XT system has an NT8D69 MDU installed, skip this entire step. If no NT8D69 MDU is installed in the XT system, make room in the system for installation of the NTND16 MDU. If three consecutive CPU slots are not available, use three slots in the network shelf. Disable and remove the cards from the system.

If your upgrade package does not include an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, use the Move Data Blocks Program (LD 25) to move any network loop cards required to make these slots available. Refer to the *X11 input/output guide* (553-3001-400) for instructions.

- 4 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 5 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 8 If an NT8D69 MDU is installed in the XT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Remove the QMM42 cartridge for release 9 software from either of the old MSI or EMSI cards and install the cartridge on the new MSI or EMSI card for CPU 1.

Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.

- 10 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 11 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the three slots made available in step 3 or the slots vacated by the NT8D69 MDU (if equipped) in step 8.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 13 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.

- 14 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 15 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 17 Insert the disk for conversion from release 9 to release 10 into DRV A.
- 18 Load the Conversion Program (LD 66):
LD 66 to load the program

When "CDD000" appears on the terminal, proceed to the next step.

- 19 Disable and remove the MSI or EMSI card from CPU 1, and replace the current QMM42 cartridge with the QMM42 cartridge for the next required release. Reinstall and enable the card. Refer to Table 7-2, "Database conversion requirements, XT system upgrade to X11 release 21," on page 7-6 to determine the cartridge required for the next conversion step; for example, the X11 release 10 cartridge is required for the conversion from release 9 to release 10.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 20 Remove the disk from the NTND16 MDU drives and insert ED floppy disks with the next required release software into the drives. Insert disk A in DRV A and disk B in DRV B. Refer to Table 7-2, "Database conversion requirements, XT system upgrade to X11 release 21," on page 7-6 to determine the software release required for the next conversion step; for example, X11 release 10 software is required for the conversion from release 9 to release 10.

- 21** Execute the conversion data dump program, which is already loaded. At the prompt, enter

CDD to begin the conversion

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 22** Simultaneously press the RLD buttons on both QPC581 CMA cards to start a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 23** Log into the system.
- 24** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 25** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 10 software with the QMM42 cartridge for release 15 software. Reinstall and enable the card.
- 26** Remove the disks containing release 10 software from the drives and insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 27 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 28 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 29 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 30 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 31 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 32 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 33 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.

- 34 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 35 Log into the system.
- 36 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 37 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 18 software. Reinstall and enable the card.
- 38 Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 39 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 40 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 41 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.

- 42 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 43 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 44 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 45 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 46 Remove the QPC583 Memory card from CPU 1.
- 47 Install the NTND09 Memory card in CPU 1.

Note: There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.

- 48 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 49 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 50 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 51 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 52 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.

- 53 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 54 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 55 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 56 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 57 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 58 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 59 Remove the QPC583 Memory card from CPU 0.
- 60 Install the NTND09 Memory card in CPU 0.

Note: There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.
- 61 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 62 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the QPC602 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 63 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.

- 64 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 65 Log into the system.
- 66 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 67 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 68 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 69 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 70 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 71 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.
- 72 In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.
- 73 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 74 Log into the system.
- 75 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

- 76 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 77 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 78 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.

- 79 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 80 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 81 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 82 Log into the system.

- 83 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 84 Remove disk A2 from drive A and insert disk A1.

- 85 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 86** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 87** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 88** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:
- LD 17** to load the program
- IOTB** enter **YES** to change I/O devices
- ADAN** enter **CHG HDK 0** to add a hard disk unit
- ****** to exit the program
- 89** Perform a data dump:
- LD 43** to load the program
- EDD** to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 90** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 91** To continue upgrading the XT to release 21, proceed with step 92. If you are upgrading the XT to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.

- 92 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 93 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 XT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 10, 12, 13, or 14 to release 21

- 1 Remove the front and rear covers from the CPU/Network cabinet in the XT system.
- 2 Log into the system.
- 3 If the XT system has an NT8D69 MDU installed, skip this entire step. If no NT8D69 MDU is installed in the XT system, make room in the system for installation of the NTND16 MDU. If three consecutive CPU slots are not available, use the slots in the network shelf. Disable and remove the cards from the system.

If your upgrade package does not include an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, use the Move Data Blocks Program (LD 25) to move any network loop cards required to make these slots available. Refer to the *X11 input/output guide* (553-3001-400) for instructions.

- 4 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs

SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 5 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.

- 6 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 7 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.

- 8 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.

- 9 If an NT8D69 MDU is installed in the XT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 10 In CPU 1, install the QMM42 cartridge for release 15 software on the new MSI or EMSI card.

Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.
- 11 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 12 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 13 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the three slots made available in step 3 or the slots vacated by the NT8D69 MDU (if equipped) in step 9.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.
- 14 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 15 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.

- 16** For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 17** In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 18** Insert ED floppy disks with release 15 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 19** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 20** In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 21** In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 22** In CPU 1, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the QPC939 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 23 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 24 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 25 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 26 Simultaneously press the RLD buttons on both QCA581 CMA cards to begin a sysload. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 27 Log into the system.
- 28 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.
- 29 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 15 software with the QMM42 cartridge for release 18 software. Reinstall and enable the card.
- 30 Remove the disks containing release 15 software from the drives and insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 31** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 32** In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 33** In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 34** Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 35** In CPU 1, remove the QPC581 CMA card.
- 36** On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 37** Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 38** Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 39** Remove the QPC583 Memory card from CPU 1.
- 40** Install the NTND09 Memory card in CPU 1.
- Note:** There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.
- 41** In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 42 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 43 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 44 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 45 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 46 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 47 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 48 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 49 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 50 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 51 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 52 Remove the QPC583 Memory card from CPU 0.
- 53 Install the NTND09 Memory card in CPU 0.

Note: There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.

- 54 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 55 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 56 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 57 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 58 Log into the system.
- 59 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 60 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 61 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.

- 62 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 63 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 64 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.

- 65 In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.

- 66 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 67 Log into the system.

- 68 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 69 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 70 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 71 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 72 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 73 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:
- SYS000**
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 74 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 75 Log into the system.

76 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

77 Remove disk A2 from drive A and insert disk A1.

78 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

79 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

80 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

81 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

82 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 83** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 84** To continue upgrading the XT to release 21, proceed with step 85. If you are upgrading the XT to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 85** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 86** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 XT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 15 or 16 to release 21

- 1 Remove the front and rear covers from the CPU/Network cabinet in the XT system.
- 2 Log into the system.
- 3 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 4 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
- 5 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.

- 8 If an NT8D69 MDU is installed in the XT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Install the QMM42 cartridge for release 18 software on the new MSI or EMSI card for CPU 1.

Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.

- 10 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 11 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 13 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 14 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.

- 15 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 17 Insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 18 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 20 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 21 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 22 In CPU 1, remove the QPC581 CMA card.
- 23 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 24 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 25 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 26 Remove the QPC583 Memory card from CPU 1.

- 27 Install the NTND09 Memory card in CPU 1.

Note: There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.

- 28 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 29 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 30 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 31 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 32 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 33 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 34 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 35 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 36 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 37 Connect the cables to the NTND10 CMA card; connect the bottom cable first.

- 38 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 39 Remove the QPC583 Memory card from CPU 0.
- 40 Install the NTND09 Memory card in CPU 0.

Note: There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.

- 41 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 42 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 43 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 44 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 45 Log into the system.
- 46 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

- 47 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 48 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 49 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 50 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 51 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.
- 52 In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.
- 53 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 54 Log into the system.

- 55 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 56 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 57 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 58 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 59 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 60 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:
- SYS000**
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x

DONE

INI000

61 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

62 Log into the system.

63 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

64 Remove disk A2 from drive A and insert disk A1.

65 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

66 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

67 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

68 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

69 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 70 If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 71 To continue upgrading the XT to release 21, proceed with step 72. If you are upgrading the XT to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 72 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 73 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 XT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 17 to release 21

- 1 Remove the front and rear covers from the CPU/Network cabinet in the XT system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 5 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 6 If an NT8D69 MDU is installed in the XT system, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 7 Install the QMM42 cartridges for release 19 software on both new MSI or EMSI cards.
Note: If the new cards are QPC584 MSI cards, they must be vintage L or later.
- 8 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 9 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.

- 10 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 11 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 12 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 13 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 14 Set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 15 Insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 18 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 19 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 20 In CPU 1, remove the QPC581 CMA card.
- 21 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 22 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 23 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 24 Remove the QPC583 Memory card from CPU 1.
- 25 Install the NTND09 Memory card in CPU 1.

Note: There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.
- 26 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 27 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 28 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 29 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 30 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 31 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 32 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 33 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 34 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 35 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 36 Remove the QPC583 Memory card from CPU 0.
- 37 Install the NTND09 Memory card in CPU 0.

Note: There are three slots for memory cards for each CPU. A maximum of two NTND09 Memory cards can be used for each CPU. If only one memory card is used for each CPU, install it in slot 3 next to the CMA card. If two memory cards are used for each CPU, install them in slots 2 and 3.

- 38 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 39 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 40 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 41 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB.
- 42 Verify that the MAINT/NORM switch on both QPC580 CPU Interface cards is set to NORM.
- 43 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 44 Log into the system.
- 45 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 46 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 47 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 48 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 49 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 50** Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000

INSERT DISK A2 INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 51** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 52** Log into the system.

- 53** Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 54** Remove disk A2 from drive A and insert disk A1.

- 55** Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 56** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 57** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 58** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program
IOTB enter **YES** to change I/O devices
ADAN enter **CHG HDK 0** to add a hard disk unit
******** to exit the program

- 59** Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 60** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 61** To continue upgrading the XT to release 21, proceed with step 62. If you are upgrading the XT to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 62** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 63** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 XT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 18 to release 21

- 1 Remove the front covers from the CPU/Network cabinet in the XT system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software.
- 5 For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall and enable the card.
- 6 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software.
- 7 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall and enable the card.
- 8 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 9 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 10 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 11 Log into the system.
- 12 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.
- 13 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 14 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 15 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.

- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 18 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 19 Log into the system.

- 20 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 21 Remove disk A2 from drive A and insert disk A1.

- 22 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 23 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 24 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 25 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17	to load the program
IOTB	enter YES to change I/O devices
ADAN	enter CHG HDK 0 to add a hard disk unit
****	to exit the program
- 26 Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 27 To continue upgrading the XT to release 21, proceed with step 28. If you are upgrading the XT to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 28 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 29 Follow the "Post-conversion procedure" in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 XT system is now operational. Install all covers to complete the upgrade.

Converting a database from release 19 or 20 to release 21

- 1** Remove the front covers from the CPU/Network cabinet in the XT system.
- 2** Log into the system.
- 3** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 5** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 6** Remove the disks from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 7** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 8 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

```
SYS000  
INSERT DISK A2 INTO DRIVE A  
SYSLOAD RLS: xxISSUE:x  
DONE  
INI000
```

- 9 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 10 Log into the system.

- 11 Copy the contents of the data disks to the hard disk by entering

```
LD 43          to load the program  
RES           to copy the entire contents of the backup to the  
                hard disk
```

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

```
****           to exit the program
```

- 12 Remove disk A2 from drive A and insert disk A1.

- 13 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 14 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 15 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 16 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

```
LD 17          to load the program  
IOTB          enter YES to change I/O devices  
ADAN          enter CHG HDK 0 to add a hard disk unit  
****          to exit the program
```

- 17 Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 18 To continue upgrading the XT to release 21, proceed with step 19. If you are upgrading the XT to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 19 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 20 Follow the “Post-conversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 XT system is now operational. Install all covers to complete the upgrade.

Meridian 1 option 21 upgrades

This chapter covers these upgrades:

- Meridian 1 option 21A to option 21E X11 release 21, page 8-2
- Meridian 1 option 21 to option 21E X11 release 21, page 8-33
- Meridian 1 option 21 or 21E to option 51C (module upgrade) X11 release 21, page 8-58

Note: When upgrading an option 21 to option 51C, it is recommended that you send the customer database diskettes to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this. Alternatively, you can reenter the database on the option 51C after the upgrade is complete.

- Meridian 1 option 21 or 21E to option 51C (card cage upgrade) X11 release 21, page 8-84

Note: When upgrading an option 21 to option 51C, it is recommended that you send the customer database diskettes to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this. Alternatively, you can reenter the database on the option 51C after the upgrade is complete.

- Meridian 1 option 21 or 21E to option 61C X11 release 21, page 8-112

Upgrading option 21A to option 21E

To upgrade an option 21A system to an option 21E, you must upgrade both the hardware and the software.

Note: X11 release 21 is the highest supported X11 software release for option 21E systems. The option 21E must be upgraded to an Option 51C (with software generic 2211) or 61C (with software generic 2311) before converting to X11 release 22 software.

Upgrading the hardware consists of the following:

- replacing the power cord, the power distribution unit (PDU), and the system monitor, and installing a blower unit, an air filter, a thermostat harness, and an air probe harness
- replacing the CPU card, memory card, peripheral signaling card, and floppy disk unit and interface card
- replacing some of the common equipment with new common equipment required in the option 21E system

Note: This procedure covers AC-powered systems only. The AC service panel may have to be upgraded because the power demand is increased from 20 amps to 30 amps.

Upgrading the software consists of the following:

- transferring the customer database on the option 21A to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Table 8-1 lists the items required to upgrade an AC-powered 21A system to a 21E system. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Table 8-1
Hardware requirements for an AC-powered 21E system

Quantity	Part number	Description
1	NT8D22AC	System Monitor
1	NT8D46AC	Thermostat Harness
1	NT8D46AM	Air Probe Harness
1	NT8D52AB	Pedestal Blower Unit
1	NT8D53AD	Power Distribution Unit
1	P0699798	Air Filter
1	NTND01CA	ICM Card w/12 MB Memory
1	NTND02BA	Peripheral Signaling/Dual SDI Card with Battery (MSPS)
1	NT9D33 and	Small System Multi Drive Unit
1	NT9D34	Enhanced Mass Storage Interface Card
1	NT9D47 and	EMSI to SMDU Data Cable
1	NT9D66	EMSI to SMDU Power Cable
1	NTND31AA	ROM Card
1	NTND37AA	SDI Cable

Upgrade preparation

Some preparation is required before the conversion of the option 21A hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to disk by performing a data dump.

- Install some of the new hardware.
- Check for and correct any conflicting terminal addresses.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks.

- 1 On the option 21A system, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Check for conflicting terminal addresses

Run Print Routine 3 (LD 22) to check the SDI configuration in the system to avoid conflicting hardware terminal addresses when the NTND02 MSPS card is installed. Make changes if required.

Converting the customer database

The customer database can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 8-2 to determine the appropriate ROM card required. The database conversion requires intermediate steps during which hardware and software are upgraded incrementally.

If you choose to send the database to Northern Telecom for conversion, skip the rest of this section, “Converting the customer database”, and continue with “Installing option 21 hardware” on page 8-14.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

CAUTION

Upgrading the customer database on-site requires some system down time. Schedule for this when planning the system upgrade.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (option 21A) media.

Table 8-2
Database conversion requirements, option 21A to 21E

X11 release		ROM card required	Software required (see Note)
From	To		
For converting a release 15.57 or 16 customer database (Use conversion procedure beginning on page 8-7)			
15.57 or 16	18	NTND31	Release 18.xx option 21E software disk and data cartridge
18	19	NTND31	Release 18.xx option 21E software disk Release 19.xx option 21E software disk and data cartridge
19	21	NTND31	Release 19.xx option 21E software disk Release 21.xx option 21E software disk and data cartridge
For converting a release 17 customer database (Use conversion procedure beginning on page 8-11)			
17	19	NTND31	Release 19.xx option 21E software disk and data cartridge
19	21	NTND31	Release 21.xx option 21E software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 15.57 or 16 to release 21

To use this procedure, your 21A system must currently be running version 15.57 or higher. If your system is running an earlier version of release 15 software (release 15.53, for example), you must first convert the database to release 15.57. Refer to *Software conversion procedures* (553-2001-320) for instructions on converting the database to a higher version of the same release. Only those systems running release 15.57 or 16 can use this procedure.

- 1 Remove the front covers from the 21A system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. When “EDD000” appears on the terminal, proceed to the next step.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the 21A system. You will install in their place the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
 - an NT9D34 Enhanced Mass Storage Interface (EMSI) card
- 4 Set the ENB/DIS switch to DIS on the QPC742 FDI card.
 - 5 Disconnect the cable between the FDU and the QPC742 FDI card.
 - 6 Remove the FDU and the QPC742 FDI card.
 - 7 Set the ENB/DIS switch on the EMSI card to DIS.
 - 8 On the EMSI card, set positions 1, 5, and 7 on switch SW3 to ON. Set position 8 to OFF.
 - 9 Install the QMM42 data cartridge for release 18 software onto the EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 10 Insert the NT9D33 SMDU into its assigned position.
- 11 Connect the NT9D47 cable between connector J2 on the NT9D33 SMDU and the connector J2 on the NT9D34 EMSI card.
- 12 Connect the NT9D66 cable between connector J1 on the NT9D33 SMDU and connector J1 on the faceplate of the NT9D34 EMSI card.
- 13 Install the NT9D34 EMSI card into the 21A system in the same slot from which you removed the old FDI card.
- 14 Set the ENB/DIS switch on the EMSI card to ENB.
- 15 Insert ED floppy disks with release 18 software into the SMDU drives. Insert disk A in drive A and disk B in drive B.
- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 Shut down power to the system by switching the circuit breaker for the power supply to OFF.
- 18 If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.
- 19 Remove the QPC687 CPU card.
- 20 Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.
- 21 Remove the NT9D34 EMSI card and set positions 1, 5, 7, and 8 on switch SW3 to ON.

- 22 Reinstall the EMSI card and set the ENB/DIS switch to ENB.
- 23 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

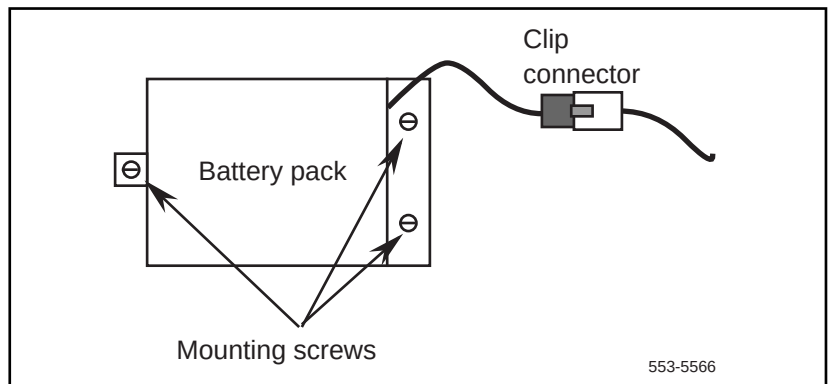
CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 24 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.
- 25 Set option switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses, determine the appropriate option switch settings. Refer to *Circuit card installation and testing* (553-3001-211).
- 26 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 8-1.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.

Figure 8-1
Battery pack connection to the NTND02 MSPS card



27 Install the NTND02 MSPS card in slot 3.

28 Connect the SDI cable:

- Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
- Connect the other end of the cable to the I/O panel.

Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.

29 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled. Then proceed to “Installing option 21 hardware” on page 8-14.

Converting a database from release 17 to release 21

- 1 Remove the front covers from the 21A system.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. When “EDD000” appears on the terminal, proceed to the next step.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the 21A system. You will install in their place the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
 - an NT9D34 Enhanced Mass Storage Interface (EMSI) card
- 4 Set the ENB/DIS switch to DIS on the QPC742 FDI card.
 - 5 Disconnect the cable between the FDU and the QPC742 FDI card.
 - 6 Remove the FDU and the QPC742 FDI card.
 - 7 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS.
 - 8 On the EMSI card, set positions 1, 5, and 7 on switch SW3 to ON. Set position 8 to OFF.
 - 9 Install the QMM42 data cartridge for release 19 software onto the EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.
 - 10 Insert the NT9D33 SMDU into its assigned position.
 - 11 Connect the NT9D47 cable between connector J2 on the NT9D33 SMDU and connector J2 on the NT9D34 EMSI card.
 - 12 Connect the NT9D66 cable between connector J1 on the NT9D33 SMDU and connector J1 on the faceplate of the NT9D34 EMSI card.
 - 13 Install the NT9D34 EMSI card into the 21A system in the same slot from which you removed the older FDI card.
 - 14 Set the ENB/DIS switch on the EMSI card to ENB.

15 Insert ED floppy disks with release 19 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

16 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

17 Shut down power to the system by switching the circuit breaker for the power supply to OFF.

18 If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.

19 Remove the QPC687 CPU card.

20 Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.

21 Remove the NT9D34 EMSI card and set positions 1, 5, 7, and 8 on switch SW3 to ON.

22 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

23 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

CAUTION

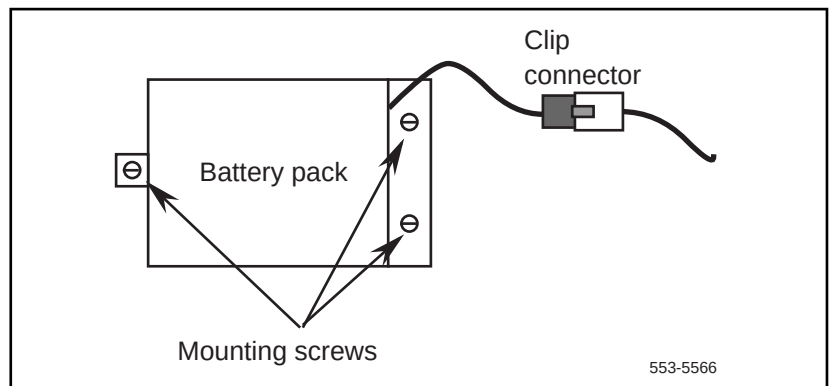
Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

24 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.

- 25 Set option switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses, determine the appropriate option switch settings. Refer to *Circuit card installation and testing* (553-3001-211).
- 26 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 8-2.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.

Figure 8-2
Battery pack connection to the NTND02 MSPS card



- 27 Install the NTND02 MSPS card in slot 3.
- 28 Connect the SDI cable:
 - Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
 - Connect the other end of the cable to the I/O panel.

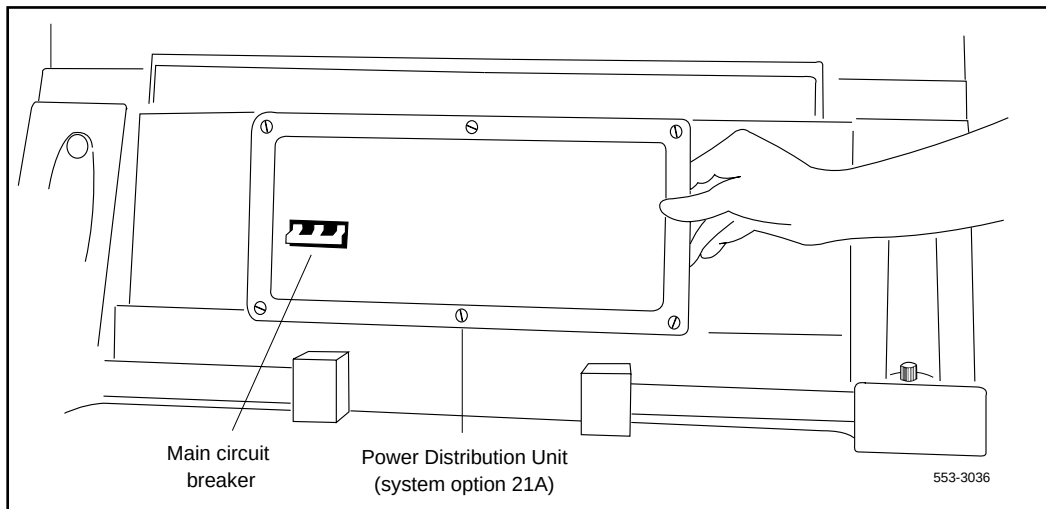
Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.
- 29 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled. Then continue with the next section.

Installing option 21 hardware

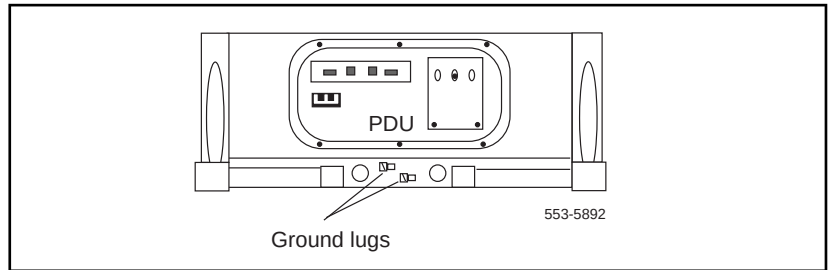
- 1 In the Common Equipment/Peripheral Equipment (CE/PE) Module, set the switch on the front of the NT7D14 Power Supply to OFF.
- 2 In the rear of the pedestal, set the system circuit breaker on the power distribution unit (PDU) to OFF as shown in Figure 8-3.
- 3 Disconnect the power cord from the external power outlet.
- 4 Remove the NT8D40AY AC Power Cord.
- 5 Remove the six screws that position the NT8D53AD PDU and lift the unit out of the pedestal. Refer to Figure 8-3 to see the PDU in the rear of the pedestal.

Figure 8-3
NT8D53AD Power Distribution Unit on option 21A



- 6 Disconnect the wiring from the power cord to connectors L1 and L2 on the terminal block. Remove the power cord.
- 7 Disconnect the power cable to the CE/PE Module at connector J1. You must press a latch on the front and rear of the plug. You may need to use a screwdriver blade against the latch on the front of the plug.
- 8 Disconnect the NT8D40BK cable from connector P3 on the System Monitor and connectors C1 and C2 on the PDU.

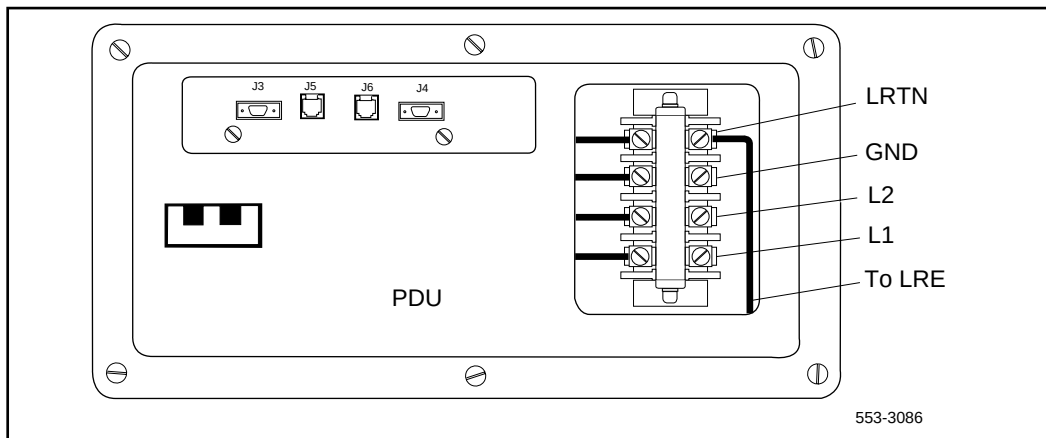
- 9 Disconnect the ground wiring from the ground bolt inside the pedestal.
- 10 Disconnect the NT8D40BJ cable from P1 on the NT7D15 System Monitor and J1 on the backplane at the rear of the CE/PE Module.
- 11 Disconnect the NT8D84BA cable from P2 on the NT7D15 System Monitor and the connector on the I/O panel.
- 12 Pull the System Monitor out of the connector on the backplane.
- 13 Set the main circuit breaker on the PDU to OFF.
- 14 Position the NT8D53AB PDU and gently push it into the pedestal.
- 15 Remove the field wiring access plate on the PDU as shown in Figure 8-4.

Figure 8-4**Field wiring access plate on the PDU and ground lugs on the pedestal**

- 16 Attach an NT8D40AA AC Power Cord to connectors L1 and L2 on the terminal block. Connect the green ground wire from the power cord to the GND terminal on the terminal block.
- 17 Measure the resistance between the ground pin on the power plug and a ground lug on the rear of the pedestal. The resistance should be zero ohms; if it is greater, check the power cord connections.
- 18 Connect a #6 AWG safety ground/protective earth wire from the ground source in the service panel to a ground lug on the pedestal. Use insulated wire.
- 19 Measure the resistance between the ground pin on the power plug and the ground terminal on the power outlet. If the resistance is greater than 0.5 ohms, check the power outlet ground and safety ground/protective earth connections.

- 20 Starting at the LRE, connect a #8 AWG wire to the column and route it up or down the I/O channel area as appropriate, then through the conduit hole in the pedestal to the LRTN terminal on the field wiring block as shown in Figure 8-5. Refer to “Safety ground/protective earth and logic return wiring” in *Meridian 1 system installation procedures* (553-3001-210) for details.

Figure 8-5
Logic return connection in the PDU



- 21 Replace the field wiring access plate on the PDU.

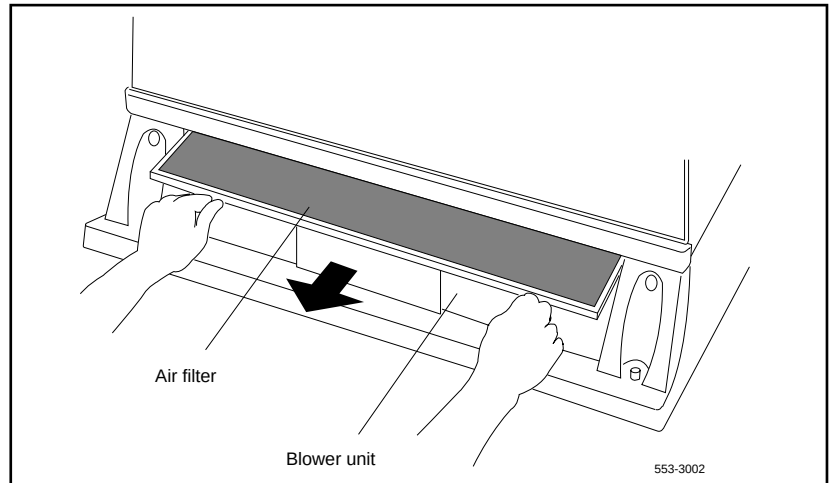
CAUTION

Do not plug the power cord into the AC source at this time.

- 22 Attach power plug J1 and the NT8D46AA System Monitor ribbon cable to the CE/PE Module.
- 23 Set the option switches on the NT8D22 System Monitor. See *Circuit card installation and testing* (553-3001-211) to determine the appropriate setting for the switches.
- 24 Insert the System Monitor into the slot on the PDU. Tighten the two retaining screws on the card.

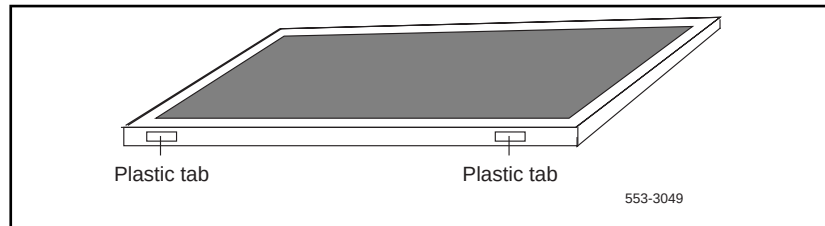
- 25 Connect the narrow ribbon from an NT8D46AG cable from connector J2 on the backplane to the assigned port on the SDI Paddle Board.
- 26 Set the circuit breaker on the front of the Pedestal Blower Unit to OFF.
- 27 Set the NT8D52AB Pedestal Blower Unit on the bottom ledge of the pedestal.
- 28 Tilt the back of the Pedestal Blower Unit up slightly so it will slide into the pedestal glides. You may have to lift the unit and gently push the Pedestal Blower Unit into position.
- 29 Tighten the screws on the front of the Pedestal Blower Unit.

Figure 8-6
Pedestal Blower Unit and the air filter in the front of the pedestal



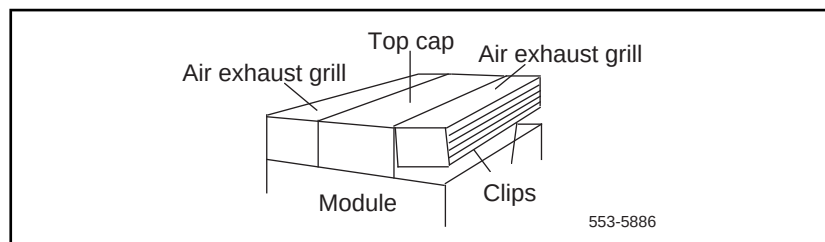
- 30 Gently push the P0699798 air filter into the pedestal slot until it seats fully in the back as shown in Figure 8-6. The plastic tabs must be on the front as shown in Figure 8-7.

Figure 8-7
Air filter identifiers



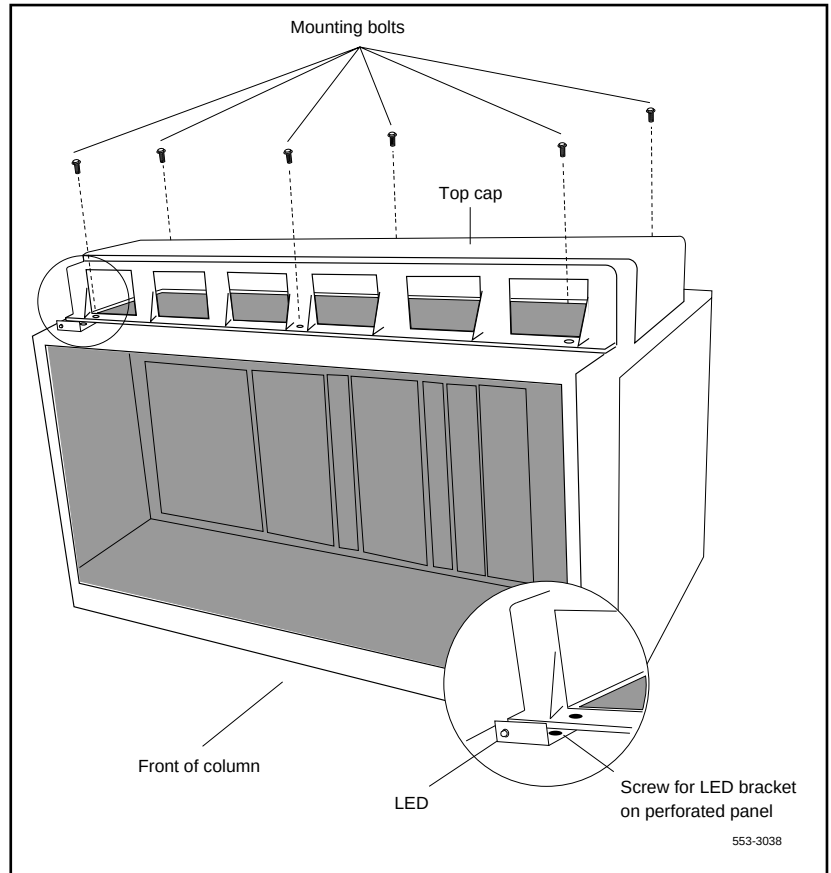
- 31 Check to see that you have the NT8D46AC Thermostat Harness and NT8D46AM Air Probe Harness on hand.
- 32 At the top of the rear of the module, disconnect the orange connector from the module power harness.
- 33 Remove the air exhaust grills at the front and rear of the top cap. Figure 8-8 shows an illustration of the top cap. Pull forward on the two clips underneath the front edge of each grill and lift up to remove the grill.

Figure 8-8
Air exhaust grills on the top cap



- 34** Use a 5/16-in. socket wrench to remove the six bolts that secure the top cap as shown in Figure 8-9. Lift off the top cap only.

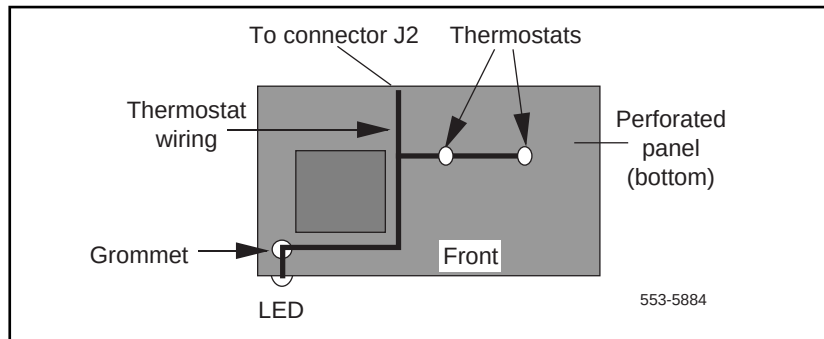
Figure 8-9
Top cap assembly



- 35** Disconnect the black cord from the plug on the front of each of the option 21A fan units.
- 36** Remove the screw that secures the perforated panel at the LED mounting bracket.

- 37 Slide the perforated panel slightly to the left, when you are looking at it from the rear of the column. Lift the panel and turn it over.
- 38 Position the thermostats and install the screws (two each) that secure the thermostats. Refer to Figure 8-10 for the thermostat harness.

Figure 8-10
Positioning the thermostat harness

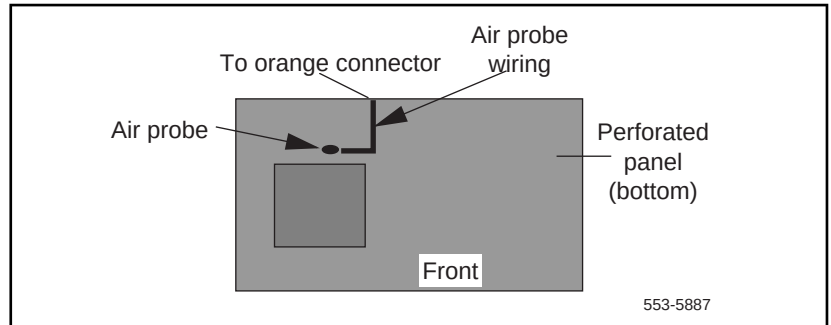


Note: The column LED and LED wiring are part of the thermostat harness.

- 39 Push the LED through the rubber grommet at the front of the perforated panel.
- 40 Route the thermostat wiring on the perforated panel. At the rear edge of the panel, route the wires with the wiring for the fan units.
- 41 Gently push the air probe into the clip holder on the perforated panel.

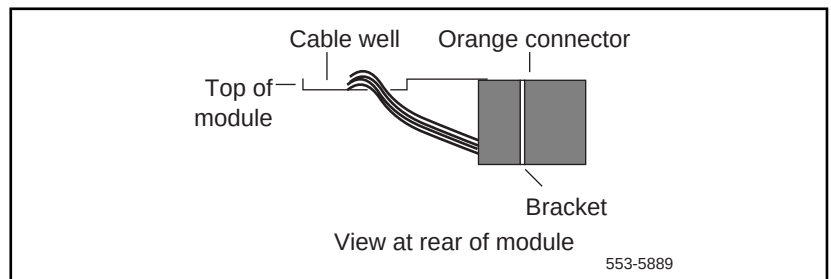
- 42** Route the air probe wiring on the perforated panel as illustrated in Figure 8-11. At the rear edge of the panel, route the wires with wiring for the thermostat harness.

Figure 8-11
Positioning the air probe harness



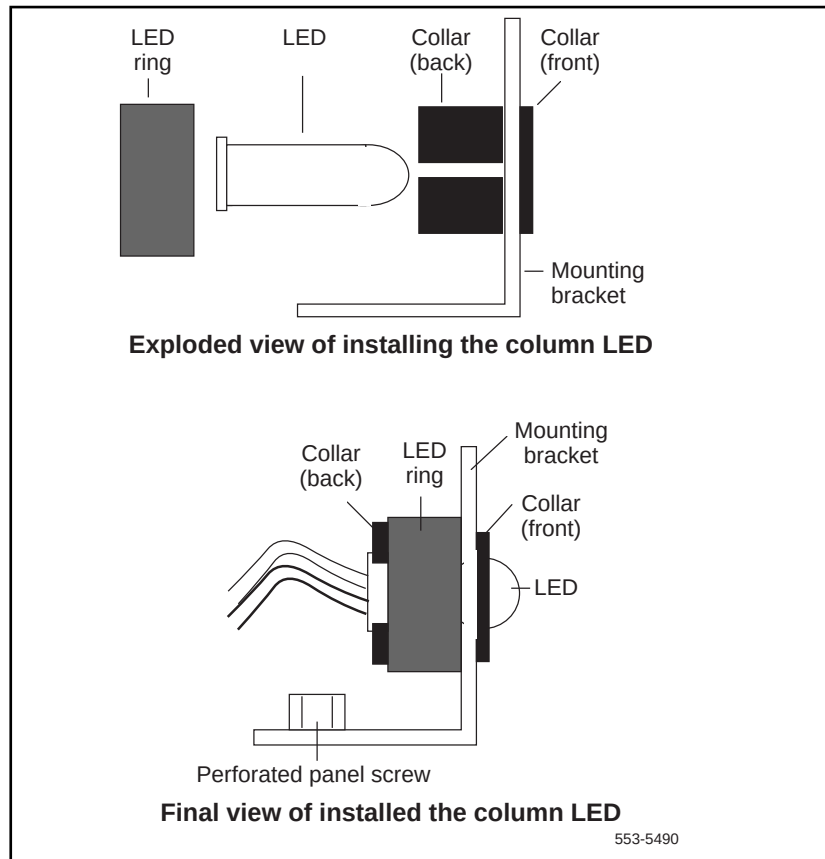
- 43** Secure all loose cabling to the perforated panel with tie wraps provided in the upgrade package.
- 44** Turn the perforated panel over. Slide it slightly to the right, when viewing it from the rear of the column, so it is in a secure position.
- 45** Position wiring from the perforated panel so it rests in the cable well at the top rear of the module as shown in Figure 8-12.
- 46** Insert the orange connector from the air probe harness into the right-angle bracket next to the cable well. Simultaneously push the four small snaps, two on each side, on the connector to insert the connector.

Figure 8-12
Routing the thermostat and air probe wiring from the top cap



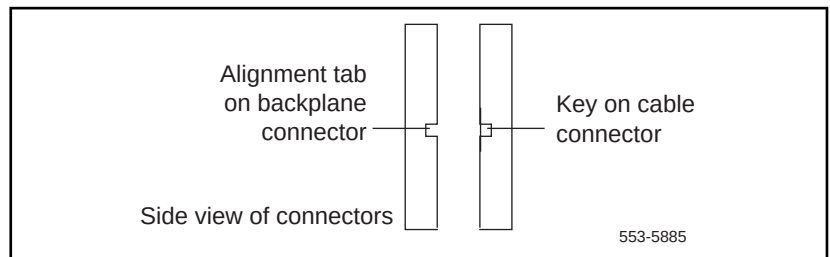
- 47 Install the screw that secures the perforated panel at the LED mounting bracket.
- 48 Slide the LED ring over the LED as shown in Figure 8-13. The ring will hang loosely at this point.

Figure 8-13
Installing the column LED



- 49 Gently push the LED forward completely through the collar on the LED mounting bracket.
- 50 Push the LED ring into position over the back of the collar and tight against the LED mounting bracket.
- 51 Position the top cap and install the six bolts that secure the top cap and perforated panel.
- 52 Install the air exhaust grills at the front and rear of the top cap.
- 53 Connect the ribbon cable connector from the thermostat harness to connector J2 on the backplane. Line up the alignment tab on the connector and snap on the pin headers to position the connector as shown in Figure 8-14.

Figure 8-14
Aligning the thermostat harness connector



- 54 Connect the orange connector from the air probe harness to the module power harness.

Completing the database conversion for release 15.57 or 16

Before you start system loading, review the installation steps and verify that all circuit cards are in their appropriate card slots, ENB/DIS switches are set to ENB, and all cables are properly connected.

- 1 Plug the AC power cord into the external power receptacle.
- 2 Verify that ED floppy disks with release 18 software are installed in the SMDU drives. Insert disk A in drive A and disk B in drive B.
- 3 Verify that the QMM42 data cartridge for release 18 software is installed onto the NT9D34 EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 4 Set the system breaker on the PDU to ON.
- 5 Set the switch on the power supply in the CE/PE Module to ON.
- 6 Set the circuit breaker on the Pedestal Blower Unit in the front of the pedestal to ON.

Note: On initial power up, the blower blades may rotate slower than expected. As the sensor detects heat, the blower will spin more rapidly.

The system will automatically begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 7 Verify that all system functions are operational. For instance, the blower must be ON, and the column LED must be OFF.

- 8** Log into the system.
- 9** On the option 21, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 10** Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the FDI card.
- 11** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 12** Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 13** Press the RLD button on the NTND01 ICM card to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 14** Log into the system.

- 15 On the option 21, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 16 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the FDI card.

- 17 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 18 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19 Press the RLD button on the NTND01 ICM card to begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

SYS000

INSERT DISK Ax INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

20 Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.

21 Log into the system.

22 Update the Configuration Record:

LD 17 to load the program

ADAN enter **CHG HDK 0** to specify a single SMDU

FTYP enter **3S** to specify 3.5-in. extra-high-density disks

******** to exit the program

23 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert additional system disks (A2, A3, etc.) in the A drive when prompted. When the restore sequence is complete, enter

******** to exit the program

24 Remove disk A2 from drive A and insert disk A1.

25 Set the ENB/DIS switch on the EMSI card to DIS.

26 Remove the EMSI card and set position 4 on switch SW3 to ON.

27 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

28 Define the I/O port card type for each SDI port on the MSPS card:

LD 17 to load the program

ADAN enter **OUT terminal x** to remove an I/O device

ADAN data outed is displayed

ADAN enter **NEW terminal x** to specify a new I/O device

CTYP	enter MSPS to specify card type
USER	enter appropriate terminal functions
ADAN data saved	is displayed
****	to exit the program
Enable each port:	
LD 37	to load the program
ENL terminal x	to enable port x
****	to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

29 Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

****	to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 30** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 31** Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The Meridian 1 option 21E X11 release 21 system is now operational. Install all covers on modules to complete the upgrade.

Completing the database conversion for release 17

Before you start system loading, review the installation steps and verify that all circuit cards are in their appropriate card slots, ENB/DIS switches are set to ENB, and all cables are properly connected.

- 1** Plug the AC power cord into the external power receptacle.
- 2** Verify that ED floppy disks with release 19 software are installed in the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.
- 3** Verify that the QMM42 data cartridge for release 19 software is installed onto the NT9D34 EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 4** Set the system breaker on the PDU to ON.
- 5** Set the switch on the power supply in the CE/PE Module to ON.
- 6** Set the circuit breaker on the Pedestal Blower Unit in the front of the pedestal to ON.

Note: On initial power up the blower blades may rotate slower than expected. As the sensor detects heat, the blower will spin more rapidly.

The system will automatically begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 7** Verify that all system functions are operational. For instance, the blower must be ON, and the column LED must be OFF.

- 8 Log into the system.
- 9 On the option 21, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 10 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the FDI card.
- 11 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 12 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 13 Press the RLD button on the NTND01 ICM card to begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

SYS000

INSERT DISK Ax INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

14 Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.

15 Log into the system.

16 Update the Configuration Record:

LD 17 to load the program

ADAN enter **CHG HDK 0** to specify a single SMDU

FTYP enter **3S** to specify 3.5-in. extra-high-density disks

******** to exit the program

17 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert additional system disks (A2, A3, etc.) in the A drive when prompted. When the restore sequence is complete, enter

******** to exit the program

18 Remove disk A2 from drive A and insert disk A1.

19 Set the ENB/DIS switch on the EMSI card to DIS.

20 Remove the EMSI card and set position 4 on switch SW3 to ON.

21 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

22 Define the I/O port card type for each SDI port on the MSPS card:

LD 17 to load the program

ADAN enter **OUT terminal x** to remove an I/O device

ADAN data outed is displayed

ADAN enter **NEW terminal x** to specify a new I/O device

CTYP	enter MSPS to specify card type
USER	enter appropriate terminal functions
ADAN data saved	is displayed
****	to exit the program
Enable each port:	
LD 37	to load the program
ENL terminal x	to enable port x
****	to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

23 Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

****	to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 24** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 25** Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The Meridian 1 option 21E X11 release 21 system is now operational. Install all covers on modules to complete the upgrade.

Upgrading option 21 to option 21E

To upgrade an SL-1 option 21 system to an option 21E, you must upgrade both the hardware and the software.

Note: X11 release 21 is the highest supported X11 software release for option 21E systems. The option 21E must be upgraded to an Option 51C or 61C before converting to X11 release 22 software.

Upgrading the hardware consists of the following:

- replacing the CPU card, memory card, peripheral signaling card, and floppy disk unit and interface card
- replacing some of the common equipment with new common equipment required in the option 21E

Upgrading the software consists of the following:

- transferring the customer database on the option 21 to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Table 8-3 lists the items required to upgrade an AC- or DC-powered option 21 to a 21E system. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Table 8-3
Hardware requirements for an AC- or DC-powered option 21E

Quantity	Part number	Description
1	NTND01CA	ICM Card w/12 MB Memory
1	NTND02BA	Misc/SDI/Peripheral Signaling Card (MSPS)
1	NT9D33 and	Small System Multi Drive Unit
1	NT9D34	Enhanced Mass Storage Interface Card
1	NT9D47 and	EMSI to SMDU Data Cable
1	NT9D66	EMSI to SMDU Power Cable
1	NTND31AB	ROM Card
1	NTND37AA	Dual SDI Cable

Upgrade preparation

Upgrade preparation is required before the conversion of the option 21 hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to disk by doing a data dump.
- Install some of the new hardware.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks.

- 1 On the option 21, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter **EDD** to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter ******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the option 21 can be sent to Northern Telecom for conversion or converted on-site. Note that conversion of the customer database on-site necessitates system downtime. If you choose to convert the database on-site, refer to Table 8-4 to determine the appropriate conversion procedure. The database conversion requires intermediate steps during which hardware and software are upgraded incrementally.

If you choose to send the database to Northern Telecom for conversion, skip the rest of this section, “Converting the customer database.” After you have received your converted database from Northern Telecom, proceed to “Preparing a system for off-site database conversion” on page 8-53.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

CAUTION

Upgrading the customer database on-site requires some system downtime. Schedule for this when planning the system upgrade.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (option 21) media.

Table 8-4
Database conversion requirements, option 21 to option 21E

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 15.57 or 16 customer database (Use conversion procedure beginning on page 8-38)			
15.57 or 16	18	NTND31	Release 18.xx option 21E software disk and data cartridge
18	19	NTND31	Release 18.xx option 21E software disk Release 19.xx option 21E software disk and data cartridge
19	21	NTND31	Release 19.xx option 21E software disk Release 21.xx option 21E software disk and data cartridge
For converting a release 17 customer database (Use conversion procedure beginning on page 8-46)			
17	19	NTND31	Release 19.xx option 21E software disk and data cartridge
19	21	NTND31	Release 21.xx option 21E software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 15.57 or 16 to release 21

To use this procedure, your option 21 must currently be running version 15.57 or higher. If your system is running an earlier version of release 15 software (release 15.53, for example), you must first convert the database to release 15.57. Refer to *Software conversion procedures* (553-2001-320) for instructions on converting the database to a higher version of the same release. Only those systems running release 15.57 or 16 can use this procedure.

- 1 Remove the front covers from the option 21.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the option 21. You will install in their place the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
 - an NT9D34 Enhanced Mass Storage Interface (EMSI) card
- 4 Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.
 - 5 Disconnect the cable between the FDU and the QPC742 FDI card.
 - 6 Remove the FDU and the QPC742 FDI card.
 - 7 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS.
 - 8 On the EMSI card, set positions 1, 5, and 7 on switch SW3 to ON. Set position 8 to OFF.
 - 9 Install the QMM42 data cartridge for release 18 software onto the EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 10** Insert the NT9D33 SMDU into its assigned position.
- 11** Connect the NT9D47 cable between connector 0 on the NT9D33 SMDU and the faceplate connector on the NT9D34 EMSI card.
- 12** Connect the NT9D66 cable between the power connector on the NT9D33 SMDU and the power connector on the faceplate of the NT9D34 EMSI card.
- 13** Install the NT9D34 EMSI card into the option 21 in the same slot from which you removed the old FDI card.
- 14** Set the ENB/DIS switch on the EMSI card to ENB.
- 15** Insert ED floppy disks with release 18 software into the SMDU drives. Insert disk A in drive A and disk B in drive B.
- 16** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17** Shut down power to the system by switching the circuit breaker for the power supply to OFF.
- 18** If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.
- 19** Remove the QPC687 CPU card.
- 20** Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.
- 21** Remove the NT9D34 EMSI card and set positions 1, 5, 7, and 8 on switch SW3 to ON.
- 22** Reinstall the EMSI card and set the ENB/DIS switch to ENB.

- 23 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

CAUTION

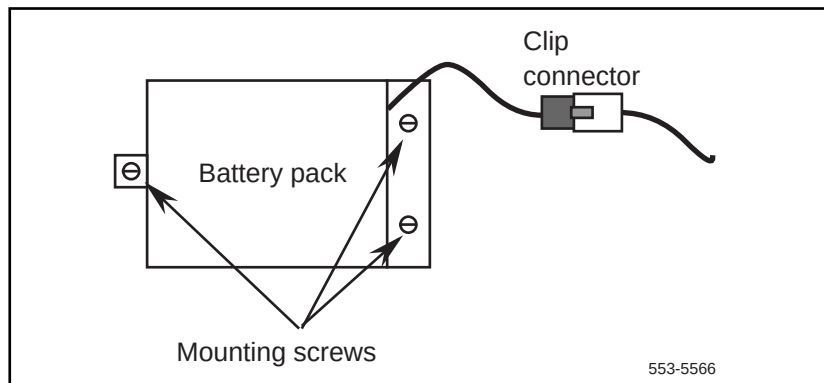
Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 24 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.
- 25 Set option switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses, determine the appropriate option switch settings. Refer to *Circuit card installation and testing* (553-3001-211).
- 26 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 8-15.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.

Figure 8-15

Battery pack connection to the NTND02 MSPS card



- 27 Install the NTND02 MSPS card in slot 3.

28 Connect the SDI cable:

- Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
- Connect the other end of the cable to the I/O panel.

Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.

29 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled.

30 Power up the system by switching the power supply circuit breaker to ON. The system will automatically begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

31 Log into the system.**32** On the option 21, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

33 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the FDI card.**34** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 35 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 36 Press the RLD button on the NTND01 ICM card to begin a sysload. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 37 Log into the system.
- 38 On the option 21, load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.
- 39 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the FDI card.
- 40 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 41** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 42** Press the RLD button on the NTND01 ICM card to begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

SYS000
INSERT DISK Ax INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 43** Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.
- 44** Log into the system.
- 45** Update the Configuration Record:

LD 17 to load the program
ADAN enter **CHG HDK 0** to specify a single SMDU
FTYP enter **3S** to specify 3.5-in. extra-high-density disks
******** to exit the program

- 46 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert additional system disks (A2, A3, etc.) in the A drive when prompted. When the restore sequence is complete, enter

******** to exit the program

- 47 Remove disk A2 from drive A and insert disk A1.

- 48 Set the ENB/DIS switch on the EMSI card to DIS.

- 49 Remove the EMSI card and set position 4 on switch SW3 to ON.

- 50 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

- 51 Define the I/O port card type for each SDI port on the MSPS card:

LD 17 to load the program

ADAN enter **OUT terminal x** to remove an I/O device

ADAN data outed is displayed

ADAN enter **NEW terminal x** to specify a new I/O device

CTYP enter **MSPS** to specify card type

USER enter appropriate terminal functions

ADAN data saved is displayed

******** to exit the program

Enable each port:

LD 37 to load the program

ENL terminal x to enable port **x**

******** to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

52 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

53 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.

54 Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 option 21E is now operational. Install all covers to complete the upgrade.

Converting a database from release 17 to release 21

- 1 Remove the front covers from the option 21.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the option 21. You will install in their place the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
 - an NT9D34 Enhanced Mass Storage Interface (EMSI) card
- 4 Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.
 - 5 Disconnect the cable between the FDU and the QPC742 FDI card.
 - 6 Remove the FDU and the QPC742 FDI card.
 - 7 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS.
 - 8 On the EMSI card, set positions 1, 5, and 7 on switch SW3 to ON. Set position 8 to OFF.
 - 9 Install the QMM42 data cartridge for release 19 software onto the EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.
 - 10 Insert the NT9D33 SMDU into its assigned position.
 - 11 Connect the NT9D47 cable between connector 0 on the NT9D33 SMDU and the faceplate connector on the NT9D34 EMSI card.
 - 12 Connect the NT9D66 cable between the power connector on the NT9D33 SMDU and the power connector on the faceplate of the NT9D34 EMSI card.

- 13 Install the NT9D34 EMSI card into the option 21 in the same slot from which you removed the old FDI card.
- 14 Set the ENB/DIS switch on the EMSI card to ENB.
- 15 Insert ED floppy disks with release 19 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.
- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 Shut down power to the system by switching the circuit breaker for the power supply to OFF.
- 18 If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.
- 19 Remove the QPC687 CPU card.
- 20 Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.
- 21 Remove the NT9D34 EMSI card and set positions 1, 5, 7, and 8 on switch SW3 to ON.
- 22 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

- 23 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

CAUTION

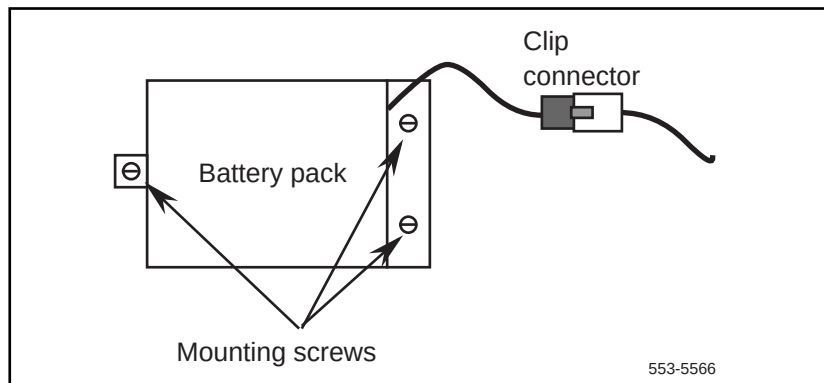
Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 24 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.
- 25 Set option switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses, determine the appropriate option switch settings. Refer to *Circuit card installation and testing* (553-3001-211).
- 26 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 8-16.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.

Figure 8-16

Battery pack connection to the NTND02 MSPS card



- 27 Install the NTND02 MSPS card in slot 3.

28 Connect the SDI cable:

- Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
- Connect the other end of the cable to the I/O panel.

Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.

29 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled.

30 Power up the system by switching the power supply circuit breaker to ON. The system will automatically begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

31 Log into the system.**32** On the option 21, load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

33 Set the ENB/DIS switch on the NT9D34 EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the FDI card.**34** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.

- 35 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 36 Press the RLD button on the NTND01 ICM card to begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

SYS000
INSERT DISK Ax INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 37 Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.

- 38 Log into the system.

- 39 Update the Configuration Record:

LD 17 to load the program
ADAN enter **CHG HDK 0** to specify a single SMDU
FTYP enter **3S** to specify 3.5-in. extra-high-density disks
******** to exit the program

- 40** Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert additional system disks (A2, A3, etc.) in the A drive when prompted. When the restore sequence is complete, enter

******** to exit the program

- 41** Remove disk A2 from drive A and insert disk A1.

- 42** Set the ENB/DIS switch on the EMSI card to DIS.

- 43** Remove the EMSI card and set position 4 on switch SW3 to ON.

- 44** Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

- 45** Define the I/O port card type for each SDI port on the MSPS card:

LD 17 to load the program

ADAN enter **OUT terminal x** to remove an I/O device

ADAN data outed is displayed

ADAN enter **NEW terminal x** to specify a new I/O device

CTYP enter **MSPS** to specify card type

USER enter appropriate terminal functions

ADAN data saved is displayed

******** to exit the program

Enable each port:

LD 37 to load the program

ENL terminal x to enable port **x**

******** to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

46 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 47** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 48** Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 option 21E is now operational. Install all covers to complete the upgrade.

Preparing a system for off-site database conversion

This section contains procedures for those systems that have had the customer database converted by Northern Telecom. After you receive your disks containing the converted database from Northern Telecom, perform these steps.

- 1** Remove the front covers from the option 21.
- 2** Shut down power to the system by switching the circuit breaker for the power supply to OFF.

Note: In the next steps you will remove the floppy disk drives and QPC742 FDI card that are currently installed in the option 21. You will install in their place the following:

- an NT9D33 Small System Multi Drive Unit (SMDU)
- an NT9D34 Enhanced Mass Storage Interface (EMSI) card

- 3** Set the ENB/DIS switch to DIS on the QPC742 Floppy Disk Interface (FDI) card.
- 4** Disconnect the cable between the FDU and the QPC742 FDI card.
- 5** Remove the FDU and the QPC742 FDI card.
- 6** On the NT9D34 EMSI card, set positions 1, 5, 7, and 8 on switch SW3 to ON.
- 7** Install the QMM42 data cartridge for release 21 software onto the EMSI card.

Note: QMM42 data cartridges are shipped with the disks for each software release.

- 8** Insert the NT9D33 SMDU into its assigned position.
- 9** Connect the NT9D47 cable between connector 0 on the NT9D33 SMDU and the faceplate connector on the NT9D34 EMSI card.
- 10** Connect the NT9D66 cable between the power connector on the NT9D33 SMDU and the power connector on the faceplate of the NT9D34 EMSI card.
- 11** Install the NT9D34 EMSI card into the option 21 in the same slot from which you removed the old FDI card.

- 12 Set the ENB/DIS switch on the EMSI card to ENB.
- 13 Insert ED floppy disks with release 21 software into the SMDU drives. Insert disk A1 in drive A and disk B1 in drive B.
- 14 If equipped, disconnect the cable to the SDI port on the QPC687 CPU card.
- 15 Remove the QPC687 CPU card.
- 16 Remove the QPC673 or QPC814 Memory card and the QPC709 Peripheral Signaling card.
- 17 Unpack the NTND01 ICM card from its carton. Verify that the NTND31 ROM card is installed on the ICM card. If it is not, install the NTND31 ROM card on the ICM card, and install the ICM card in slot 2.

CAUTION

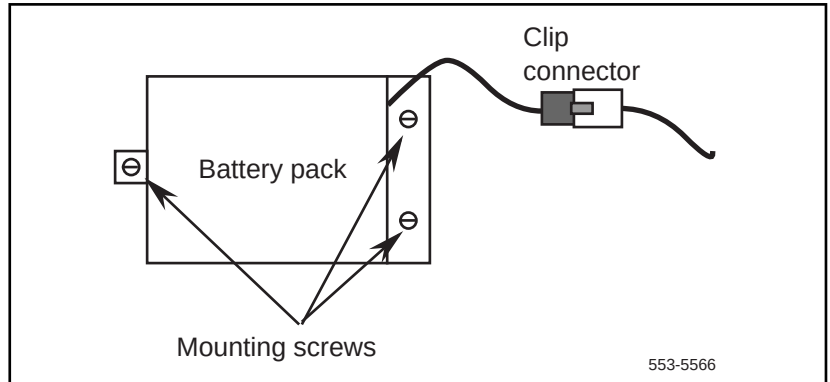
Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 18 Set the ENB/DIS switch on the NTND02 MSPS card to DIS.
- 19 Set option switches on the NTND02 MSPS card to activate SDI ports. To avoid conflicting addresses, determine the appropriate option switch settings. Refer to *Circuit card installation and testing* (553-3001-211).
- 20 Connect the battery pack on the NTND02 MSPS card by plugging the battery clip connector to the clip connector on the card as illustrated in Figure 8-17.

Note: The battery will not be fully charged until 24 hours after installation in a powered system.

- 21 Install the NTND02 MSPS card in slot 3.

Figure 8-17
Battery pack connection to the NTND02 MSPS card



22 Connect the SDI cable:

- Connect the end previously connected to the QPC687 CPU card to the connector on the NTND02 MSPS faceplate.
- Connect the other end of the cable to the I/O panel.

Note: If both SDI ports are configured, connect the input connector of an NTND37 Dual SDI cable to the SDI cable at the I/O panel. This cable provides two connectors, one for each port.

23 Set the ENB/DIS switch on the NTND02 MSPS card to ENB.

Note: Before you power up the system, review the installation steps and verify that all cards are in the appropriate card slots, enabled, and properly cabled.

24 Power up the system by switching the power supply circuit breaker to ON. The system will automatically begin a sysload. When prompted, remove the disk from drive A and insert the next disk in sequence (A2, A3, etc.). System messages similar to the following will appear:

```
SYS000
INSERT DISK Ax INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000
```

25 Immediately following the system initialization sequence, remove the disk from drive A and insert disk A1.

26 Log into the system.

27 Update the Configuration Record:

LD 17	to load the program
ADAN	enter CHG HDK 0 to specify a single SMDU
FTYP	enter 3S to specify 3.5-in. extra-high-density disks
****	to exit the program

28 Copy the contents of the data disks to the hard disk by entering

LD 43	to load the program
RES	to copy the entire contents of the backup to the hard disk

Insert additional system disks (A2, A3, etc.) in the A drive when prompted. When the restore sequence is complete, enter

****	to exit the program

29 Remove disk A2 from drive A and insert disk A1.

30 Set the ENB/DIS switch on the EMSI card to DIS.

31 Remove the EMSI card and set position 4 on switch SW3 to ON.

32 Reinstall the EMSI card and set the ENB/DIS switch to ENB.

Note: Normal SDI ports are assumed to be on an SDI2 card type. The card type will have to be updated manually for other SDI card types. This can only be done by using the ADAN prompt in LD 17 with the OUT and NEW commands as outlined in the following step.

33 Define the I/O port card type for each SDI port on the MSPS card:

LD 17	to load the program
ADAN	enter OUT terminal x to remove an I/O device
ADAN data outed	is displayed
ADAN	enter NEW terminal x to specify a new I/O device

CTYP	enter MSPS to specify card type
USER	enter appropriate terminal functions
ADAN data saved	is displayed
****	to exit the program
Enable each port:	
LD 37	to load the program
ENL terminal x	to enable port x
****	to exit the program

Note: SDI ports are configured as a pair (for example, 0 and 1 or 2 and 3). Make sure there is no conflict with an existing port.

34 Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

****	to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 35** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 36** Follow “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The SL-1 X11 release 21 option 21E is now operational. Install all covers to complete the upgrade.

Upgrading option 21/21E module to option 51C

A module upgrade from an option 21 or 21E system to an option 51C consists of upgrading both the hardware and the software. Upgrading the hardware consists of the following:

- installing a Meridian 1 option 51C next to the option 21/21E
- removing the common equipment (CE) from the option 21/21E
- cabling the option 21/21E to the option 51C

Upgrading the software consists of the following:

- sending the customer database disks to Northern Telecom for conversion
or

converting the customer database to X11 release 21 compatibility for those customers who choose to convert the database on-site

Alternatively, you can reenter the database on the option 51C after the upgrade is complete.

Note: It is recommended that option 21/21E customers send the customer database diskettes to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this.

- defining the system configuration in the option 51C customer database

Equipment required

Tables 8-15 and 8-16 list the minimum items required to upgrade an AC-powered or DC-powered system to an option 51C. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

If the option 21/21E and option 51C columns are positioned side-by-side, you must install column spacer kits and route cables between the columns as outlined in *Meridian 1 system installation procedures* (553-3001-210). If the columns are not adjacent to each other, installing external cables between the option 21/21E and option 51C is required to connect network loops in the option 21/21E to network cards in the option 51C column. The number of cables required depends on the number of network cards installed. The required cables are listed below.

For NT8D04 Superloop Network cards:

- NT8D88 cables connect the option 51C network cards to the Core/Network module I/O panels
- NT8D98 cables connect the I/O panels in the Core/Network module to the IPE module I/O panels
- NT8D92 cables connect the peripheral controller to the IPE module I/O panels

For QPC414 Network cards:

- NT8D86 cables connect the option 51C network cards to the Core/Network module I/O panels
- NT8D73 cables connect the I/O panels in the Core/Network module to the IPE/PE module I/O panels
- NT8D86 cables connect the peripheral controller to the IPE module I/O panels (this cable type is also used to connect the QPC414 Network card to Meridian Mail or DTI/PRI cards)

Refer to *Upgrade engineering* (553-3001-150) for additional information on cable requirements.

An NT8D01 Controller card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 8-5
Hardware requirements for an AC-powered option 51C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
1	NT5D20AA	IOP/CMDU Processor and Multi Drive Unit
1	NT5D21AA	Core/Network Module, AC
1	NT6D65AA	Core to Network Interface Card (CNI)
1	NT6D66	Call Processor Card (CP) (Note 1)
1	NT7D00AA	Top Cap, AC
1	NT8D01BC	Controller-Four Card
1	NT8D04BA	Superloop Network Card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
1	NT8D17FA	Conference/TDS Card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal, AC
1	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment Module, AC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52AB	Pedestal Blower Unit, AC
1	NT8D53BB	Power Distribution Unit, AC
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)

Table 8-5**Hardware requirements for an AC-powered option 51C (Part 2 of 2)**

Qty	Part number	Description
1	NTND15 and	4 MB Floppy Disk Unit (Note 3)
1	QPC742F	Floppy Disk Interface card (Note 3)
2	QPC43R	Peripheral Signaling Card (PS)
2	QPC441F	Three-Port Extender Card (3PE)
2	QPC471H	Clock Controller
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Not provided in the upgrade package. Parts are required for on-site database conversion. Note 4: Determine whether additional NTND21AA Module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary and order separately.		

Table 8-6
Hardware requirements for a DC-powered option 51C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
1	NT5D20	IOP/CMDU Processor and Multi Drive Unit
1	NT5D21DA	Core/Network Module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
1	NT6D65AA	Core to Network Interface Card (CNI)
1	NT6D66	Call Processor Card (CP) (Note 1)
1	NT7D00BA	Top Cap, DC
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four Card
1	NT8D04BA	Superloop Network Card
1	NT8D17FA	Conference/TDS Card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment Module, DC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC

Table 8-6**Hardware requirements for a DC-powered option 51C (Part 2 of 2)**

Qty	Part number	Description
1	NT8D77	FDI/FDU Interface cable (Note 3)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
1	NTND15 and	4 MB Floppy Disk Unit (Note 3)
1	QPC742F	Floppy Disk Interface card (Note 3)
1	QPC43R	Peripheral Signaling Card (PS)
1	QPC441F	Three-Port Extender Card (3PE)
1	QPC471H	Clock Controller
1	QPC709D	Peripheral Signaling Card (Note 3)
1	QPC814	768K Memory Card (Note 3)
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Not provided in the upgrade package. Parts are required for on-site database conversion. Note 4: Determine whether additional NTND21AA Module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary and order separately.		

Upgrade preparation

Some preparation is required before the conversion of the option 21 or option 21E hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 51C.
- Back up the customer database to tape or disk by doing a data dump.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) to install new power equipment and to provide a good ground for the equipment.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks by using the Equipment Data Dump Program (LD 43).

- 1 Log into the option 21/21E.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
Always enter LD 43 from the source (current) media.
- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 Exit the program. At the prompt, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database can be sent to Northern Telecom for conversion or converted on-site. Alternatively, you can reenter the database into the option 51C after the upgrade is complete. If you choose to convert the database on-site, refer to Table 8-7 to determine the appropriate conversion procedure.

Note: It is recommended that option 21/21E customers send the customer database diskettes to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this.

If you choose to send the database to Northern Telecom for conversion, skip the rest of this section, “Converting the customer database.” After you have received your converted database from Northern Telecom, proceed to “Installing option 51C hardware” on page 8-69.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

CAUTION

Upgrading the customer database on-site requires some system downtime. Schedule for this when planning the system upgrade. Service will be restored when the option 51C is fully operational.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures.

Table 8-7**Database conversion requirements, option 21/21E to an option 51C**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 18 customer database (Use conversion procedure beginning on page 8-67)			
18	19	N/A	Release 19.xx 21E system software disk and data cartridge
19	21	N/A	Software Installation Tool
For converting a release 19 or 20 customer database (Proceed with “Installing option 51C hardware” on page 8-69)			
19,20	21	N/A	Software Installation Tool
Note: Use the latest software release (e.g., 21.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 20.53 and 20.57), it must be used.			

Converting a database from release 18 to release 19

To use this procedure, your option 21/21E must currently be running version 18.20 or higher.

Note: If your system is already running release 19, you do not have to perform these conversion procedures. Skip this section and continue with “Installing option 51C hardware” on page 8-69.

- 1 Remove the front cover from the CE/PE Module on the option 21E.
- 2 Disable loop 28 using the Network and Peripheral Equipment Diagnostic Program (LD 32). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 32.
- 3 Configure a new superloop and controller using configuration record 2 (LD 97). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97.

Note: When configuring superloops, assign loop numbers beginning with 0, 4, 8, or 12. Then configure each superloop for either a left or right slot location. The remaining slot (right or left of the superloop) can contain only DTI, PRI, or I/O cards.

- 4 Move the data for loop 28 to the newly configured superloop using the Move Data Blocks Program (LD 25). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 25.
- 5 After the data for loop 28 has been moved to the new loop, remove loop 28 using configuration record 2 (LD 97). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97.
- 6 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 7 On the option 21/21E, set the ENB/DIS switch on the QPC742 FDI card to DIS and remove the card from the CPU/MEM shelf.
- 8 Install the QMM42 data cartridge for release 19 onto the QPC742 FDI card and reinstall the card.
- 9 Set the ENB/DIS switch on the QPC742 FDI card to ENB.

- 10** Insert the floppy disks with X11 release 19 software into the disk drives in the option 21/21E. Insert disk A in drive A and disk B in drive B.

- 11** Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 12** In the option 21E, press the RST button on the NTND02 MSPS card to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 13** Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 14** Remove the database diskettes from the disk drives in the option 21E.

You will complete converting the database to release 21 later in these procedures after you upgrade the hardware. Proceed to “Installing option 51C hardware” on page 8-69 to continue with the upgrade.

Installing option 51C hardware

Option 51C equipment is configured at the factory according to customer requirements. This equipment includes the pedestal, Core/Network module, IPE module, cards, and top cap. Some cards, such as the IOP/CMDUs and power supplies, are shipped in separate packages to prevent damage to the cards.

Before installing the option 51C, disable the system monitor in the option 21/21E using the Input/Output Diagnostic (LD 37).

- 1 Log into the option 21/21E.
- 2 Load the Input/Output Diagnostic (LD 37):
LD 37 to load the program
DIS TTY x to disable the system monitor and TTY port
- 3 Exit the program. At the prompt, enter
******** to exit the program

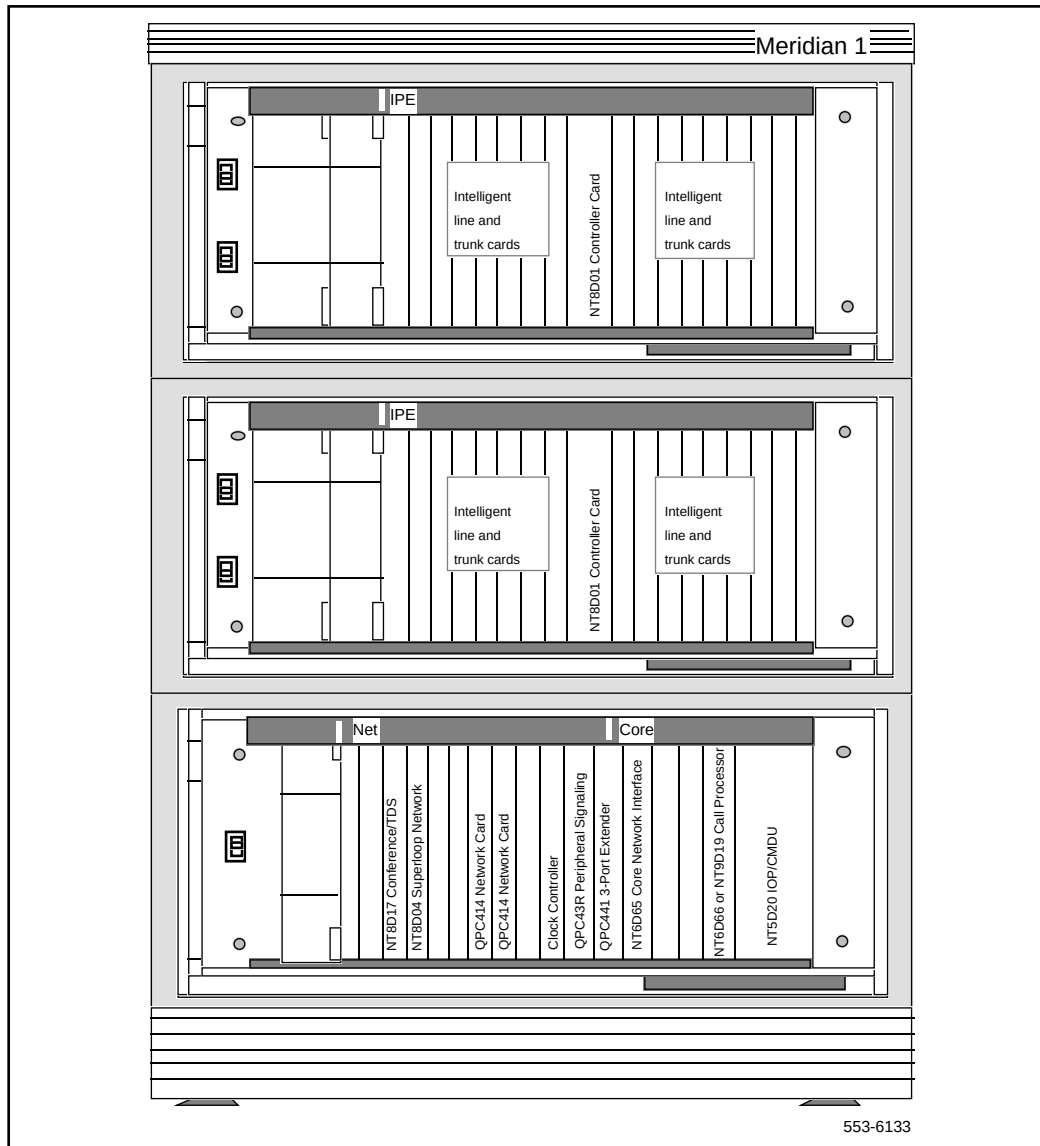
Figure 8-18 shows option 51C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

To install the option 51C at your site, follow the procedures in *Meridian 1 system installation procedures* (553-3001-210). For upgrade purposes, do not complete the following procedures during the installation process:

- When configuring the system monitor, ensure that the option 51C is configured as the master and any additional columns (including the option 21/21E) are configured as slaves.
- Do not install cabling.
- Do not provide power to the option 51C.
- Do not perform the acceptance tests.
- Do not replace the covers and grills on the front and rear of the system.

When the option 51C hardware is installed, continue with the procedures on the following pages of this chapter.

Figure 8-18
Meridian 1 option 51C



Turning on the power and configuring the system

Before you power up the system, review installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel at the rear of the Core/Network module. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.

Connecting power for AC-powered systems

- 1 Set the MAINT/NORM switch on the NT6D66 CP card to MAINT.
- 2 Test the commercial power source for proper voltage (see *Meridian 1 installation planning* (553-3001-120) for voltage requirements).
- 3 Set the main circuit breaker in the rear of each pedestal to off.
- 4 Set the circuit breakers on each MPDU, or the switch on each module power supply, to OFF in each module.
- 5 Set the circuit breaker on the blower unit in the front of each pedestal to OFF.
- 6 Connect the AC power cord for each pedestal to its associated commercial power outlet.

Note: If a problem is found in any of the following steps, resolve that problem before continuing.

- 7 If not already done, in the power panel set the circuit breaker that provides service for Column 0 to ON.
- 8 Set the main circuit breaker in Column 0 to ON.
- 9 Set the circuit breaker on the blower unit in Column 0 to ON. You should hear the blower running.

Note: On initial power-up, the blower may rotate at slower than expected. As the sensor detects heat, the blower will rotate faster.

- 10 Set the circuit breaker on the MPDU, or the switch on the module power supply, to ON in Module 0. After a few seconds, the green LED on the power supply should light.

Repeat this step for each module in the column, one module at a time. (If the module is equipped with a ringing generator, set the breakers or switches for both the power supply and the ringing generator to ON.)

Note: It may take up to 90 seconds for the green LED to light on a ringing generator. This is normal operation.

- 11 If additional columns are present, repeat steps 5 through 10 for each column.
- 12 Once the green LED is lit on all module power supplies and ringing generators (if equipped), set the main circuit breaker for each column to OFF except on the CPU columns, wait at least 30 seconds, then set the breaker back to ON (leave CPU columns off).
 - The breaker should not trip. The blower unit in each column should be running and the green LED on all module power supplies and ringing generators (if equipped) should be lit. All red column LEDs should also be lit.
 - Set the main circuit breakers for the CPU columns to ON.

At power-up, a sysload starts and completes. At this point the terminal connected to the CPIO port becomes active. Watch for system reload (SYS) and initialization (INI) messages.

When the sysload is complete, the system automatically invokes the initialization program. The red column LEDs should go off. When the initialization is complete, the system automatically runs the programs in the midnight routine.

Note: For NT8D04 and QPC414 network cards, the red LED remains lit until the network loops are configured and enabled.

Connecting power for DC-powered systems

- 1 Set the MAINT/NORM switch on the NT6D66 CP card to MAINT.
- 2 Set the main AC circuit breaker to each rectifier to OFF.
- 3 For each rectifier, test the commercial power source for proper voltage (see *Meridian 1 installation planning* (553-3001-120)) for voltage requirements).
- 4 Remove all distribution fuses, or set all distribution breakers to OFF, on the DC power source for each column.
- 5 Set all circuit breakers in the rear of each pedestal to OFF.
- 6 Set the switch on each module power supply and ringing generator (if equipped) to OFF.
- 7 Set the switch on the blower unit in the front of each pedestal to OFF.

Note 1: If a problem is found in any of the following steps, resolve that problem before continuing.

Note 2: If reserve batteries are equipped, the volt meter on the DC power source should show approximately –48 V.

- 8 If not already done, connect each rectifier to its associated AC outlet and set the breakers in the power panel to ON.
- 9 Turn on the rectifiers, one at a time, waiting about 10 seconds between one rectifier and the next. Voltage at the distribution meter should go to about 54 V (equalize voltage) or 52 V (if equalize voltage has not been set up).

Note: Perform steps 10 through 13 for each column with the CPU columns last.

- 10 Replace the distribution fuses, or set the distribution breakers to ON, on the DC power source for the column.
- 11 Set the circuit breaker for the blower unit (the far left breaker in the rear of the pedestal) to ON in the column.

- 12 Set the switch on the blower unit (in the front of the pedestal) in the column to ON. You should hear the blower running.

Note: On initial power-up, the blower may rotate slower than expected. As the sensor detects heat, the blower will rotate faster.

- 13 Set the switch on the module power supply to ON in the column. After a few seconds, the green LED on the power supply should light.

Repeat this step for each module in the column, one at a time. (If the module is equipped with a ringing generator, set the switch on both the power supply and the ringing generator to ON.)

Note: It may take up to 90 seconds for the green LED to light on a ringing generator. This is normal operation.

At power-up, a sysload starts and completes. At this point the terminal connected to the CPIO port becomes active. Watch for system reload (SYS) and initialization (INI) messages.

When the sysload is complete, the system automatically invokes the initialization program. The red column LEDs should go off. When the initialization is complete, the system automatically runs the programs in the midnight routine.

Note: For NT8D04 and QPC414 network cards, the red LED remains lit until the network loops are configured and enabled.

Installing the customer database

Note 1: Start with step 1 only if you sent your database to Northern Telecom for conversion. Otherwise, if you are converting your database on-site from release 19, start with step 2.

Note 2: The following step only installs the customer database, it does not update the software. The software on the floppy disks is normally shipped preinstalled on the hard disks in the IOP/CMDU. If you receive hardware and software separately, or if there is any indication that the software on the floppy disks is a different release than the software on the hard disk, you must upgrade the software on the hard disk, the CP ROM, and the IOP/CMDU ROM. Use the instructions in “Procedure 11: Software Installation Tool,” *Software conversion procedures* (553-2001-320), to do this before proceeding.

- 1** Follow the steps below to install the customer database (converted by Northern Telecom).

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- To activate the Software Installation Tool, insert disk A1 from the software upgrade package into the NT5D20 IOP/CMDU.
- Press the MAN RST button on the NT6D66 CP card.
- Select the following options in sequence, and insert the B1 disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation

- Follow all screen directions until the database transfer is complete.
- Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system

When you have rebooted the system, proceed with step 7.

- 2 Follow the steps below to install the target software, convert the database to release 21, and install the customer database on the option 51C. You will need the B disk previously created when you performed a data dump.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- To activate the Software Installation Tool, insert disk A1 (from the release 21 disk set) from the software upgrade package into the NT5D20 IOP/CMDU.
- Press the MAN RST button on the NT6D66 CP card. Watch the terminal for system messages during the restart process.

- 3 When the install screen appears, select the following commands to install the software, customer database, and ROM requirements:

- to install all components
- <y> to confirm that you want to install all the components
- <a> to start the upgrade

Follow the screen directions requiring disk insertion. A number of disks will be requested. When everything except the database has been installed, the database installation menu appears. You will use the B disk (release 19) previously created when you performed a data dump.

4 From the menu, select the following:

- <d> to install customer database
- <c> to transfer the database to hard disk
- <a> to transfer the database from floppy to hard disk
- <a> to convert from 2 MB floppy disk
- or
- to convert from 4 MB floppy disk
- <y> to begin the installation
- <a> to confirm database conversion

Follow all screen directions until the database transfer is successful.

5 Following the database installation, install the CP and IOP ROMs. From the menu select the following:

For CP ROM:

- <a> to install CP ROM
- <y> to start installation

Follow screen directions until the main menu returns.

For IOP ROM:

- <a> to install IOP ROM
- <y> to start installation

Follow screen directions until the main menu returns. When an installation status summary appears on the terminal and indicates a successful installation, remove the B disk from the disk drive.

6 Select the following options to quit and reload the system:

- <q> to quit
- <yes> to confirm quit
- <a> to reboot the system

When you have rebooted the system, proceed with the next step.

7 Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, the option 51C core is operational. If the sysload or initialization fails, refer to “Troubleshooting” on page C-1.

8 Clear displays, major alarms, and minor alarms:

LD 135	to load the program
CDSP	to clear the display
CMAJ	to clear all major alarms
CMIN ALL	to clear all minor alarms
CDSP	to clear the display
****	to exit LD 135

9 Load overlay 137 to verify status of the IOP/CMDU:

LD 137	to load the program
STAT	to get the status of the IOP/CMDU.
****	to exit the program

10 In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.

11 Load the Print Program (LD 22) to verify the system monitor port configuration.

LD 22	to load the program
PRT	to set the print option
CFN	to print the configuration record
****	to exit the program

To verify the system monitor port configuration, locate the XSM prompt in the configuration record. If the XSM status is NO, load the Configuration Record (LD 17) to configure the SDI port for the system monitor.

12 Insert a B1 database disk (from the release 21 disk set) into the IOP/CMDU for backup.

13 Load the Equipment Data Dump Program (LD 43). This command creates backups on both the hard disk and the floppy disk in the IOP/CMDU if a floppy disk is installed. At the prompt, enter

LD 43	to load the program

- 14 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 15 When “DATABASE BACKUP COMPLETE” or “DATADUMP
COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Defining the option 51C system software

The following steps describe how to define the option 51C software configuration.

- 1 Reassign the configuration data from the network loops in the option 21/21E to the appropriate loops in the option 51C.
 - Define the target Controller card using the Configuration Record 2 (LD 97).
 - Define the network loops using the Configuration Record 2 (LD 97) and the Configuration Record (LD 17).

Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97 and LD 17.

- 2 Move the network loops using the Move Data Blocks Program (LD 25).
Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 25.
- 3 Configure the I/O devices to reflect the current configuration (if required).
- 4 Reenter customer data blocks (if required). System options and features must reflect the current configuration.
- 5 Configure station data blocks (if required).
- 6 Configure route data blocks (if required).

- 7 Configure trunk data blocks (if required).
- 8 Configure remaining system configuration records (if required).
- 9 Verify system operation before adding new equipment (if required).
- 10 Configure new equipment and functions, if any.
- 11 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 12 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 13 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Moving the network cards

The following steps describe how to move the network cards from the option 21/21E to the option 51C.

CAUTION

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed.

- 1 Set all option 21/21E circuit breakers to OFF.
- 2 Label each card that is being transferred to a Core/Network module with loop 0–15 for the card.

- 3 On all network cards that are being transferred from the option 21/21E to the Core/Network module, disable the faceplate switches, disconnect all cables, and remove the cards.
- 4 Install the network cards in the option 51C Core/Network module and hook the locking devices.
- 5 Cable the network loops.

For QPC414 Network cards and associated QPC659 Dual Loop Peripheral Buffer (DLB) Cards:

- If the columns containing the network and DLB cards are in the same row, the network loop is cabled from the faceplate of the network card to the faceplate of the DLB card.
- If the columns containing the network and DLB cards are in different rows, the cards require I/O panel connections, and a shielded cable to connect the network card I/O panel to the DLB card I/O panel.

For NT8D04 Superloop Network cards and associated NT8D01 Controller cards:

- If the columns containing the network and controller cards are in the same row, the network loop is cabled from the faceplate of the network card to the backplane for the controller card.
- If the columns containing the network and controller cards are in different rows, the cards require I/O panel connections, and a shielded cable to connect the network card I/O panel to the controller card I/O panel.

Refer to *Meridian 1 system installation procedures* (553-3001-210) for more information on cabling network loops. For external cabling procedures, refer to “Installing external cables” on page 8-82.

- 6 If you are using the option 21/21E for PRI/DTI cards, install the PRI/DTI cards into the NT8D11 Common/Peripheral Equipment Module card slots. Refer to *ISDN Primary Rate Interface installation* (553-2901-200) for PRI installation procedures.
- 7 Enable the faceplate switches.

Moving the peripheral equipment cards

- 1 Remove the IPE cards from the option 21/21E CE/PE module.
- 2 Transfer the IPE cards to the option 51C intelligent peripheral equipment modules.
- 3 Install the IPE cards in the option 51C corresponding slots and hook the locking devices.

Installing external cables

Installing external cables between the option 21/21E and option 51C columns is required if the two columns are not positioned side-by-side.

- 1 Install network cables between the option 21/21E and option 51C columns. The network cables connect network cards in the Core/Network module to the IPE/PE module of the option 21/21E.

Each NT8D04 Superloop connection requires three cables:

- Connect the NT8D88 cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
- Connect the NT8D98 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network module to the I/O panel on the IPE module.
- Connect the NT8D92 cable from the faceplate connector of the peripheral controller to the I/O panel connector at the rear of the IPE module.

Each QPC414 Network card connection requires three cables:

- Connect the NT8D86 cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
- Connect the NT8D73 cable from the I/O panel connector on the Core/Network module to the I/O panel on the IPE module.
- Connect the NT8D86 cable from the faceplate connector of the peripheral controller to the I/O panel connector at the rear of the IPE module (the same cable type is used to connect to Meridian Mail and PRI/DTI cards).

- 2 If not already done, daisy-chain the slave system monitors to the master. Refer to *Meridian 1 system installation procedures* (553-3001-210) for cabling procedures.
- 3 If you are using PRI/DTI cards, connect the PRI cables. Refer to *ISDN Primary Rate Interface installation* (553-2901-200) for PRI cabling requirements and procedures.
- 4 Connect all external cables from the MDF to IPE shelf connectors in cabinet I/O panels and IPE module I/O panels. Refer to the appropriate procedure in *Meridian 1 system installation procedures* (553-3001-210) for IPE module I/O panel external cabling procedures.

Completing the upgrade

- 1 Verify that all cards in the option 51C are enabled (all ENB/DIS switches are set to ENB) and the MAINT/NORM switch on the NT6D66 CP card is set to NORM.
- 2 Perform a system reload by pressing the RLD button on the NT6D66 CP card. Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, the option 51C core is operational. If the sysload or initialization fails, refer to “Troubleshooting” on page C-1.
- 3 Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 4 Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).
- 5 Restore power to the option 21/21E.

The option 51C X11 release 21 system is now operational. Install all module covers to complete the upgrade.

Upgrading option 21/21E card cage to option 51C

A card cage upgrade from an option 21 or 21E to a Meridian 1 option 51C consists of upgrading both the hardware and the software. Upgrading the hardware consists of the following:

- removing the card cage from the option 21/21E
- installing the option 51C card cage
- installing new CPU cards in the card cage

Upgrading the software consists of the following:

- for all option 21 customers, and for those option 21E customers who so choose, sending the customer database disks to Northern Telecom for conversion

or

for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Alternatively, you can reenter the database on the option 51C after the upgrade is complete.

Note: It is recommended that option 21 customers send the customer database diskettes to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this.

Figure 8-19 shows an Option 51C as typically configured.

Equipment required

Tables 8-8 and 8-9 list the minimum items required to upgrade an AC-powered or DC-powered system to an option 51C. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect network loops in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D88 cables that connect network cards to the Core/Network module I/O panels
- NT8D98 cables that connect the I/O panels in the Core/Network module to the IPE module I/O panels
- NT8D92 cables that connect the peripheral controller to the IPE module I/O panels

Refer to *Upgrade engineering* (553-3001-150) for additional information on cable requirements.

An NT8D01 Controller card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 8-8
Hardware requirements for an AC-powered option 51C (Part 1 of 2)

Qty	Part number	Description
1	NT1R90BA	Upgrade Kit
1	NT1R91AA	Modem Kit
1	NT5D20AA	IOP/CMDU Processor and Multi Drive Unit
1	NT5D2103	Core/Network Card Cage (AC/DC)
1	NT6D65AA	Core to Network Interface Card (CNI)
1	NT6D66	Call Processor Card (CP) (Note 1)
1	NT7D89CA	CP to I/O Panel RS-232 Cable
1	NT7D90CA	IOP/CMDU to I/O Panel Ethernet Cable
1	NT8D01BC	Controller-Four Card
1	NT8D04BA	Superloop Network Card (Note 3)
1	NT8D06AA	Peripheral Equipment Power Supply, AC (Note 3)

Table 8-8
Hardware requirements for an AC-powered option 51C (Part 2 of 2)

Qty	Part number	Description
1	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment Module, AC (Note 2, Note 3)
1	NT8D40AU	MDPU to CEPS Cable Harness (Note 3)
1	NT8D56AA	Common Equipment Module Power Distribution Unit
1	NT9D91AE	Network to Controller Cable (8 ft.)
2	NT9D17AA	Module Side Cover
1	QPC43R	Peripheral Signaling Card (PS)
1	QPC441F	Three-Port Extender Card (3PE)
1	QPC471H	Clock Controller
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required.		
Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used.		
Note 3: These items are included to provide replacement card slot availability for the existing IPE cards located in the unused NT8D11 module.		
Note 4: Determine whether additional NTND21AA Module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary and order separately.		

Table 8-9
Hardware requirements for a DC-powered option 51C (Part 1 of 2)

Qty	Part number	Description
1	NT1R90BA	Upgrade Kit
1	NT1R91AA	Modem Kit
1	NT5D20AA	IOP/CMDU Processor and Multi Drive Unit
1	NT5D2103	Core/Network Card Cage (AC/DC)

Table 8-9
Hardware requirements for a DC-powered option 51C (Part 2 of 2)

Qty	Part number	Description
1	NT6D40AB	Peripheral Equipment Power Supply DC
1	NT6D41AB	Common Equipment Power Supply DC
1	NT6D65AA	Core to Network Interface Card (CNI)
1	NT6D66	Call Processor Card (CP) (Note 1)
1	NT7D11AG	Power Harness to Backplane Cable
1	NT7D89CA	CP to I/O Panel RS232 Cable
1	NT7D90CA	IOP/CMDU to I/O Panel Ethernet Cable
1	NT8D01BC	Controller-Four Card
1	NT8D04BA	Superloop Network Card (Note 3)
1	NT8D37EC	Intelligent Peripheral Equipment Module, DC (Note 2, Note 3)
1	NT8D40AU	MDPU to CEPS Cable Harness (Note 3)
1	NT9D91AE	Network to Controller Cable (8 ft.)
2	NT9D17AA	Module Side Cover
1	QPC43R	Peripheral Signaling Card (PS)
1	QPC441F	Three-Port Extender Card (3PE)
1	QPC471H	Clock Controller
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: These items are included to provide replacement card slot availability for the existing IPE cards located in the unused NT8D11 module. Note 4: Determine whether additional NTND21AA Module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary and order separately.		

Upgrade preparation

Some preparation is required before the conversion of the option 21 or option 21E hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to tape or disk by doing a data dump.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks by using the Equipment Data Dump Program (LD 43).

- 1 Log into the option 21 or 21E.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

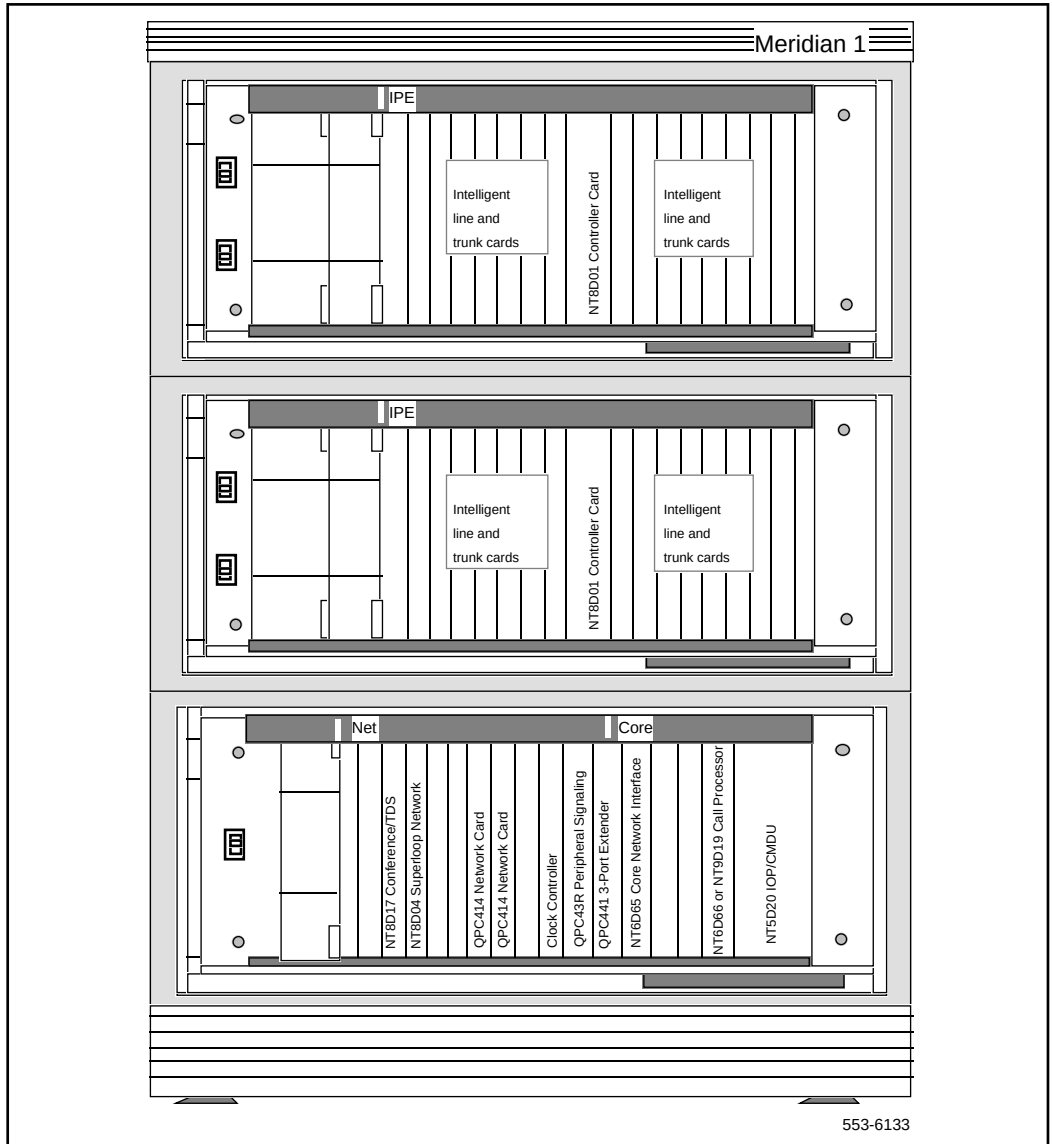
Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 Exit the program. At the prompt, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Figure 8-19
Meridian 1 option 51C



Converting the customer database

The customer database can be sent to Northern Telecom for conversion or converted on-site. Alternatively, you can reenter the database into the option 51C after the upgrade is complete. If you choose to convert the database on-site, refer to Table 8-10 to determine the appropriate conversion procedure.

Note: It is recommended that option 21 customers send the customer database diskettes to Northern Telecom for conversion; contact your Northern Telecom representative to arrange for this.

If you send the database to Northern Telecom for conversion, skip the rest of this section, “Converting the customer database.” After you have received your converted database from Northern Telecom, proceed to “Removing and installing the card cage” on page 8-94.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

CAUTION

Upgrading the customer database on-site requires some system downtime. Schedule for this when planning the system upgrade. Service will be restored when the option 51C is fully operational.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (option 21/21E) media.

Table 8-10**Database conversion requirements, option 21/21E to an option 51C**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 18 customer database (Use conversion procedure beginning on page 8-92)			
18	19	N/A	Release 19.xx option 21E software disk and data cartridge
19	21	N/A	Software Installation Tool
For converting a release 19 or 20 customer database (Proceed with “Removing and installing the card cage” on page 8-94)			
19,20	21	N/A	Software Installation Tool
Note: Use the latest software release (e.g., 19.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 19.53 and 19.57), it must be used.			

Converting a database from release 18 to release 19

To use this procedure, your option 21/21E must currently be running version 18.20 or higher.

Note: If your system is already running release 19, you do not have to perform these conversion procedures. Skip this section and continue with “Removing and installing the card cage” on page 8-94.

- 1 Remove the front cover from the CE/PE Module on the option 21/21E.
- 2 Disable loop 28 using the Network and Peripheral Equipment Diagnostic Program (LD 32). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 32.
- 3 Configure a new superloop and controller using configuration record 2 (LD 97). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97.

Note: When configuring superloops, assign loop numbers beginning with 0, 4, 8, or 12. Then configure each superloop for either a left or right slot location. The remaining slot (right or left of the superloop) can contain only DTI, PRI, or I/O cards.

- 4 Move the data for loop 28 to the newly configured superloop using the Move Data Blocks Program (LD 25). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 25.
- 5 After the data for loop 28 has been moved to the new loop, remove loop 28 using configuration record 2 (LD 97). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97.
- 6 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 7 On the option 21/21E, set the ENB/DIS switch on the QPC742 FDI card to DIS and remove the card from the CE/PE module.
- 8 Install the QMM42 data cartridge for release 19 onto the QPC742 FDI card and reinstall the card.
- 9 Set the ENB/DIS switch on the QPC742 FDI card to ENB.

- 10** Insert the floppy disks with X11 release 19 software into the disk drives in the option 21/21E. Insert disk A in drive A and disk B in drive B.

- 11** Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 12** In the option 21E, press the RST button on the NTND02 MSPS card to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 13** Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

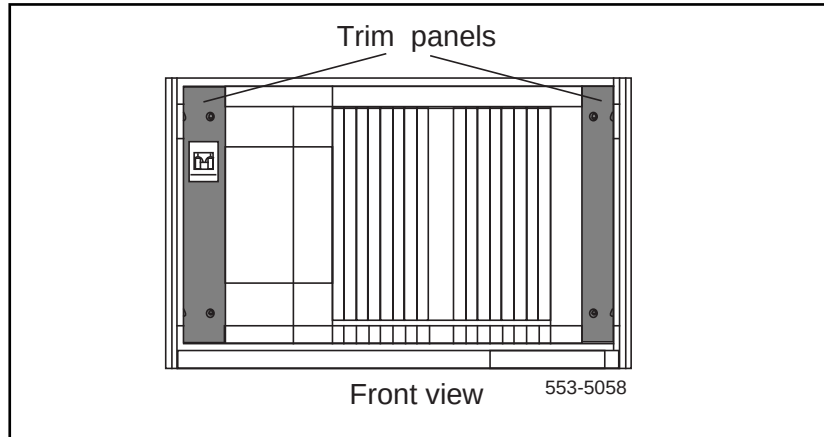
- 14** Remove the database diskettes from the disk drives in the option 21E.

You will complete converting the database to release 21 later in these procedures after you upgrade the hardware. Proceed to “Removing and installing the card cage” on page 8-94 to continue with the upgrade.

Removing and installing the card cage

- 1 Perform the appropriate step below to turn off power to the column:
 - For AC-powered systems, set the main circuit breaker for the column to OFF (down) in the rear of the pedestal.
 - For DC-powered systems, set the switch on the NT6D41 CE Power Supply to OFF (down). Set the circuit breaker for the module to OFF (down) in the rear of the pedestal.
- 2 Remove the trim panels on both sides of the module (see Figure 8-20). Keep the screws for reuse.

Figure 8-20
Location of the trim panels



- 3 Tag and disconnect all cables connected to the front of each card in the CE/PE module. Note the exact positions of the cables connected to cards on the network side of the card cage; they must connect to the same cards when the card cage is reassembled. Tape over the cable connector contacts to avoid accidental grounding. Tape or tie all cables out of the way so that the working area in front of the card cage is totally clear.
- 4 On all cards with an ENB/DIS switch on the faceplate, set the switch to DIS.

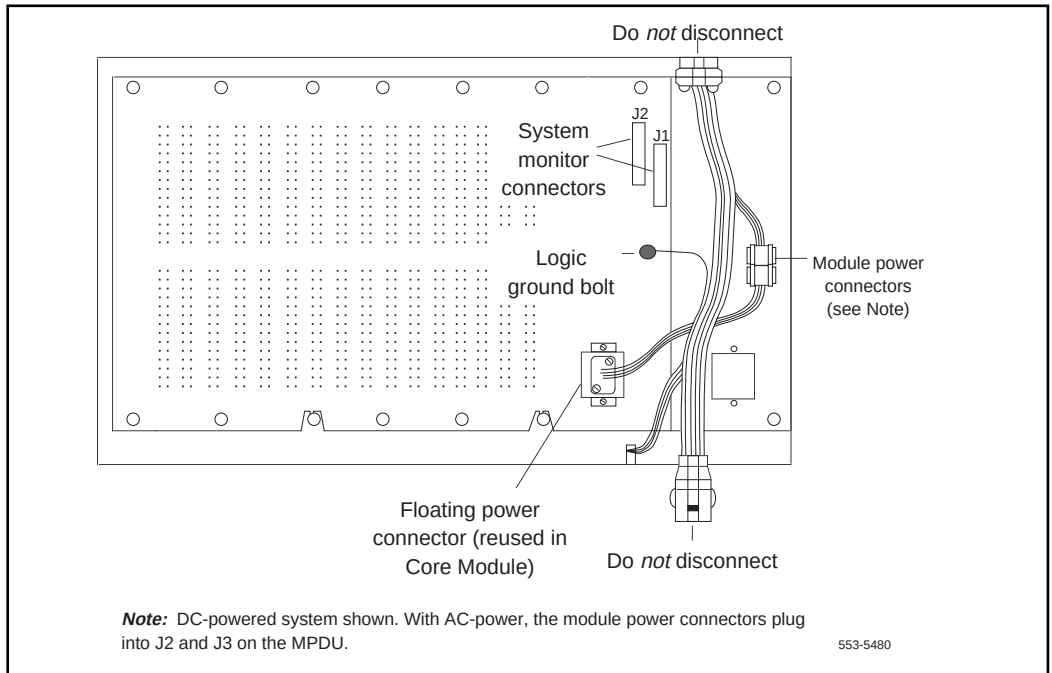
- 5 Remove the three mounting screws that secure the front of the card cage to the bottom of the module. Keep the screws for reuse.

WARNING

It may be necessary to temporarily remove some of the cards to get to the three mounting screws. Be sure to replace these cards back into the same slots after the screws have been removed.

- 6 Remove the I/O safety panel that covers the rear of the backplane, and tag and disconnect all cables connecting from the inside and outside of the left I/O panel.
- 7 Tag and disconnect the system monitor ribbon cables from J1 and J2 on the backplane (see Figure 8-21).

Figure 8-21
Power connectors on the rear of the AC CE/PE module backplane



- 8 If one or more NT8D41 Paddle Boards are installed in connectors at the rear of the backplane, tag and disconnect all cables from them and remove them from the backplane.
- 9 Remove the two mounting screws that secure the rear of the card cage to the module. Keep the screws for reuse. (A 1/4" socket wrench is needed for this operation.)

WARNING

Be careful not to drop any of the screws, nuts, or washers that you remove. Parts that fall down into the blower assembly are difficult to retrieve, and could cause premature failure of the blower assembly.

- 10 Pull the card cage forward until it is halfway out of the module.

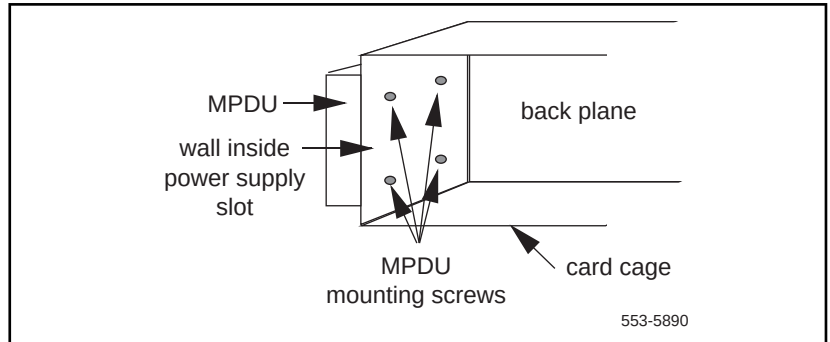
WARNING

Do not disconnect the main power connectors (the large orange connectors) at the top and bottom of the module.

- 11 Remove the logic ground (orange) wire from the backplane bolt. Be careful not to drop the nut or lock washer into the pedestal (see Figure 8-21).
- 12 Tag and disconnect the module power connectors. These are the small orange connectors plugged into the module power distribution unit (MPDU) with AC power, or connected to each other with DC power.
- 13 Remove the card cage from the module.

Note: For AC-powered systems: If the new NT5D21 Core/Network module did not come with a Module Power Distribution Unit (MPDU), remove the MPDU from the CE/PE card cage and reinstall it on the new Core/Network card cage after the CE/PE card cage has been removed from the module. The screw-heads for the MPDU are in the wall of the power supply slot (see Figure 8-22).

Figure 8-22
Location of the screws for the Module Power Distribution Unit (MPDU)



- 14** Remove the left I/O panel and install the new I/O panel from the upgrade package. Orient the new panel so that the word “LEFT” is located at the top and facing you.
- 15** If a new floating power connector was not included in the upgrade kit, remove the existing floating power connector (the black connector) from the rear of the CPU card cage. Using the same mounting screws and nuts, attach the connectors to the Core/Network card cage. Orient the connector so that pin 1 is at the bottom.

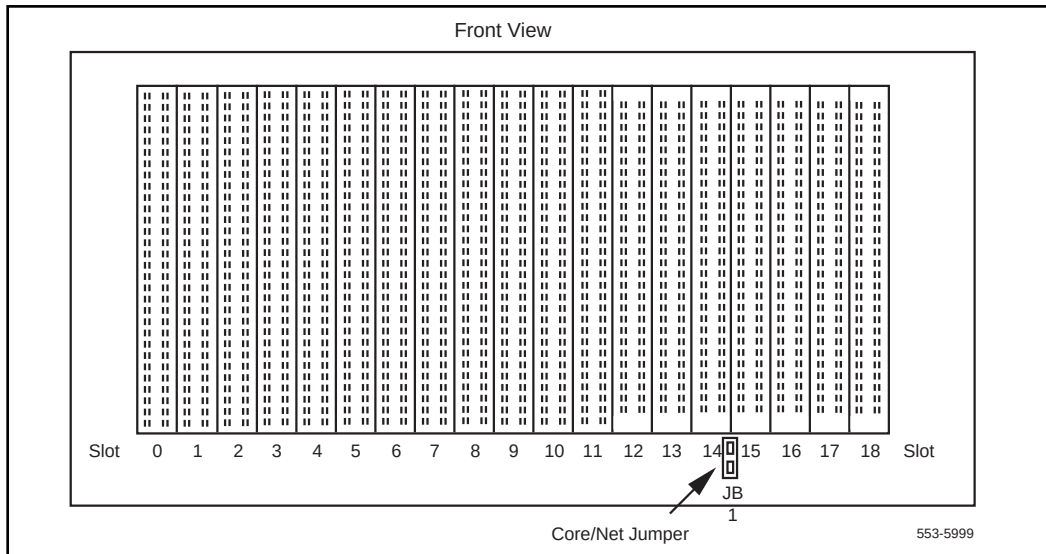
Note: Check the orientation of the connector. Viewed from the rear of the card cage, the upper left corner position should be empty (no wire) and the lower right corner position should have a wire installed. The green wire should be up.

- 16** Check the backplane jumper in the Core/Network card cage. The jumper is located near the bottom of the front side of the backplane, between slots 14 and 15 (see Figure 8-23). Verify that the jumper is installed on the pins.

CAUTION

If the Core/Net module jumpers are set incorrectly, the system will not load or operate correctly.

Figure 8-23
Location of the jumper on the NT5D21 backplane



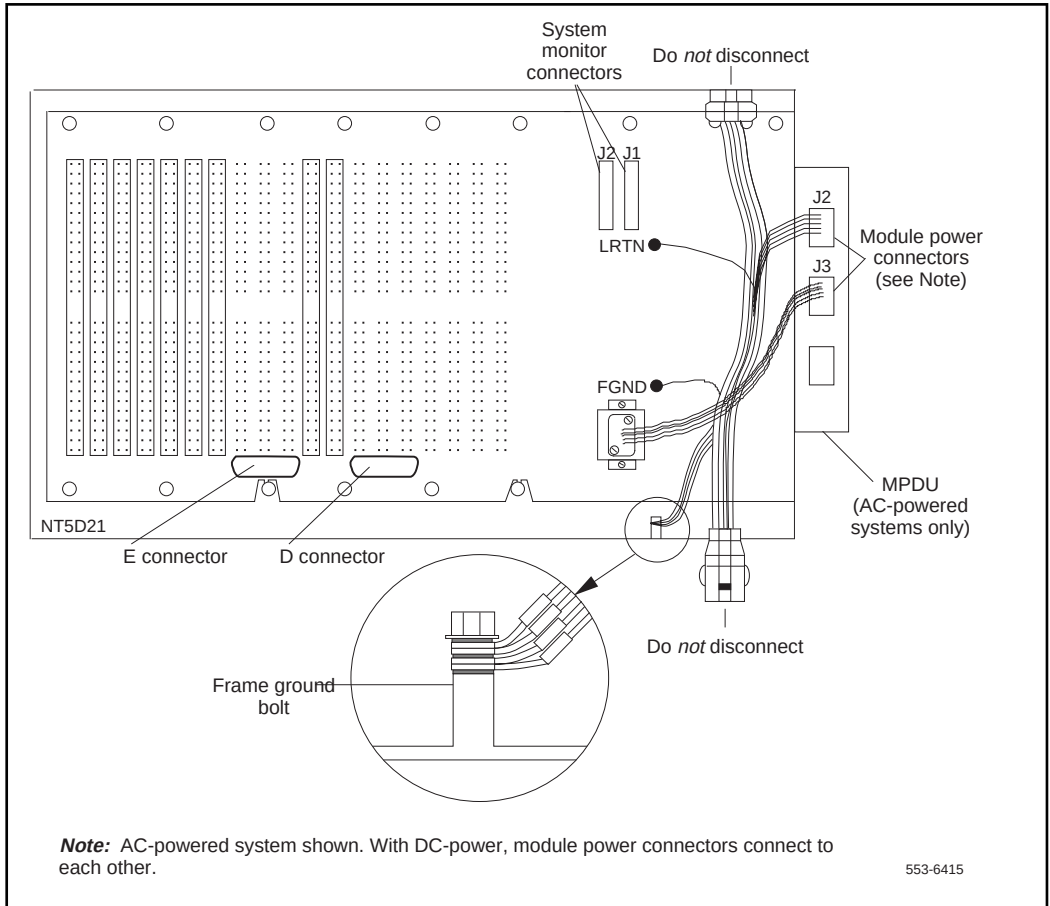
17 Reposition the EMI shield (it looks like a brass grill) in the base of the module. Tape over the front mounting tabs to hold the shield in position. You will remove the tape later.

18 Slide the new card cage about halfway into the module. Hold the card cage firmly while attaching the power system connectors to the rear of the module (see Figure 8-24):

- Attach the new frame ground (green) wire to the frame ground post in each module. (A 5/16" socket wrench is needed for this operation.) Remove the nut and the lock washer at the top of the post. Put the frame ground connector over the post. Reinstall the top lock washer and the nut, then tighten the nut.

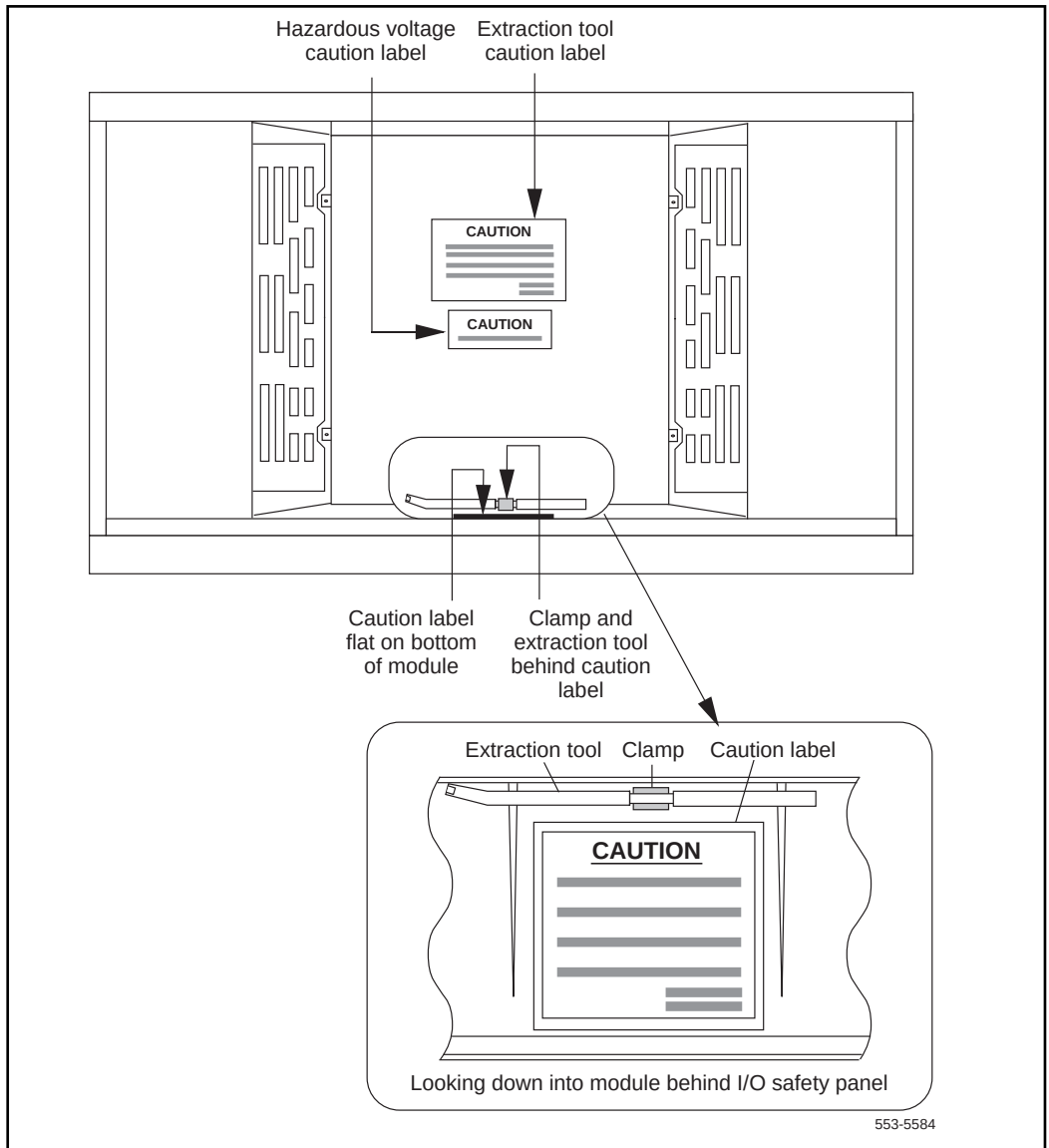
Note: For all of the terminal lugs to fit on the post, you must remove one of the lock washers. Leave a lock washer at the bottom of the post and at the top of the post. Leave a third lock washer between the second and third, or the third and fourth terminal lugs.

Figure 8-24
Power connectors on the rear of the NT5D21 Core/Network Module



- Attach the logic ground (orange) wires. Remove one nut and the lock washer. Put the connector over the post, reinstall the lock washer and nut, then tighten the nut down. (A 3/8" socket wrench is needed for this operation.)
 - Connect the module power connectors to the MPDU for AC power, or to each other for DC power.
 - Attach the system monitor ribbon cables. Connect the cable from the pedestal to connector J1; connect the cable from the module above to connector J2.
- 19** Slide the card cage all the way into the module.
- 20** Check the position of the EMI shield. If it has shifted, reposition it. Remove the tape holding the EMI shield.
- 21** Secure the card cage to the module with the three screws in the front and the two screws in the rear.
- 22** On the outside of the I/O safety panel, attach one extraction tool caution label above the "CAUTION hazardous voltage" label (see Figure 8-25).
- 23** In the bottom of the module, attach the other extraction tool caution label directly behind the position of the I/O safety panel.
- 24** In the bottom of the module, attach the clamp that holds the extraction tool directly behind the extraction tool caution label you just installed.
- 25** Snap the extraction tool into the clamp.
- 26** Attach the Core/Network module designation labels, provided in the upgrade package, at the front and rear of the module (see Figure 8-25). Attach the large label on top of the existing label. Attach the smaller label at the rear of the module.
- 27** Install the module power supply (removed from the CPU card cage) in the slot labeled "CE pwr sup."

Figure 8-25
Positioning the extraction tool and caution labels



- 28 Turn on power to the module. With AC power, set the main circuit breaker to ON (up) in the rear of the pedestal. With DC power, set the breaker to ON (up) in the pedestal, then set the switch to ON (up) on the power supply in the module.
- 29 Check the LED on the hybrid terminators located between slots 11 and 12. All LEDs must be off. The LEDs are set by the jumper on the backplane. If any LEDs are on, check the jumper on the backplane (see Figure 8-23 on page 8-98).
- 30 Shut down power to the module again. With AC power, set the power supply breaker for the module to OFF (down). With DC power, set the switch on the power supply for the module to OFF (down).
- 31 Attach the QMM42 Security Data Cartridge (provided with the software upgrade package) to the NT5D20 IOP/CMDU Card. Plug the cartridge into the connectors on the card and install the screw that secures the cartridge. Place the IOP/CMDU card in slot 17. Set the front panel ENB/DIS switch to ENB.
- 32 Place the NT6D66 CP Card in slot 15.
- 33 Place the NT6D65 CNI Card in slot 12. Set the front panel ENB/DIS switch to ENB.
- 34 Check the vintage of the QPC441 3PE Card—it must be minimum vintage F. Set the front panel ENB/DIS switch to ENB. Set the option switches and jumper on the card (see Table 8-11). Place the card in slot 11.

Table 8-11
QPC441F 3PE Card—Option settings

D20 switch							
1	2	3	4	5	6	7	8
off	on	on	off	on	on	on	on
RN27 jumper at E35: set to "A"							

- 35 Place the QPC43 PS card in slot 10. Set the front panel ENB/DIS switch to ENB.

- 36** Set the option switches on the QPC471 Clock Controller card (must be vintage H or later) as shown in Table 8-12. Set the front panel ENB/DIS switch to ENB. Place the clock controller card in slot 9.

Table 8-12
QPC471 Clock Controller Card switch settings

Switch	1	2	3	4
SW1	On	On	On	On
SW2	Off	Off	Off	Off
SW4	Off	On	Off	Off

- 37** Remove the network cards from the CE/PE card cage and reinstall them in the new Core/Network card cage. Install the cards in slot numbers indicated in Table 8-13. Notice that although the slot numbers have changed, the relative positions of the cards in the modules have not.

Table 8-13
Slot number translation for network cards

NT8D11 CE/PE Slot Number	NT5D21 Core/Net Slot Number
1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7

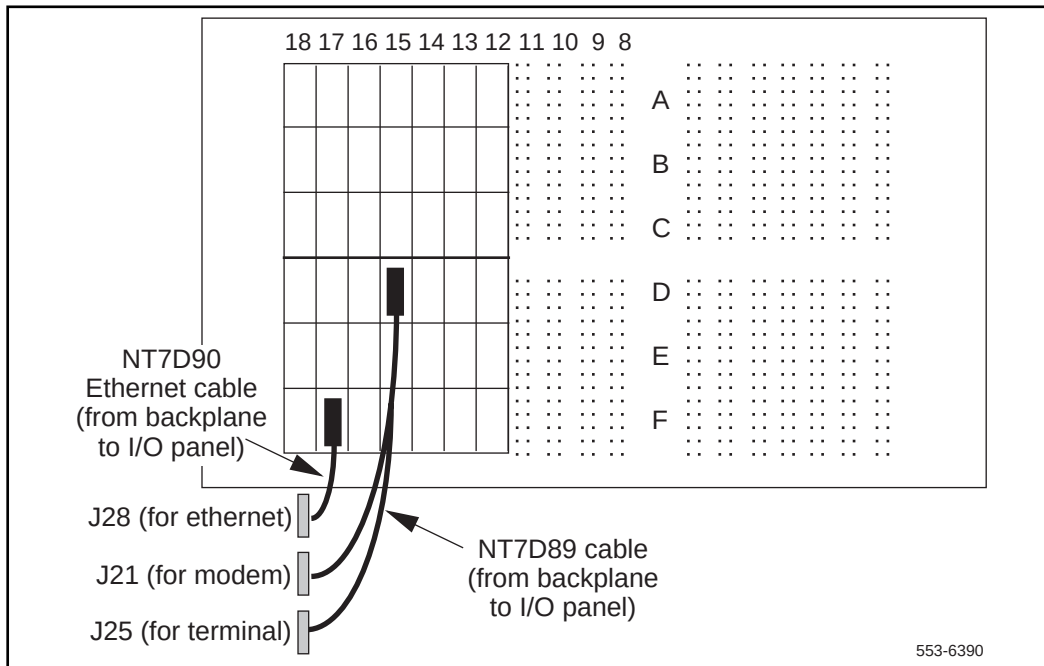
- 38** Follow the steps below to install the NT7D89 RS-232 Y-cable. The cable connects one connector on the backplane to two connectors on the left I/O panel (see Figure 8-26).

Note: Verify that the left I/O panel is correctly installed: The word “LEFT” faces you at the top of the panel. The connector numbers listed below match the designations on the outside of the left I/O panel.

- On the inside of the I/O panel, connect port A (DTE) to J21 (modem port).
- On the inside of the I/O panel, connect port B (DCE) to J25 (terminal port).
- Connect the single connector end of the cable to backplane connector position 15D.

Figure 8-26

NT5D21 Core/Network Module (rear)—RS-232 cable connections for CPSI ports



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39 At the rear of each Core/Net module, connect an NT7D90 Ethernet Cable from backplane connector position 17F to J28 on the I/O panel (see Figure 8-26).

40 Connect any remaining network and serial cables to the network cards installed in slots 0 through 7. The cables should go to exactly the same connector that they were connected to on the old CPU module.

Note: You may have cables left over after completing this step. You should leave these cables installed until the new option 51C switch has been tested and is working correctly. They will be removed later in this procedure.

41 Connect a terminal to the J25 (DCE) port on the I/O panel. You must use the following settings on the terminal:

9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol

Note: Refer to Appendix B: “Terminal and modem connections” on page B-1 before connecting the terminal.

42 Perform the appropriate step to turn on power to the column:

- For AC-powered systems, set the main circuit breaker to ON (up position) in the rear of the pedestal.
- For DC-powered systems, set the breaker to ON (up position) in the pedestal, then set the switch to ON (up position) on the power supply in the module.

43 Reset the NT6D66 CP Card by pressing the MAN RST button on the front panel. As the card performs card-level power-up tests, watch the LCD display and output from the CPSI port for error messages.

If the CP card fails the self-test, refer to Appendix C: “Troubleshooting” on page C-1.

Following the “Self-test Complete” message, watch the LCD on the CP card for the message “IOP in Slot 17.” If the message does not appear, refer to Appendix C: “Troubleshooting” on page C-1.

Upgrading the hardware and converting the database

For those option 21/21E customers who are converting the database on-site, you will need the B disk previously removed from the option 21/21E in order to complete the converting and installation of the customer database. Refer to “Converting to option 81/61C/51C media” in the Software Installation Tool reference, *Software conversion procedures* (553-2001-320).

Converting a database from release 19 or 20 to release 21

Use this procedure to convert an option 21E customer database from release 19 or 20 to release 21 on the option 51C.

Note: The software on the floppy disks is normally shipped preinstalled on the hard disk in the IOP/CMDU. If you receive hardware and software separately, or if there is any indication that the software on the floppy disks is a different release than the software on the hard disk, you must upgrade the software on the hard disk, the CP ROM, and the IOP/CMDU ROM. Use the instructions in “Procedure 11: Software Installation Tool,” *Software conversion procedures* (553-2001-320), to do this before proceeding.

- 1 Insert disk A1 from the software upgrade package into the IOP/CMDU.
- 2 Press the Man RST button on the CP card.

Note: If the Install Screen does not appear, this indicates system software is not installed on the hard drive. Install the software onto the hard drive using the instructions in “Procedure 11: Software Installation Tool,” *Software conversion procedures* (553-2001-320) before proceeding.

- 3** When the install screen appears, select the following options in sequence, and insert the B diskette containing the customer database (that you converted during the upgrade preparation procedures) when you are prompted to do so:

<d>	to install the database
<c>	to transfer the pre-option 51C database
<a>	to transfer the database to hard disk
<a>	to convert from an HD floppy disk
	or
	to convert from an ED floppy disk
<y>	to begin the installation
<a>	to confirm the database conversion

Follow all screen directions until the database transfer is complete.

- 4** Select the following options to quit and reload the system:

<q>	to quit
<yes>	to confirm quit

- 5** Remove any diskettes from the floppy drive and type

<a>	to reboot the system

- 6** Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, the option 51C core is operational. If the sysload or initialization fails, refer to Appendix C: “Troubleshooting” on page C-1.

Completing the upgrade

- 1 Reenter system configuration data into the customer database, if required, in the following sequence:
 - To reassign configuration data previously moved from loop 28 to an appropriate loop in the option 51C, do the following:
 - Define the target loop using the Configuration Program (LD 17).
 - Move the loops using the Move Data Blocks Program (LD 25).

Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 17 and LD 25.

 - Move the network cards from the option 21/21E to the network card slots previously defined.
 - Configure I/O devices to reflect the current configuration.
 - Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 1000 and 500, respectively). Refer to *Meridian 1 capacity engineering* (553-3001-149). If changes are required, reconfigure the values in LD 17.
 - Reenter customer data blocks. System options and features must reflect the current configuration.
 - Configure station data blocks.
 - Configure route data blocks.
 - Configure trunk data blocks.
 - Configure remaining system configuration records.
 - Verify system operation before adding new equipment.
 - Configure new equipment and functions, if any.

- 2 Load overlay 22 and print the Configuration Record to verify the above changes:

LD 22 to load the program
REQ PRT to set the print option
TYPE CFN to print the configuration

After verifying the changes, enter

******** to exit the program

- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 4 Verify that the ENB/DIS switch is set to ENB on all of the cards in the network area of the Core/Network module.
- 5 Press the MAN INT button on the CP card. Watch the initialization process. Make sure the CNI and 3PE cards are auto-enabled. (The faceplate LEDs should go out.)

Note: If the network loop corresponding to a CNI port is not enabled, the LED for that port may not go out.

- 6 Check for dial tone. If there is no dial tone, do the following:
 - Perform a visual check of the Core/Net module. Verify that each card is in the correct slot. Verify that all cards are seated, all ENB/DIS switches are set to ENB, and all red LEDs are off.
 - Verify that all cables are properly and securely connected in the front and rear of the module.
 - Check the status of the CNI card with LD 135 “STAT CNI” and ensure that it is software enabled.
 - If the CNI card is software disabled, test the card with LD 135 “TEST CNI c s.”
 - If the test is successful, enable the card in LD 135, perform a data dump with LD 43, and recheck the CNI status in LD 135.
 - Check for dial tone again.
 - If dial tone is still not present, press the MAN INT button on the CP card. Watch the initialization process. Make sure the CNI and 3PE cards are auto-enabled. (The faceplate LEDs should go out.)
- 7 Following a successful dial tone test, perform the following basic sanity tests:
 - Make sure calls can be placed internally and externally.
 - Check for error messages, line noise, chatter, or other problems. Track sources and resolve problems as necessary.
- 8 Clear displays, major alarms, and minor alarms:

LD 135	to load the program
CDSP	to clear the display
CMAJ	to clear all major alarms
CMIN ALL	to clear all minor alarms
CDSP	to clear the display
****	to exit LD 135

- 9** Load overlay 60 and software enable clock controller cards and any PRI/DTI cards in the Core/Network Module:

LD 60	to load the program
ENL CC x	to enable clock controller card 0 or 1
TRCK aaa	if necessary, to set tracking
ENLL loop	to enable the specified network loop and associated PRI/DTI card
****	to exit the program
- 10** Install the appropriate trim panels from the upgrade package to the Core/Network module.
- 11** Perform all applicable acceptance test procedures in *Meridian 1 system installation procedures* (553-3001-210).

Upgrading option 21/21E to option 61C

To upgrade an option 21 or 21E to a Meridian 1 option 61C, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- installing a Meridian 1 option 61C next to the option 21 column
- removing the common equipment (CE) from the option 21 column
- connecting the cabinet to the option 61C column

Upgrading the software consists of the following

- transferring the customer database on the option 21 to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Tables 8-14 and 8-15 list the minimum items required to upgrade an AC-powered or DC-powered system to an option 61C. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number may represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect network loops in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D88 cables that connect network cards to the Core/Network module I/O panels
- NT8D98 cables that connect the I/O panels in the Core/Network module to the IPE module I/O panels
- NT8D92 cables that connect the peripheral controller to the IPE module I/O panels

Refer to *Upgrade engineering* (553-3001-150) for additional information on cable requirements.

An NT8D01 Controller Card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 8-14
Hardware requirements for an AC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20	IOP/CMDU Processor and Multi Drive Unit
2	NT5D21AA	Core/Network Module, AC
2	NT6D65AA	Core to Network Interface Card (CNI)
2	NT6D66	Call Processor Card (CP) (Note 1)
1	NT7D00AA	Top Cap AC
1	NT7D06AA	Filler Panel
1	NT8D01BC	Controller-Four Card
1	NT8D04BA	Superloop Network Card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
2	NT8D17FA	Conference/TDS Card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal AC
2	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment Module, AC
2	NT8D41AA	Dual-Port SDI Paddle Board
3	NT8D44AA	SDI Paddle Board to I/O Cable
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52AB	Pedestal Blower Unit, AC

Table 8-14**Hardware requirements for an AC-powered option 61C (Part 2 of 2)**

Qty	Part number	Description
1	NT8D53BB	Power Distribution Unit, AC
2	NT8D80BZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NT5D21AA	Core/Network Module, AC
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP/CMDU to IOP/CMDU SCSI cable (6 ft.)
6	NTND21AA	Module Side Cover (Note 3)
2	QPC43R	Peripheral Signaling Card (PS)
2	QPC441F	Three-Port Extender Card (3PE)
2	QPC471H	Clock Controller
2	QPC477A9	Bus Terminator Unit
2	QPC477B10	Bus Terminator Unit
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Determine whether additional NTND21AA Module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary and order separately.		

Table 8-15
Hardware requirements for a DC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20	IOP/CMDU Processor and Multi Drive Unit
2	NT5D21DA	Core/Network Module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
2	NT6D65AA	Core to Network Interface Card (CNI)
2	NT6D66	Call Processor Card (CP) (Note 1)
1	NT7D00BA	Top Cap DC
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four Card
1	NT8D04BA	Superloop Network Card
2	NT8D17FA	Conference/TDS Card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment Module, DC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC
2	NT8D80BZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)

Table 8-15
Hardware requirements for a DC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP/CMDU to IOP/CMDU SCSI cable (6 ft.)
6	NTND21AA	Module Side Cover (Note 3)
2	QPC43R	Peripheral Signaling Card (PS)
1	NT8D80	CPU/MDU Interface Cable
2	QPC441F	Three-Port Extender Card (3PE)
2	QPC471H	Clock Controller
2	QPC477A9	Bus Terminator Unit
2	QPC477B10	Bus Terminator Unit
Note 1: One NT6D66AA (24 MB) or NT6D66DA (48 MB) CP card is required. Note 2: One NT6D42CC Ringing Generator, DC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Determine whether additional NTND21AA Module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary and order separately.		

Upgrade preparation

Some preparation is required before the conversion of the option 21 or option 21/21E hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 61C.
- Install the option 61C hardware.
- Back up the customer database to tape or disk by doing a data dump.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Installing option 61C hardware

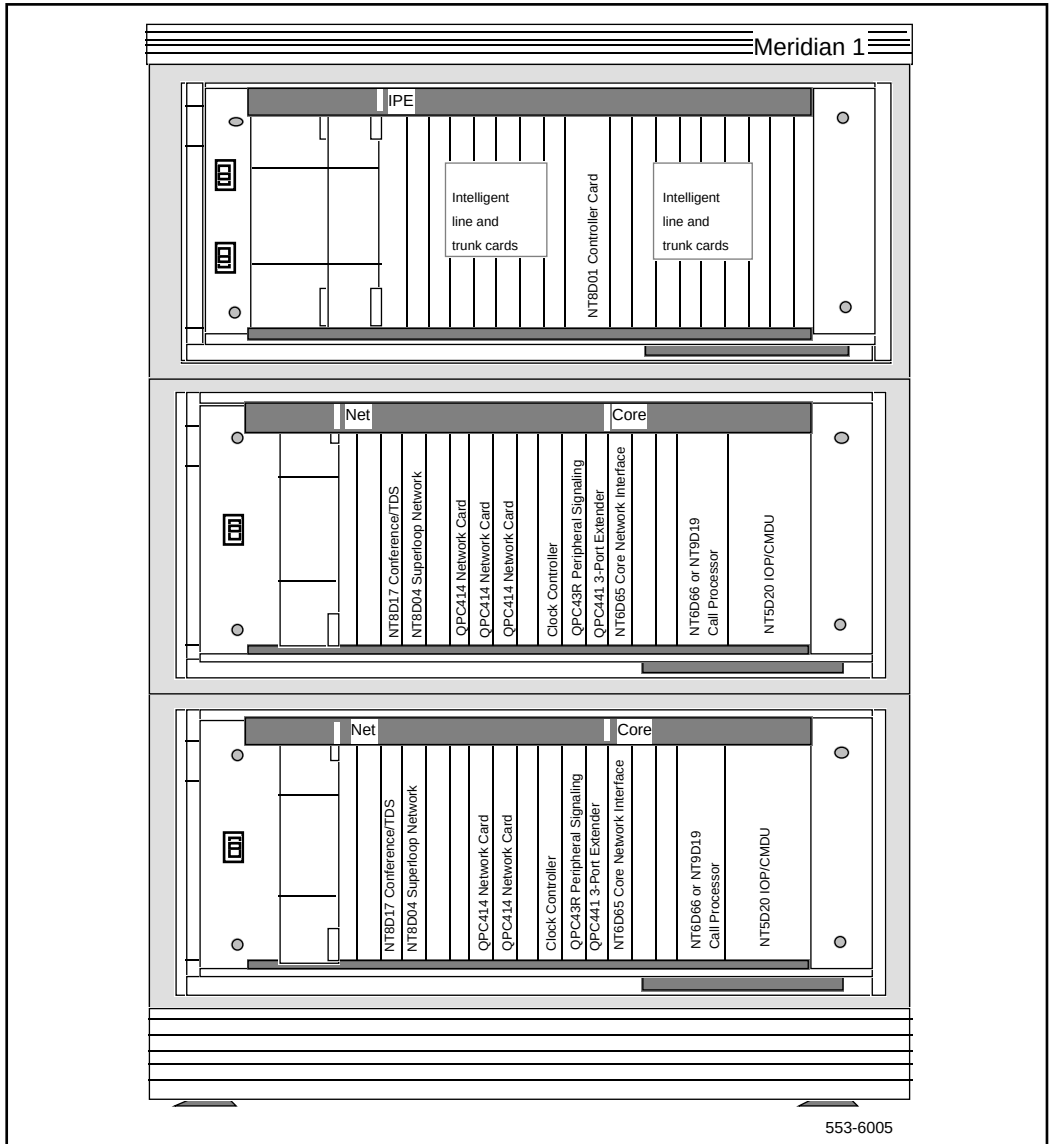
Option 61C equipment is configured at the factory according to customer requirements. This equipment includes the pedestal, Core/Network module, IPE module, cards, and top cap. Some cards, such as the MDUs and power supplies, are shipped in separate packages to prevent damage to the cards.

Figure 8-27 shows option 61C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

To install the option 61C at your site, first follow the procedures in *Meridian 1 system installation procedures* (553-3001-210) and then continue with the procedures on the following pages of this section.

Also install any external cables that can be installed at this time without interrupting service (see “Installing external cables” on page 8-127).

Figure 8-27
Meridian 1 option 61C



Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks by using the Equipment Data Dump Program (LD 43).

- 1 Log into the option 21 or 21E.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter **EDD** to begin the data dump

- 4 Exit the program. At the prompt, enter ******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the option 21 or 21E can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 8-16 to determine the appropriate conversion procedure.

If you choose to send the database to Northern Telecom for conversion, skip the rest of this section, “Converting the customer database.” After you have received your converted database from Northern Telecom, proceed to “Installing external cables” on page 8-127.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

CAUTION

Upgrading the customer database on-site requires some system down time. Schedule for this when planning the system upgrade.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (option 21 or 21E) media.

Table 8-16**Database conversion requirements, option 21 or 21E to an option 61C**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 15.57 or 16 customer database (Use conversion procedure beginning on page 8-123)			
15.57 or 16	17	QPC940	Release 17.xx option 21 software disk and data cartridge
17	19	NA	Software Installation Tool
19	21	NA	Software Installation Tool
For converting a release 17 or 18 customer database (Use conversion procedure beginning on page 8-125)			
17,18	19	N/A	Software Installation Tool
19	21	N/A	Software Installation Tool
For converting a release 19 or 20 customer database (Use conversion procedure beginning on page 8-125)			
19,20	21	N/A	Software Installation Tool
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 15.57 or 16 to release 21

To use this procedure, your option 21 must currently be running version 15.57 or higher. If your system is running an earlier version of release 15 software (release 15.53, for example), you must first convert the database to release 15.57. Refer to *Software conversion procedures* (553-2001-320) for instructions on converting the database to a higher version of the same release. Only those systems running release 15.57 or 16 can use this procedure.

- 1** Remove the front cover from the CE/PE Module on the option 21.
- 2** Disable loop 28 using the Network and Peripheral Equipment Diagnostic Program (LD 32). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 32.
- 3** Configure a new superloop and controller using configuration record 2 (LD 97). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97.

Note: When configuring superloops, assign loop numbers beginning with 0, 4, 8, or 12. Then configure each superloop for either a left or right slot location. The remaining slot (right or left of the superloop) may contain only DTI, PRI, or I/O cards.

- 4** Move the data for loop 28 to the newly configured superloop using the Move Data Blocks Program (LD 25). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 25.
- 5** After the data for loop 28 has been moved to the new loop, remove loop 28 using configuration record 2 (LD 97). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97.
- 6** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 7** On the option 21, set the ENB/DIS switch on the QPC742 FDI card to DIS and remove the card from the CE/PE module.
- 8** Install the QMM42 data cartridge for release 17 onto the QPC742 FDI card and reinstall the card.
- 9** Set the ENB/DIS switch on the QPC742 FDI card to ENB.

- 10** Insert the floppy disks with X11 release 17 software into the disk drives in the option 21. Insert disk A in drive A and disk B in drive B.

- 11** Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 12** In the option 21, press the RS button on the QPC687 CPU card to begin a sysload. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 13** Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 14** Remove the database diskettes from the disk drives in the option 21.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Converting the SL-1 hardware” on page 8-126 to continue with the upgrade.

Converting a database from release 17, 18, 19, or 20 to release 21

- 1** Remove the front cover from the CE/PE Module on the option 21.
- 2** Disable loop 28 using the Network and Peripheral Equipment Diagnostic Program (LD 32). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 32.
- 3** Configure a new superloop and controller using configuration record 2 (LD 97). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97.

Note: When configuring superloops, assign loop numbers beginning with 0, 4, 8, or 12. Then configure each superloop for either a left or right slot location. The remaining slot (right or left of the superloop) may contain only DTI, PRI, or I/O cards.

- 4** Move the data for loop 28 to the newly configured superloop using the Move Data Blocks Program (LD 25). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 25.
- 5** After the data for loop 28 has been moved to the new loop, remove loop 28 using configuration record 2 (LD 97). Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 97.
- 6** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 7** Remove the database diskettes from the disk drives in the option 21.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Converting the SL-1 hardware” on page 8-126 to continue with the upgrade.

Converting the SL-1 hardware

CAUTION

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed.

- 1 Set ENB/DIS switches on all CE cards to DIS.
- 2 Set all shelf circuit breakers to OFF.
- 3 Disconnect all network loop cables connected to the NT8D04 Network Cards and cables connected to the SDI cards.
- 4 Disconnect and remove any remaining cables connected to cards in the CE shelf.
- 5 Remove remaining cards from the CE shelf and store them in a safe place.

Installing external cables

After the option 61C columns are installed and the option 21 column has been prepared, you must connect them with external cables.

Note: Installing external cables between the option 21 and option 61C columns is required only if the two columns are not positioned side-by-side. If these columns are adjacent to each other, you must install column spacer kits and route cables between the columns as outlined in *Meridian 1 system installation procedures* (553-3001-210).

- 1 Install network cables between the option 21 column and the option 61C column. These cables connect network cards in the Core/Network module to the IPE controller card in the IPE shelf of the option 21. Refer to *Upgrade engineering* (553-3001-150) for a detailed explanation of connector kits and cables required to connect network loops between a cabinet and an option 61C column.

Each network loop connection requires three cables:

- Connect the NT8D88 cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
- Connect the NT8D98 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network module to the I/O panel on the IPE module.
- Connect the NT8D92 cable from the faceplate connector of the peripheral controller to the I/O panel connector at the rear of the IPE module.

- 2 Install alarm cables as outlined in “System monitor upgrade installation” on page 13-1.
- 3 Connect the external cable to the Core/Network module I/O panel connecting PRI/DTI to the network interface.
- 4 Install one PRI/DTI card in this module to be the master card and install the rest of the PRI/DTI cards, as slaves, in the option 21 CE/Network shelf.

- 5 Install one PRI/DTI card in this module as the primary clock reference and install the rest of the PRI/DTI cards in the option 21 CE/Network shelf. For installation procedures, refer to *Circuit card installation and testing* (553-3001-211).
- 6 Verify that PRI/DTI cards in the option 21 CE/Network shelf are connected to the MDF or network interface.
- 7 Connect all external cables from the MDF to IPE shelf connectors in cabinet I/O panels and IPE module I/O panels. Refer to *Meridian 1 system installation procedures* (553-3001-210) for IPE module I/O panel external cable installation procedures.

Turning on the power and configuring the system

Before you power up the system, review installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel in Core 1. If you are using only one terminal or a switch box for the CPSI ports, set the connection to Core/Net 1. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.

- 1 In Core/Net 1, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.
- 2 In Core/Net 0, set the ENB/DIS switch on the NT6D65 CNI card to DIS.
- 3 Perform the appropriate step to restore power in each Core/Network module:
 - For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- 4 In Core/Net 0, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.

Note: Continue with step 5 only if you sent your database to Northern Telecom for conversion. Otherwise, if you are converting your database on-site from release 17 or 18, continue with step 6; or, if you are converting your database on-site from release 19 (or higher), continue with step 12.

- 5** Follow the steps below to install the customer database (converted by Northern Telecom) on Core 1.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 20 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- To activate the Software Installation Tool, insert disk A1 from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the B1 disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation
- Follow all screen directions until the database transfer is complete.
- Select the following options to quit and reload the system:
 - <q> to quit
 - <yes> to confirm quit
 - <a> to reboot the system

When you have rebooted the system, proceed with step 12.

Note: Perform step 6 only if you are converting your database on-site from release 17 or 18; perform step 12 if you are converting your database on-site from release 19 (or higher).

- 6 Follow the steps below to convert the release 17 or 18 database to release 19 and then to release 21, and install the customer database on the option 61C Core/Net 1. You will need the B disk previously removed from the option 21/21E.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 19 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled before proceeding to the next step.

- To activate the Software Installation Tool, insert disk 1 (from the release 19 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all screen directions until the software, database, CP-ROM and IOP/CMDU-ROM installations are complete.
- When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit

- Remove any diskettes from the floppy drive, and type
 <a> to reboot the system

When you have rebooted the system, proceed to the next step.

- 7 Log into the system.
- 8 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
 LD 43 to load the program
- 9 Insert a B1 disk (from the release 21 disk set) titled “DATABASE
 BACKUP DISK” into the floppy drive in the IOP/CMDU in Core 1.
- 10 Perform a data dump. At the prompt, enter
 EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP
COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 11 Follow the steps below to convert the release 19 database to release 20, and install the customer database on the option 61C Core/Net 1. You will need the B disk (release 19) previously created when you performed a data dump in step 10.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled before proceeding to the next step.

- To activate the Software Installation Tool, insert disk 1 (from the release 21 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all screen directions until the software, database, CP-ROM, and IOP/CMDU-ROM installations are complete.
- When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit
- Remove any diskettes from the floppy drive, and type
 - <a> to reboot the system

When you have rebooted the system, proceed with the next step.

- 12 After the system initializes, set the ENB/DIS switch to ENB on the NT6D65 CNI card in Core/Net 0.
- 13 On the NT6D66 CP card in Core/Net 0, press and release the MAN RST button. When “SYS700” messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the following messages will appear on the LCD display:

RUNNING ROM OS ENTERING CP VOTE

Within 10 minutes, an HWI533 message from the Core/Net 1 CPSI port indicates the Core 0 memory is shadowed to the Core 1 memory. Wait until the memory synchronization is complete before continuing.

Note: If all network loops corresponding to a CNI port are not enabled, the LED for that port may not go out.

- 14** Set the NORM/MAINT switch to NORM on the CP card in Core/Net 1 and perform a redundancy sanity test:

LD 135 to load the program
STAT CNI to get the status of all configured CNIs
STAT CPU to get the status of both Cores
TEST CPU to test the inactive CP card and CP-to-CP cable
TEST CNI c s to test the CNI on the inactive side

Note: Testing the CP and CNI cards may take 90 seconds or more for each test.

- 15** Test the inactive Core, then switch Cores and test the other side:

SCPU to switch to Core 0
TEST CPU to test the inactive CP card and CP-to-CP cable

- 16** Get the status of the CP cards and memories and of the CNIs:

STAT CPU to get the status of both Cores
STAT CNI to get the status of all configured CNIs
******** to exit LD 135

- 17** Synchronize the hard disks. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137 to load the program
STAT to get the status of CMDUs, IOP/CMDUs, and redundancy (verify that CMDU 1 is active)
SYNC to synchronize the hard disks

Note: Synchronization may take up to 30 minutes.

- 18** Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs if necessary:

STAT to get the status of CMDUs, IOP/CMDUs, and redundancy
SWAP to switch CMDUs (if necessary)
******** to exit LD 137

- 19** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.
- 20** Insert a B1 database disk into each IOP/CMDU for backup. Load overlay 43 and perform a data dump to the backup disks. This command creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active CMDU if a disk is installed.

Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 21** When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 22** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 23** Perform the appropriate step to turn off power in each Core/Network module:

 - For AC-powered systems, set the circuit breaker on the MPDU in the module to OFF (down position).
 - For DC-powered systems, set the switch on the module power supply to OFF (down position).
- 24** Label each card that is being transferred to a Core/Network module with the shelf (0 or 1) and loop (0-31) for the card.
- 25** On all cards that are being transferred to Core/Network modules, disable the faceplate switches, disconnect all cables, and remove the cards.

- 26 Connect all cables to the cards (including the NT8D88 cables from the I/O panels to the NT8D04 Superloop cards). Enable the faceplate switches.
- 27 Switch the cables at the PE end:
 - If NT8D92 cables inside the IPE modules are not connected, connect them to the faceplates of the appropriate NT8D01 Controller cards.
- 28 Turn on power to the cabinet:
 - Set the AC input circuit breaker on the –48V rectifier in the cabinet to ON.
 - Set the CAB INP circuit breaker on the power control shelf in the cabinet and all other shelf circuit breakers to ON.
- 29 In the option 61C, verify that all cards are enabled (all ENB/DIS switches are set to ENB).
- 30 Follow the appropriate step below to restore power in each Core/Network module.

Note: If power to both Core/Network Modules is restored simultaneously, the CMDUs should still be synchronized.

 - For AC-powered systems, simultaneously set the MPDU in both Core/Network Modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- 31 Reenter system configuration data into the customer database, if required, in the following sequence:
 - Reassign configuration data previously moved from loop 28 to an appropriate loop in the option 51C, and balance the network loops between both Core/Network shelves. To do this, do the following:
 - Define the target loop using the Configuration Program (LD 17).
 - Move the loops using the Move Data Blocks Program (LD 25).

Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 17 and LD 25.

Note: You may have to add one or more network loops in the database for network shelf 1 (loops 16 through 31) to make the network shelf operational.

- Move the network cards from the option 21/21E to the network card slots previously defined.
 - Configure I/O devices to reflect the current configuration.
 - Reenter customer data blocks. System options and features must reflect the current configuration.
 - Configure station data blocks.
 - Configure route data blocks.
 - Configure trunk data blocks.
 - Configure remaining system configuration records.
 - Verify system operation before adding new equipment.
 - Configure new equipment and functions, if any.
- 32** Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 33** Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).

The option 61C X11 release 21 system is now operational. Install all module covers to complete the upgrade.

Meridian 1 option 51 upgrades

This chapter covers these upgrades:

- Meridian 1 option 51 to X11 release 21, below
- Meridian 1 option 51 to option 51C (software generic 1711) X11 release 21, page 9-26
- Meridian 1 option 51 to option 61C (software generic 1811) X11 release 21, page 9-52
- Meridian 1 option 51C (software generic 1711) to option 61C (software generic 1811) X11 release 21, page 9-77

Upgrading option 51 to X11 release 21

To upgrade a Meridian 1 option 51 to an option 51 X11 release 21 system, you must upgrade both the hardware and the software.

Note: X11 release 21 is the highest supported X11 software release for option 51 systems. The option 51 must be upgraded to an Option 51C (with software generic 2211) or 61C (with software generic 2311) before converting to X11 release 22 software.

Upgrading the hardware consists of the following:

- replacing the memory card, peripheral signaling card, and floppy disk unit and interface cards
- replacing some of the common equipment with new common equipment required by the new software release

Upgrading the software consists of the following:

- transferring the customer database to extra-high-density disks

- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Table 9-1 lists the items required to upgrade an AC-powered or DC-powered option 51. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number may represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Note: If the MDU is located in card slots next to a power converter, EMI shields P0727842-1 and P0727843-1 must be installed.

Table 9-1

Hardware required to upgrade an option 51 using an MDU

Quantity	Part number	Description
1	NTND08AA	ROM card
1	NTND09CA	12 MB Memory card
1	NTND10AA	Changeover & Memory Arbitrator card
1	NTND16AA	4MB Multi Disk Unit
(Note)	QPC441	3-Port Extender card (Note)
1	QPC584L and	Mass Storage Interface (MSI)card
1	NT8D80AC	MSI/MDU Interface Cable
	or	
1	NT9D34 and	Enhanced MSI card
1	NT9D89AB	EMSI/MDU Interface Cable
Note: Not included in upgrade package. Acceptable vintages of 3PE cards required for use with release 21: B1, D, E (series B), E1 (series B), or F. If any existing 3PE card in system is not one of these vintages, replace with correct vintage card before performing upgrade. All 3PE cards in system must be of same vintage. Quantity required depends on system.		

Upgrade preparation

Some preparation is required before the conversion of the SL-1 hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to disk by performing a data dump.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the option 51 can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 9-2 to determine the appropriate conversion procedure.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the preconversion procedure in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (option 51) media.

CAUTION

Upgrading the customer database on-site requires some system downtime. Schedule for this when planning the system upgrade.

Table 9-2
Database conversion requirements, option 51 upgrade to X11 release 21

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 15 or 16 customer database (Use conversion procedure beginning on page 9-7)			
15, 16	18	NTND08	Release 18.xx option 51 software disk and data cartridge
18	19	NTND08	Release 19.xx option 51 software disk and data cartridge
19	21	NTND08	Release 21.xx option 51 software disk and data cartridge
For converting a release 17 customer database (Use conversion procedure beginning on page 9-13)			
17	19	NTND08	Release 19.xx option 51 software disk and data cartridge
19	21	NTND08	Release 21.xx option 51 software disk and data cartridge
For converting a release 18 customer database (Use conversion procedure beginning on page 9-19)			
18	19	NTND08	Release 19.xx option 51 software disk and data cartridge
19	21	NTND08	Release 21.xx option 51 software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			
For converting a release 19 or 20 customer database (Use conversion procedure beginning on page 9-23)			
19, 20	21	NTND08	Release 21.xx option 51 software disk and data cartridge

Converting a database from release 15 or 16 to release 21

- 1 Remove the front covers from the CPU/Network module in the option 51.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4 Set the ENB/DIS switch on the MSI or EMSI card to DIS.
Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.
- 5 Disconnect the cable to the faceplate of the MSI or EMSI card and remove the card.
- 6 If an NT8D69 MDU is installed in the option 51, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 7 Install the QMM42 cartridge for release 18 software on the new MSI or EMSI card.
Note: If the new MSI card is a QPC584 MSI card, it must be vintage L or later.
- 8 Set the ENB/DIS switch on the new MSI or EMSI card to DIS.
- 9 On the MSI or EMSI card, set positions 1, 5, and 7 on switch SW3 to ON.
- 10 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 11 With the ENB/DIS switch set to DIS, insert the new MSI or EMSI card into its assigned position.
- 12 For systems using MSI cards, connect an NT8D80 cable between the faceplate connector on the MSI card and connector 0 on the NTND16 MDU. For systems using EMSI cards, connect an NT9D89 cable between the faceplate connector on the EMSI card and connector 0 on the NTND16 MDU.
- 13 Set the ENB/DIS switch on the MSI or EMSI card to ENB.
- 14 Insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 15 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 16 Set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 17 Set the ENB/DIS switch on the QPC581 CMA card to DIS and remove the card.
- 18 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 19 Set the ENB/DIS switch on the NTND10 CMA card to ENB.
- 20 Remove the QPC583 Memory card.
- 21 Install the NTND09 Memory card.

- 22 Disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 23 Remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 24 Connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 25 Set the ENB/DIS switch on the QPC580 CPU Interface card to ENB.
- 26 Press the RLD button on the NTND10 CMA card. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 27 Log into the system.
- 28 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

- 29 Set the ENB/DIS switch on the MSI or EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 30 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 31 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 32 Press the RLD button on the NTND10 CMA card. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 33 Log into the system.
- 34 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 35 Set the ENB/DIS switch on the MSI or EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 36 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.

- 37** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 38** Press the RLD button on the NTND01 CMA card. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 39** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 40** Log into the system.

- 41** Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 42** Remove disk A2 from drive A and insert disk A1.

- 43** Set the ENB/DIS switch on the MSI or EMSI card to DIS.

- 44 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 45 Reinstall the MSI or EMSI card and set the ENB/DIS switch to ENB.
- 46 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program
IOTB enter **YES** to change I/O devices
ADAN enter **CHG HDK 0** to add a hard disk unit
******** to exit the program

- 47 Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 48 To continue upgrading the option 51 to release 21, proceed with step 49. If you are upgrading the option 51 to an option 51C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 49 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 50 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 51 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Converting a database from release 17 to release 21

- 1** Remove the front covers from the CPU/Network module in the option 51.
- 2** Log into the system.
- 3** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4** Set the ENB/DIS switch on the MSI or EMSI card to DIS.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 5** Disconnect the cable to the faceplate of the MSI or EMSI card and remove the card.
- 6** If an NT8D69 MDU is installed in the option 51, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 7** Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 8 Install the QMM42 cartridge for release 19 software on the new MSI or EMSI card.

Note: If the new MSI card is a QPC584 MSI card, it must be vintage L or later.

- 9 Set the ENB/DIS switch on the new MSI or EMSI card to DIS.
- 10 On the MSI or EMSI card, set positions 1, 5, and 7 on switch SW3 to ON.
- 11 With the ENB/DIS switch set to DIS, insert the new MSI or EMSI card into its assigned position.
- 12 For MSI cards, connect an NT8D80 cable between the faceplate connector on the MSI card and connector 0 on the NTND16 MDU. For EMSI cards, connect an NT9D89 cable between the faceplate connector on the EMSI card and connector 0 on the NTND16 MDU.
- 13 Set the ENB/DIS switch on the MSI or EMSI card to ENB.
- 14 Insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 15 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 16 Set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 17 Set the ENB/DIS switch on the QPC581 CMA card to DIS and remove the card.
- 18 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 19 Set the ENB/DIS switch on the NTND10 CMA card to ENB.

- 20 Remove the QPC583 Memory card.
- 21 Install the NTND09 Memory card.
- 22 Disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 23 Remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 24 Connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 25 Set the ENB/DIS switch on the QPC580 CPU Interface card to ENB.
- 26 Press the RLD button on the NTND10 CMA card. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 27 Log into the system.
- 28 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 29 Set the ENB/DIS switch on the MSI or EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.

- 30 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 31 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 32 Press the RLD button on the NTND10 CMA card. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 33 Log into the system.

- 34 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 35 Set the ENB/DIS switch on the MSI or EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.

- 36 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.

- 37** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 38** Press the RLD button on the NTND01 CMA card. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 39** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 40** Log into the system.

- 41** Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 42** Remove disk A2 from drive A and insert disk A1.

- 43** Set the ENB/DIS switch on the MSI or EMSI card to DIS.

- 44 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 45 Reinstall the MSI or EMSI card and set the ENB/DIS switch to ENB.
- 46 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program
IOTB enter **YES** to change I/O devices
ADAN enter **CHG HDK 0** to add a hard disk unit
******** to exit the program

- 47 Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 48 To continue upgrading the option 51 to release 21, proceed with step 49. If you are upgrading the option 51 to an option 51C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 49 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 50 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 51 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Converting a database from release 18 to release 21

- 1** Remove the front covers from the CPU/Network module in the option 51.
- 2** Log into the system.
- 3** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4** Set the ENB/DIS switch on the MSI or EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software.
- 5** For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall and enable the card.
- 6** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 7** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 8 Press the RLD button on the NTND10 CMA card. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 9 Log into the system.
- 10 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 11 Set the ENB/DIS switch on the MSI or EMSI card to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 12 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 13 Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 14** Press the RLD button on the NTND10 CMA card. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 15** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 16** Log into the system.

- 17** Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the
hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 18** Remove disk A2 from drive A and insert disk A1.

- 19** Set the ENB/DIS switch on the MSI or EMSI card to DIS.

- 20** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 21** Reinstall the MSI or EMSI card and set the ENB/DIS switch to ENB.

- 22** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program
IOTB enter **YES** to change I/O devices
ADAN enter **CHG HDK 0** to add a hard disk unit
******** to exit the program

23 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 24 To continue upgrading the option 51 to release 21, proceed with step 25. If you are upgrading the option 51 to an option 51C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 25 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 26 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 51 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Converting a database from release 19 or 20 to release 21

- 1 Remove the front covers from the CPU/Network module in the option 51.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4 Set the ENB/DIS switch on the MSI or EMSI card to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 5 Remove the disks from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 6 Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 7 Press the RLD button on the NTND10 CMA card. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:
SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 8** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 9** Log into the system.

- 10** Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 11** Remove disk A2 from drive A and insert disk A1.

- 12** Set the ENB/DIS switch on the MSI or EMSI card to DIS.

- 13** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 14** Reinstall the MSI or EMSI card and set the ENB/DIS switch to ENB.

- 15** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

16 Perform a data dump:**LD 43** to load the program**EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17** To continue upgrading the option 51 to release 21, proceed with step 18. If you are upgrading the option 51 to an option 51C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 18** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 19** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 51 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Upgrading option 51 to option 51C

This section describes upgrading a Meridian 1 option 51 to an option 51C. Upgrading requires powering down the option 51, removing the NT6D39 CPU/Network card cage, installing the NT5D21 Core/Network card cage, and upgrading the customer database.

CAUTION

Do not begin a system upgrade unless you are thoroughly familiar with the process for performing the upgrade. Read this procedure thoroughly before you begin the upgrade.

Before any upgrade, we strongly recommend that you perform a thorough audit of the existing system:

- Verify the suitability of the upgrade package you are considering.
- Verify that all equipment needed for the upgrade has been identified and is available.
- Check for minimum vintage requirements on all circuit cards that will be used in the upgraded system.
- Resolve any existing operational problems, error messages, or other problems.

CAUTION

Performing this upgrade will require system downtime. Schedule for this when planning the system upgrade.

Power to the entire column must be shut off to perform this upgrade. This will cause loss of service to the whole telephone system. Plan the upgrade for a time when the impact to the telephone users will be minimal.

Equipment required

The hardware required for this upgrade is provided in the Core/Net Card Cage Upgrade Package. All existing equipment that will be retained must be compatible with X11 release 21. You must order replacements for equipment that does not comply.

Additional equipment may also be needed to meet site requirements. Verify that all equipment needed for the upgrade has been identified.

Table 9-3 lists the equipment required to upgrade a Meridian 1 option 51 system to a Meridian 1 option 51C system.

Table 9-3

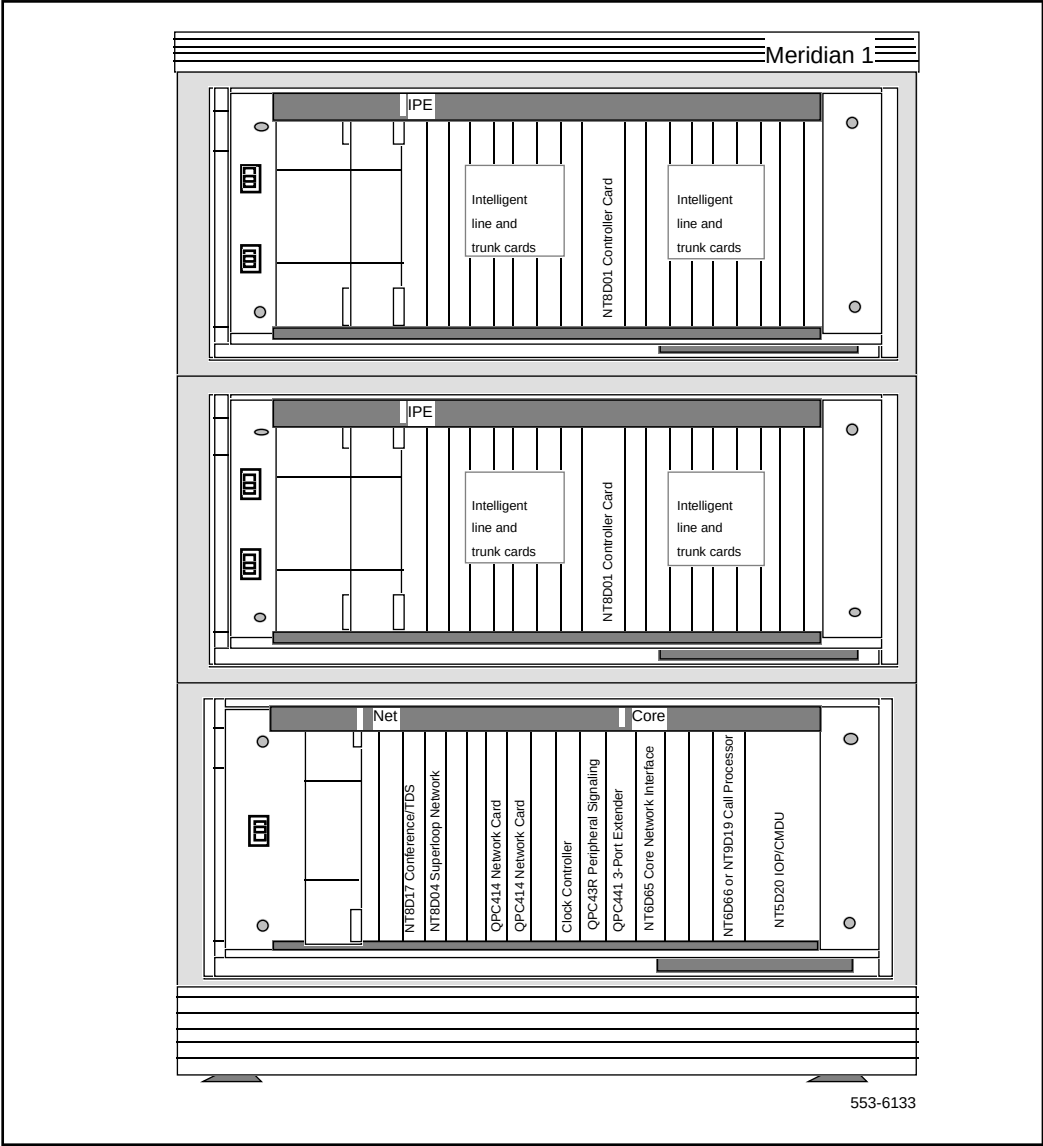
Hardware required to upgrade an option 51 system to option 51C

Quantity	Part Number	Description
1	NT1R90AB	Trim Panel Kit
1	NT5D20AA	I/O Processor and Core Multi- Disk Unit
1	NT5D2103	Core/Network Card Cage
1	NT6D65AA	Core to Network Interface card (CNI)
1	NT6D66AA	Call Processor card (CP)
1	NT7D89CA	CP to I/O Panel RS-232 Cable
1	NT7D90CA	IOP to I/O Panel Ethernet Cable
1	QPC471H	Clock Controller card

Figure 9-1 shows option 51C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

In addition, verify that the QPC441 3PE card installed in your current option 51 is revision F or higher and that the QPC471 Clock Controller card is revision H or higher. Revisions earlier than these will not work in an option 51C.

Figure 9-1
Meridian 1 option 51C



Terminal and modem connections

During an upgrade, and for continuing system operation, a terminal must be connected to an SDI port in a network slot to provide an I/O interface to the active Core/Net in the system. In addition, a data terminal equipment (DTE) and a data communication equipment (DCE) port on the Core/Net backplane can be used for direct access to the NT6D66 CP cards.

The CP card ports (CPSI ports) are active only when the Core/Net associated with the CP card is active. Therefore, the CPSI ports should not be used as the only I/O connection for the system.

When you transfer call processing to a Core/Net module during an upgrade, one I/O address is required for a CPSI port:

- If only one address is available, the CPSI port for a terminal connection is automatically assigned to it.
- If more than one address is available, the CPSI port for a terminal connection is automatically assigned to the first available address (the lowest number) and an I/O port for a modem connection is automatically assigned to the next available address.

CAUTION

Always configure the I/O port addresses so that one is available for the CPSI terminal port. If no address is available, address 15 is automatically assigned to the CPSI port.

- If there is no address available, the device assigned to I/O address 15 is automatically replaced by the CPSI port for a terminal connection.

When the upgrade is complete, leave a terminal and/or modem connected to the system. One SDI port in a network slot must be permanently connected to a terminal or modem. On the CPSI ports you can do one of the following:

- disconnect the ports
- leave terminals connected for local monitoring
- connect modems for remote monitoring

Refer to Appendix B: “Terminal and modem connections” on page B-1 for instructions on connecting terminals and modems to the option 51C.

Module backplane connections

Core/Net module backplanes, like all circuit boards, have a primary side and a secondary side. The primary side, which faces the front of the module, contains the primary shrouds that provide mating for the card edge connectors. The secondary side of the backplane, which faces the rear of the module, contains the secondary shrouds that provide mating for the cable connectors. The columns of secondary shrouds are designated 18 through 12 (from left to right when looking at the rear of the backplane) and the cable connector locations within each shroud are designated A through F (from top to bottom).

Before you connect cables to the backplane, visually inspect the secondary shroud connectors to make sure there are no bent pins. To connect cables:

- 1 Orient the cable connector so the strain relief paddle is to the right.
- 2 Partially insert the cable connector so its guides mate to the corresponding backplane connector shroud.
- 3 Apply a small amount of pressure to push the cable connector straight into the backplane connector. You will feel a distinct click when the connector seats.

CAUTION

Pins may be bent or broken if you try to insert the cable connector at an angle. Do not push the connector in any farther after you hear the distinct click.

Using the cable extraction tool

To disconnect cables from the Core/Net module backplane, use the P0741489 Extraction Tool provided, located in the rear of the module (behind the I/O safety panel).

Follow the procedure below to remove cable connectors from the backplane. Use extreme caution to avoid bending or breaking backplane pins. Do not insert the extraction tool unless the cable connector is locked into the securing clip; a gentle tug on the cable will allow you to determine whether or not the connector is secured. Do not force the extraction tool deeper than the tab on the side of the cable connector hood, and do not pry with the tool.

- 1 Grasp the cable connector by the strain relief tab.
- 2 Center the long flat edge at the angled end of the tool between the cable connector hood and the securing clip.

Note: There are two versions of the extractor tool. If the straight end of the tool is notched, use that end if the connector can be accessed straight-on. If you must approach the connector from any angle at all, use the angled end, if provided.

- 3 Gently insert the extraction tool and gradually apply pressure in the direction directly toward the backplane while gently pulling the cable away from the backplane. A gentle side-to-side rocking motion can be used on the cable if needed.

CAUTION

Do not pry against the connector with the extraction tool. Simply inserting the tool between the connector and the securing clip is sufficient to unlock the connector. Prying may cause damage to the connector or the backplane pins.

- 4 Stop applying pressure as soon as the cable connector comes loose from the backplane.
- 5 Slowly remove the extraction tool and the cable connector.

Upgrade preparation

The following summarizes the steps you must perform before beginning the upgrade:

- 1 Check equipment required for the upgrade.
- 2 Check the contents of the upgrade package, including all circuit cards and cables. Make sure all of the items on the order form are on the packing slip that comes with the equipment.
- 3 Check the tool list in “Tools” on page 1-2. Make sure all the tools are on hand.
- 4 Check the cards that you will be reusing to ensure that they can be used in the 51C. Refer to *Product compatibility* (553-3001-156) for specific compatibility information.
- 5 Prepare cables for the installation. Separate the cables in the upgrade package. Label both ends of all cables.
- 6 If the QPC471 Clock Controller card in the option 51 is not minimum vintage H, you must replace it before the upgrade. (This requirement does not apply to QPC775 Clock Controller cards.)
- 7 The customer database on the option 51 must be release 17 or greater before it can be converted to release 21 on the option 51C. To convert the database on the option 51 from release 15 or 16 to release 19, follow the procedures in “Convert from one X11 release to a later release” located in *Software conversion procedures* (553-2001-320).

Note: If the database media is a 3.5-inch HD or ED floppy disk, it can be converted directly to release 21. You will do this later in these procedures.

- 8** Follow “Procedure 1: Preconversion procedure,” *Software conversion procedures* (553-2001-320), and print configuration records.

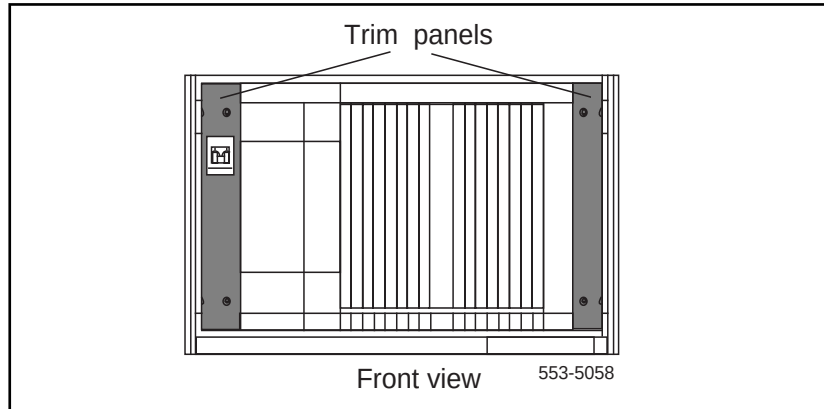
Check the configuration record printouts to identify all configured I/O ports. When you switch service to the Core/Network module, one I/O address must be available for a CPSI port. Refer to Appendix B: “Terminal and modem connections” on page B-1 for specific information regarding the terminal and modem settings.

- If only one address is available, the CPSI port for a terminal connection is automatically assigned to it.
- If more than one address is available, the CPSI port for a terminal connection is automatically assigned to the first available address (the lowest number). If more than one address is available, the I/O port for a modem connection is also assigned automatically.
- If there is no address available, the device assigned to I/O address 15 is automatically replaced by the CPSI port for a terminal connection.

Removing and installing the card cage

- 1 Perform the appropriate step below to turn off power to the column:
 - For AC-powered systems, set the main circuit breaker for the column to OFF (down position) in the rear of the pedestal.
 - For DC-powered systems, set the switch on the NT6D41 CE Power Supply to OFF (down position). Set the circuit breaker for the module to OFF (down position) in the rear of the pedestal.
- 2 Remove the trim panels on both sides of the module (see Figure 9-2). Keep the screws for reuse.

Figure 9-2
Location of the trim panels



- 3 Tag and disconnect all cables connected to the front of each card in the CPU/Network module. Note the exact positions of the cables connected to cards on the network side of the card cage; they must connect to the same cards when the module is reassembled. Tape over the cable connector contacts to avoid accidental grounding. Tape or tie all cables out of the way so that the working area in front of the card cage is totally clear.
- 4 On all cards with an ENB/DIS switch on the faceplate, set the switch to DIS.

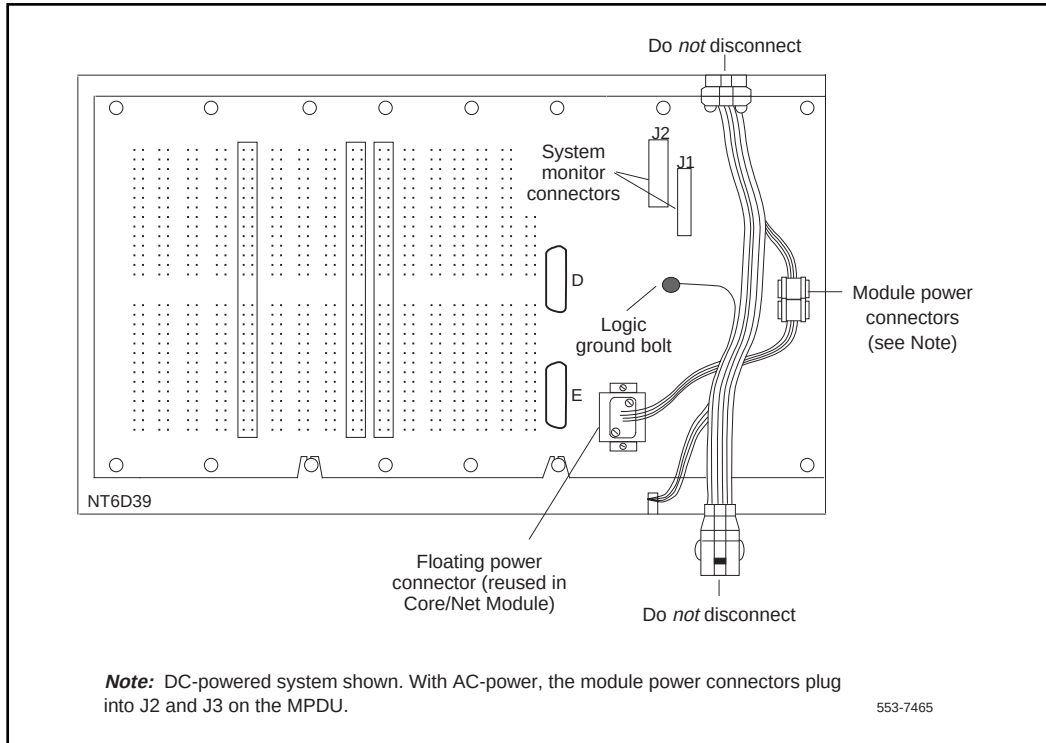
- 5 Remove the three mounting screws that secure the front of the card cage to the bottom of the module. Keep the screws for reuse.

WARNING

It may be necessary to temporarily remove some of the cards to get to the three mounting screws. Be sure to replace these cards back into the same slots after the screws have been removed.

- 6 Tag and disconnect all cables from the I/O panels. Remove the I/O safety panel that covers the rear of the backplane.
- 7 Tag and disconnect the system monitor ribbon cables to J1 and J2 (see Figure 9-3).

Figure 9-3
Power connectors on the rear of the CPU/Network module backplane



- 8 Remove the two mounting screws that secure the rear of the card cage to the module. Keep the screws for reuse. (A 1/4" socket wrench is needed for this operation.)

WARNING

Be careful not to drop any of the screws, nuts, or washers that you remove. Parts that fall down into the blower assembly are difficult to retrieve, and could cause premature failure of the blower assembly.

- 9** Pull the card cage forward until it is halfway out of the module.

WARNING

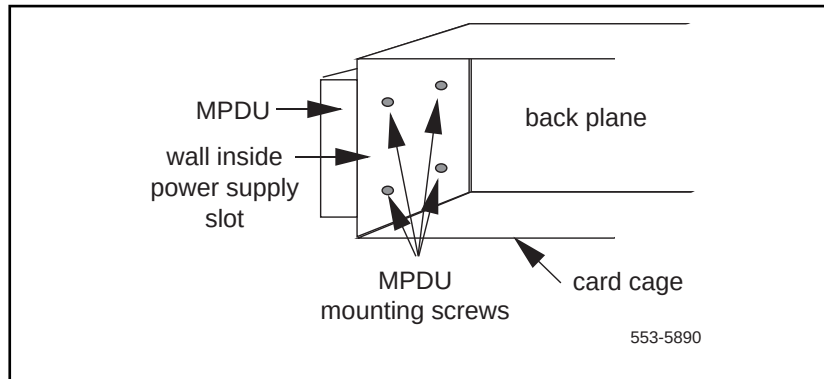
Do not disconnect the main power connectors (large orange connectors) at the top and bottom of the module.

- 10** Remove the logic ground (orange) wire from the backplane bolt. Be careful to not drop the nut or lock washer into the pedestal (see Figure 9-3).
- 11** Tag and disconnect the module power connectors. These are the small orange connectors plugged into the module power distribution unit (MPDU) with AC power or connected to each other with DC power.

- 12 Remove the card cage from the module.

Note: For AC-powered systems: If the new NT5D21 Core/Network module did not come with a module Power Distribution Unit (MPDU), you must remove the MPDU from the CPU/Network card cage and reinstall it on the new Core/Network card cage after the CPU/Network card cage is out of the module. The screw-heads for the MPDU are in the wall of the power supply slot (see Figure 9-4).

Figure 9-4
Location of the screws for the Module Power Distribution Unit (MPDU)



- 13 If a new floating power connector was not included in the upgrade kit, remove the existing floating power connector (the black connector) from the rear of the CPU card cage. Using the same mounting screws and nuts, attach the connectors to the Core/Network card cage.

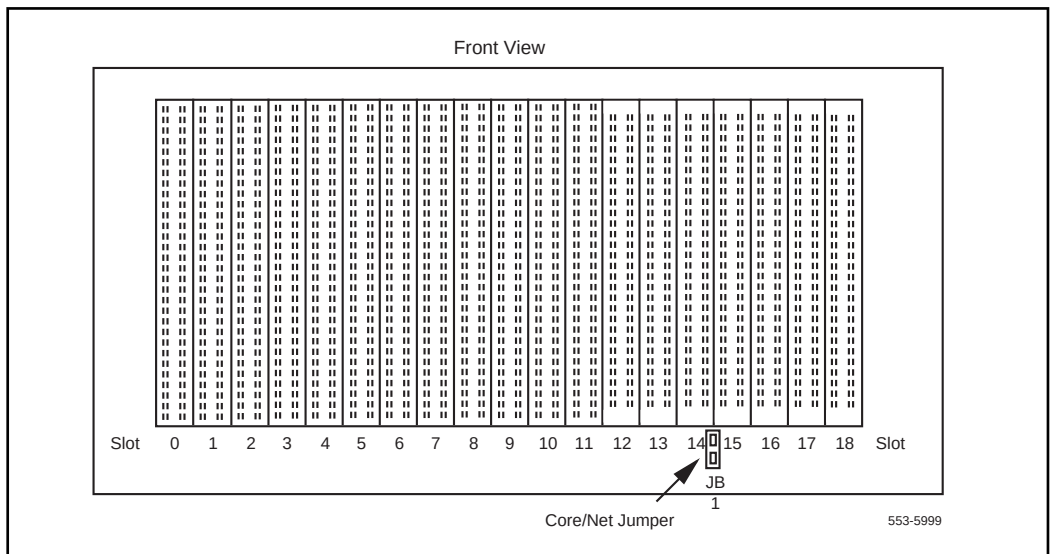
Note: Check the orientation of the connector. Viewed from the rear of the card cage, the upper left corner position should be empty (no wire) and the lower right corner position should have a wire installed. The green wire should be up.

- 14 Check the backplane jumper in the Core/Network card cage. The jumper is located near the bottom of the front side of the backplane, behind slot 14 (see Figure 9-5). Verify that the jumper is installed on the pins.

CAUTION

If the Core/Net module jumpers are set incorrectly, the system will not load or operate correctly.

Figure 9-5
Location of the jumper on the NT5D21 backplane



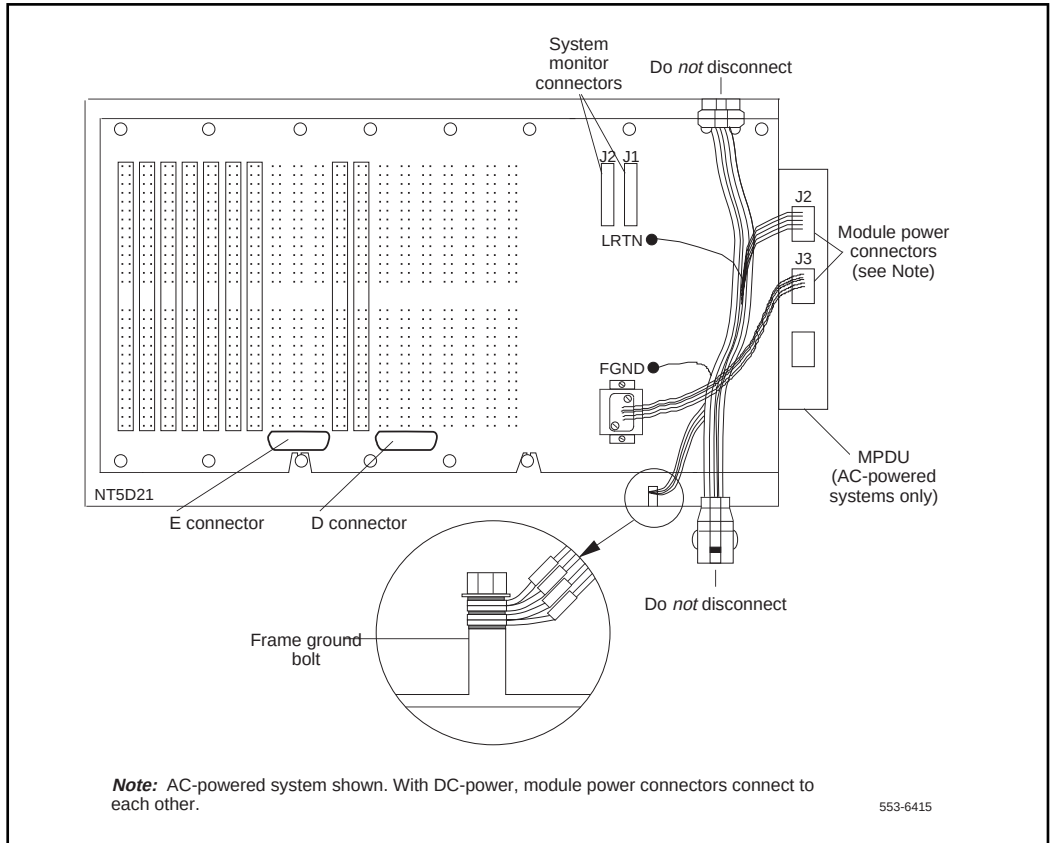
- 15 Reposition the EMI shield (it looks like a brass grill) in the base of the module. Tape over the front mounting tabs to hold the shield in position. You will remove the tape later.

- 16 Slide the new card cage about halfway into the module. Hold the card cage firmly while attaching the power system connectors to the rear of the module (see Figure 9-6):
 - Attach the new frame ground (green) wire to the frame ground post in each module. (A 5/16" socket wrench is needed for this operation.) Remove the nut and the lock washer at the top of the post. Put the frame ground connector over the post. Reinstall the top lock washer and the nut, then tighten the nut.

Note: For all of the terminal lugs to fit on the post, you must remove one of the lock washers. Leave a lock washer at the bottom of the post and at the top of the post. Leave a third lock washer between the second and third or the third and fourth terminal lugs.

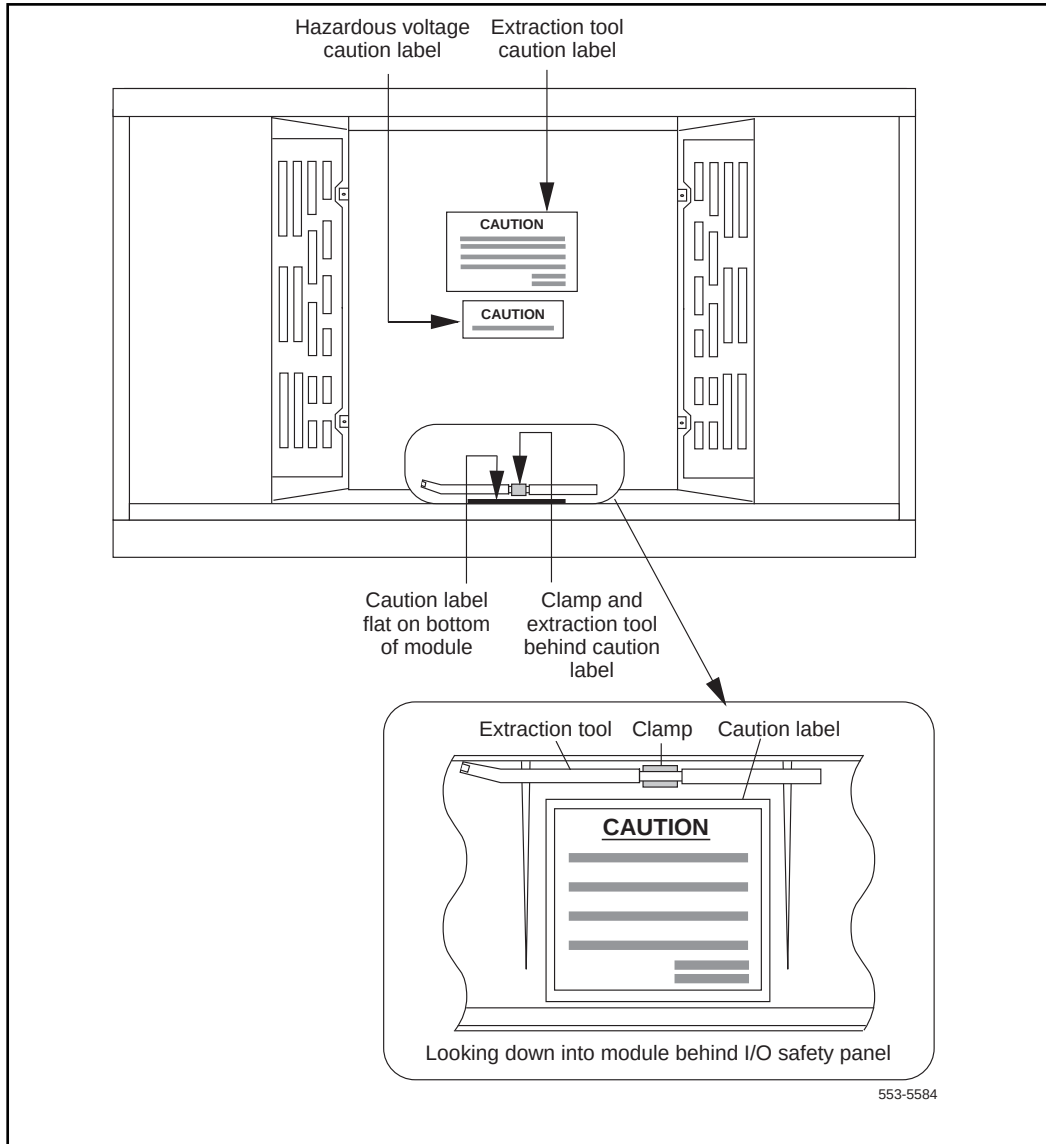
 - Attach the logic ground (orange) wires. Remove one nut and the lock washer. Put the connector over the post, reinstall the lock washer and nut, then tighten the nut down. (A 3/8" socket wrench is needed for this operation.)
 - Connect the module power connectors to the MPDU for AC power or to each other for DC power.
 - Attach the system monitor ribbon cables. Connect the cable from the pedestal to connector J1; connect the cable from the module above to connector J2.
- 17 Slide the card cage all the way into the module.
- 18 Check the position of the EMI shield. If it has shifted, reposition it. Remove the tape holding the EMI shield.
- 19 Secure the card cage to the module with the three screws in the front and the two screws in the rear.
- 20 On the outside of the I/O safety panel, attach one extraction tool caution label above the "CAUTION hazardous voltage" label (see Figure 9-7).
- 21 In the bottom of the module, attach the other extraction tool caution label directly behind the position of the I/O safety panel.
- 22 In the bottom of the module, attach the clamp that holds the extraction tool directly behind the extraction tool caution label you just installed.
- 23 Snap the P0741489 extraction tool into the clamp.

Figure 9-6
Power connectors on the rear of the NT5D21 Core/Network module



- 24 Attach the Core/Network module designation labels, provided in the upgrade package, at the front and rear of the module (see Figure 9-7). Attach the large label on top of the existing label. Attach the smaller label at the rear of the module.
- 25 Install the module power supply (removed from the CPU card cage) in the slot labeled “CE pwr sup.”

Figure 9-7
Positioning the extraction tool and caution labels



- 26** Turn on power to the module. For AC-powered systems, set the main circuit breaker to ON (up position) in the rear of the pedestal. For DC-powered systems, set the breaker to ON (up position) in the pedestal, then set the switch to ON (up position) on the power supply in the module.
- 27** Check the LEDs on the hybrid terminators located between slots 11 and 12 in the Core/Net module. All LEDs must be off. The LEDs are determined by the jumper setting on the backplane. If any LEDs are on, check the jumper on the backplane (see Figure 9-5 on page 9-39).
- 28** Shut down power to the module again. With AC power, set the power supply breaker for the module to OFF (down position). With DC power, set the switch on the power supply for the module to OFF (down position).
- 29** Attach the QMM42 Security Data Cartridge (provided with the software upgrade package) to the NT5D20 IOP/CMDU card. Plug the cartridge into the connectors on the card and install the screw that secures the cartridge. Place the IOP/CMDU card in slot 17. Set the front panel ENB/DIS switch to ENB.
- 30** Set the NORM/MAINT switch to MAINT on the NT6D66 CP card. Place the CP card in slot 15.
- 31** Place the NT6D65 CNI card in slot 12. Set the front panel ENB/DIS switch to ENB.
- 32** Check the vintage of the QPC441 3PE card—it must be minimum vintage F. Set the front panel ENB/DIS switch to ENB. Set the option switches and jumper on the card (see Table 9-4). Place the card in slot 11.

Table 9-4
QPC441F 3PE card—option settings

D20 switch							
1	2	3	4	5	6	7	8
off	on	on	off	on	on	on	on
RN27 jumper at E35: set to "A"							

- 33 Place the QPC43 PS card in slot 8. Set the front panel ENB/DIS switch to ENB.
- 34 Set the option switches on the QPC471 Clock Controller card as shown in Table 9-5. Set the front panel ENB/DIS switch to ENB. Place the clock controller card in slot 9.

Table 9-5
QPC471 Clock Controller card switch settings

Switch	1	2	3	4
SW1	On	On	On	On
SW2	Off	Off	Off	Off
SW4	Off	On	Off	Off

- 35 Remove the network cards from the old CPU card cage and reinstall them into exactly the same position on the new Core/Network card cage.

WARNING

The slot-numbering system is different for the NT6D39 CPU/Network module and the NT5D21 Core/Network module. A network card removed from CPU/Network module slot 3 is placed into Core/Network module slot 2. While the slot numbers have changed, the relative positions of the cards have not.

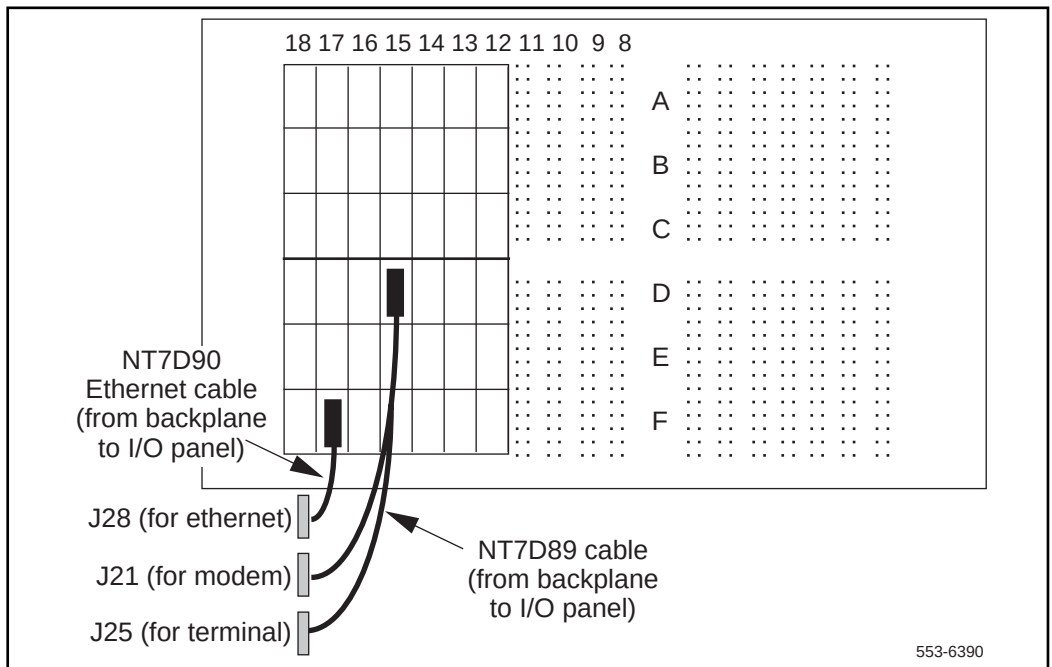
- 36** Follow the steps below to install the NT7D89 RS-232 cable that connects the CPSI ports on the NT6D66 CP card to the left I/O panel. The Y-cable connects one backplane connector to two connectors on the I/O panel (see Figure 9-8).

Note: The inside of the I/O panel faces the backplane. The word LEFT faces the outside of the module. The slot numbers listed below match the designations on the outside of the panel.

- On the inside of the I/O panel, connect port A (for connecting a modem) to J21.
- On the inside of the I/O panel, connect port B (for connecting a terminal) to J25.
- Connect the single connector end of the cable to backplane location 15D.

Figure 9-8

NT5D21 Core/Network module (rear)—RS-232 cable connections for CPSI ports



- 37** At the rear of the Core/Net module, connect the NT7D90 Ethernet Cable from backplane location 17F to J28 on the I/O panel.

Note 1: Route these cables as perpendicular as possible to nearby power cables.

Note 2: The Ethernet port is equipped for future use; it cannot be used currently. Attaching an external device to this port may cause service interruptions.

- 38** Connect any remaining network and serial cables to the network cards installed in slots 0 through 7. The cables should go to exactly the same connector that they were connected to on the old CPU module.

Note: You may have cables left over after completing this step. You should leave these cables installed until the new option 51C switch has been tested and is working correctly. They will be removed later in this procedure.

- 39** Connect a terminal to the J25 (DCE) port on the I/O panel. You must use the following settings on the terminal:

9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol

Note: Refer to “Terminal and modem connections” on page B-1 before connecting the terminal.

- 40** Perform the appropriate step to turn on power to the column:

- For AC-powered systems, set the main circuit breaker to ON (up position) in the rear of the pedestal.
- For DC-powered systems, set the breaker to ON (up position) in the pedestal, then set the switch to ON (up position) on the power supply in the module.

- 41** Reset the NT6D66 CP card by pressing the MAN RST button on the front panel. As the card performs card-level power-up tests, watch the LCD display and output from the CPSI port for error messages.

If the CP card fails the self-test, refer to “Troubleshooting” on page C-1.

Following the “Self-test Complete” message, watch the LCD on the CP card for the message “IOP in Slot 17.” If the message does not appear, refer to Appendix C: “Troubleshooting” on page C-1.

Upgrading the hardware and converting the database

The customer database must be converted to release 21. If you chose to convert the database on-site, refer to Table 9-6 to determine the appropriate conversion procedure.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

To convert and install the customer database, you will need the B disk previously removed from the option 51.

Table 9-6

Database conversion requirements, option 51 upgrade to option 51C

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 19 or later customer database (Use conversion procedure beginning on page 9-48)			
19,20	21	NA	Software Installation Tool
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 19 or later to release 21

Use this procedure to convert an option 51 customer database from release 19 or 20 to release 21 on the option 51C.

Note: The system software on the floppy disks is normally shipped preinstalled on the hard disks in the IOP/CMDUs. If you received hardware and software separately, or if there is any indication that the software on the floppy disks may not match the hard disk, you must also upgrade the software and the ROMs on the CP and IOP/CMDU cards. Use the instructions in “Procedure 11: Software Installation Tool,” *Software conversion procedures* (553-2001-320), to perform this upgrade.

- 1 Insert disk A1 from the release 21 software upgrade package into the IOP/CMDU.

- 2 Press the MAN RST button on the CP card.

Note: If the Install screen does not appear, this indicates system software is not installed on the hard drive. Install the software onto the hard drive using the instructions in “Procedure 11: Software Installation Tool,” *Software conversion procedures* (553-2001-320), before proceeding.

- 3 When the install screen appears, select the following options in sequence, and insert the B diskette containing the customer database (that you converted during the upgrade preparation procedures) when you are prompted to do so:

<d>	to install the database
<c>	to transfer the pre-option 61C database
<a>	to transfer the database to hard disk
<a>	to convert from an HD floppy disk
	or
	to convert from an ED floppy disk
<y>	to begin the installation
<a>	to confirm the database conversion

Follow all screen directions until the database transfer is complete.

- 4 Select the following options to quit and reload the system:

<q>	to quit
<yes>	to confirm quit
- 5 Remove any diskettes from the floppy drive and type

<a>	to reboot the system
- 6 Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, the option 51C core is operational. If the sysload or initialization fails, refer to “Troubleshooting” on page C-1.

Completing the upgrade

- 1 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 1000 and 500, respectively). Refer to *Meridian 1 capacity engineering* (553-3001-149). If changes are required, reconfigure the values in LD 17.

- 2 Load overlay 22 and print the Configuration Record to verify the above changes:

LD 22	to load the program
REQ PRT	to set the print option
TYPE CFN	to print the configuration

After verifying the changes, enter

****	to exit the program

- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43	to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 4 Verify that the ENB/DIS switch is set to ENB on all of the cards in the network area of the Core/Network module.
- 5 Press the MAN INT button on the CP card. Watch the initialization process. Make sure the CNI and 3PE cards are auto-enabled. (The faceplate LEDs should go out.)

Note: If the network loop corresponding to a CNI port is not enabled, the LED for that port may not go out.

- 6 Check for dial tone. If there is no dial tone, do the following:
 - Perform a visual check of the Core/Net module. Verify that each card is in the correct slot. Verify that all cards are seated, all ENB/DIS switches are set to ENB, and all red LEDs are off.
 - Verify that all cables are properly and securely connected in the front and rear of the module.
 - Check the status of the CNI card with LD 135 “STAT CNI” and ensure that it is software enabled.
 - If the CNI card is software disabled, test the card with LD 135 “TEST CNI c s.”
 - If the test is successful, enable the card in LD 135, perform a data dump with LD 43, and recheck the CNI status in LD 135.
 - Check for dial tone again.
 - If dial tone is still not present, press the MAN INT button on the CP card. Watch the initialization process. Make sure the CNI and 3PE cards are auto-enabled. (The faceplate LEDs should go out.)

- 7 Following a successful dial tone test, perform the following basic sanity tests:
 - Make sure calls can be placed internally and externally.
 - Check for error messages, line noise, chatter, or other problems. Track sources and resolve problems as necessary.
- 8 Clear displays, major alarms, and minor alarms:

LD 135	to load the program
CDSP	to clear the display
CMAJ	to clear all major alarms
CMIN ALL	to clear all minor alarms
CDSP	to clear the display
****	to exit LD 135
- 9 Load overlay 60 and software enable clock controller cards and any PRI/DTI cards in the Core/Network module:

LD 60	to load the program
ENL CC x	to enable clock controller card 0 or 1
TRCK aaa	if necessary, to set tracking
ENLL loop	to enable the specified network loop and associated PRI/DTI card
****	to exit the program
- 10 Install the appropriate trim panels from the upgrade package to the Core/Network module.
- 11 Perform all applicable acceptance test procedures in *Meridian 1 system installation procedures* (553-3001-210).

Upgrading option 51 to option 61C

To upgrade an option 51 to a Meridian 1 option 61C, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- installing a Meridian 1 option 61C next to the option 51
- removing network equipment from the option 51
- connecting the option 51 to the option 61C

Upgrading the software consists of the following:

- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to a higher release on the option 51 and converting it to X11 release 21 on the option 61C

Equipment required

Tables 9-7 and 9-8 list the minimum items required to upgrade an AC-powered or DC-powered system to an option 61C. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade. Whenever a new column is installed, you must also provide NT8D49AA Column Spacer Kits and P0699724 Modular Side Covers.

Letters at the end of the part number may represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect network loops in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D88 cables that connect network cards to the Core/Network module I/O panels
- NT8D98 cables that connect the I/O panels in the Core/Network module to the IPE module I/O panels
- NT8D92 cables that connect the peripheral controller to the IPE module I/O panels

Refer to *Upgrade engineering* (553-3001-150) for additional information on cable requirements.

An NT8D01 Controller card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 9-7

Hardware requirements for an AC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Multi Disk Unit
2	NT5D21AA	Core/Network module, AC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT6D66	Call Processor card (CP) (Note 1)
1	NT7D00AA	Top Cap, AC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal, AC
2	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment module, AC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
3	NT8D44AA	SDI Paddle Board to I/O Cable
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)

Table 9-7
Hardware requirements for an AC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52AB	Pedestal Blower Unit, AC
1	NT8D53BB	Power Distribution Unit, AC
1	NT8D75BD	Clock Controller to Clock Controller Cable
2	NT8D80AZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI Cable (6 ft.)
6	NTND21AA	Module Side Cover (Note 3)
2	QPC43R	Peripheral Signaling card (PS)
1	QPC84S	Power Monitor
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
Note 1: Two NT6D66AA (24 MB) or NT6D66DA (48 MB) CP cards are required. Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Determine whether additional NTND21AA module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary, and order separately.		

Table 9-8
Hardware requirements for a DC-powered option 61C (Part 1 of 2)

Qty	Part number	Description
1	NT1R91AA	Modem Kit
2	NT5D20AA	I/O Processor and Core Multi Disk Unit
2	NT5D21AA	Core/Network module, AC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
2	NT6D65AA	Core to Network Interface card (CNI)
2	NT6D66	Call Processor card (CP) (Note 1)
1	NT7D00BA	Top Cap, AC
1	NT7D06AA	Filler Panel
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four card
1	NT8D04BA	Superloop Network card
2	NT8D17FA	Conference/TDS card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment module, AC (Note 2)
2	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D46AG	System Monitor to SDI Paddle Board Cable (34 in.)
1	NT8D46BH	System Monitor to MDF Cable (32 ft.)
1	NT8D52DD	Pedestal Blower Unit, DC

Table 9-8
Hardware requirements for a DC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
1	NT8D75BD	Clock Controller to Clock Controller Cable
2	NT8D80AZ	CPU Interface Cable (5 ft.)
3	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AB	CPU to Network Cable (2 ft.)
2	NTND11BA	CP-to-CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI Cable (6 ft.)
6	NTND21AA	Module Side Cover (Note 3)
2	QPC43R	Peripheral Signaling card (PS)
1	QPC84S	Power Monitor
2	QPC441F	Three-Port Extender card (3PE)
2	QPC471H	Clock Controller
Note 1: Two NT6D66AA (24 MB) or NT6D66DA (48 MB) CP cards are required. Note 2: One NT6D42CC Ringing Generator, DC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Determine whether additional NTND21AA module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary, and order separately.		

Upgrade preparation

Some preparation is required before the conversion of the option 51 hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 61C.
- Install the option 61C hardware.
- Back up the customer database to disk by doing a data dump.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Installing option 61C hardware

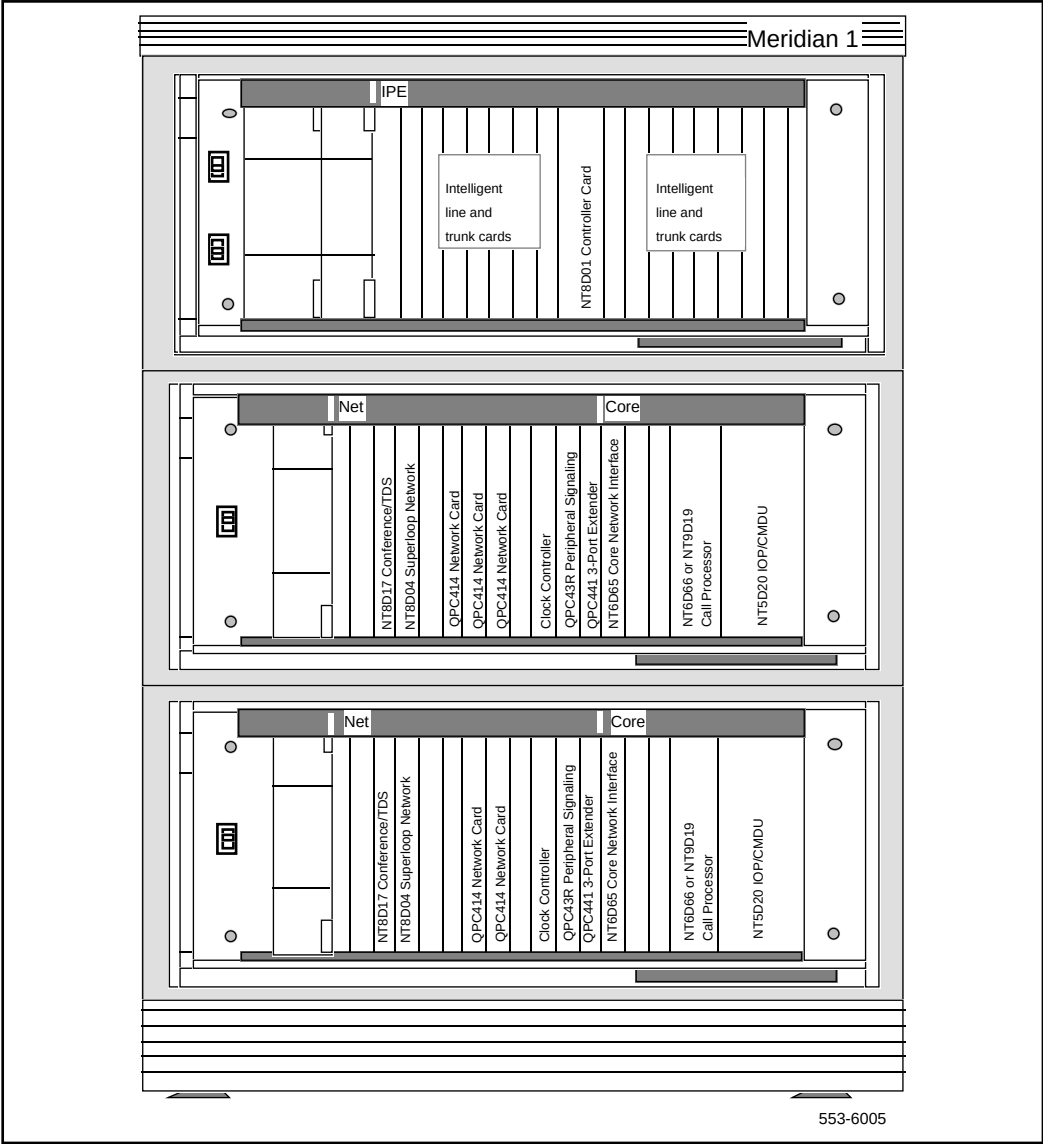
The option 61C equipment is preconfigured at the factory according to your requirements. The equipment includes the pedestal, Core/Network modules, IPE module, cards, and top cap. Cards such as IOP/CMDUs and power supplies are shipped in separate packages to prevent damage to the cards.

Figure 9-9 shows the option 61C common equipment and intelligent peripheral equipment modules and cards installed in their typical card slots.

To install the option 61C at your site, first follow the procedures in *Meridian 1 system installation procedures* (553-3001-210) and then continue with the procedures in this chapter.

Also install any external cables that can be installed at this time without interrupting service (see “Installing external cables” on page 9-66).

Figure 9-9
Meridian 1 option 61C



Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks.

- 1 On the option 51, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the option 51 can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 9-9 to determine the appropriate conversion procedure. The database conversion requires intermediate steps during which hardware and software are upgraded incrementally.

If you choose to send the database to Northern Telecom for conversion, skip the rest of this section, “Converting the customer database.” After you have received your converted database from Northern Telecom, proceed to “Installing external cables” on page 9-66.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

CAUTION

Upgrading the customer database on-site requires some system downtime. Schedule for this when planning the system upgrade.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (option 51) media.

Table 9-9**Database conversion requirements, option 51 upgrade to option 61C**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 15.57 or 16 customer database (Use conversion procedure beginning on page 9-62)			
15,16	17	NA	Release 17.xx option 51 software disk and data cartridge
17	19	NA	Software Installation Tool
19	21	NA	Software Installation Tool
For converting a release 17 or 18 customer database (Use conversion procedure beginning on page 9-64)			
17,18	19	NA	Software Installation Tool
19	21	NA	Software Installation Tool
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			
For converting a release 19 or 20 customer database (Use conversion procedure beginning on page 9-64)			
19,20	21	NA	Software Installation Tool

Converting a database from release 15.57 or 16 to release 21

To use this procedure, your option 51 must currently be running version 15.57 or higher. If your system is running an earlier version of release 15 software (release 15.53, for example), you must first convert the database to release 15.57. Refer to *Software conversion procedures* (553-2001-320) for instructions on converting the database to a higher version of the same release. Only those systems running release 15.57 or 16 can use this procedure.

- 1 Remove the front cover from the CPU/Network module on the option 51.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4 On the option 51, set the ENB/DIS switch on the MSI or EMSI card to DIS and remove the card from the CPU/Network shelf. Install the QMM42 data cartridge for release 17 onto the MSI or EMSI card.
- 5 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall the card and set the ENB/DIS switch to ENB.
- 6 Insert the floppy disks with X11 release 17 software into the disk drives in the option 51. Insert disk A in DRV A and disk B in DRV B.
- 7 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 8** In the option 51, press the RLD button on the QPC583 CMA card to begin a sysload. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 9** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 10** When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 11** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 12** Remove the database diskettes from the disk drives in the option 51.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to “Converting the hardware” on page 9-65 to continue with the upgrade.

Converting a database from release 17 or 18

- 1 Remove the front cover from the CPU/Network module on the option 51.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 4 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 5 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 6 Remove the database diskettes from the disk drives in the option 51.

You will complete converting the database later in these procedures after you upgrade the hardware. Proceed to the next section to continue with the upgrade.

Converting the hardware

CAUTION

Continuing with the upgrade will disrupt system operation. Minimal service can be maintained if a power failure transfer unit (PFTU) is installed.

- 1** Set ENB/DIS switches on all CE cards to DIS.
- 2** Set all shelf circuit breakers to OFF.
- 3** Disconnect all network loop cables connected to the NT8D04 Network cards and cables connected to the SDI cards.
- 4** Disconnect and remove any remaining cables connected to cards in the CE shelf.
- 5** Remove remaining cards from the CE shelf and store them in a safe place.

Installing external cables

After the option 61C columns are installed and the option 51 column has been prepared, you must connect them with external cables.

Note: Installing external cables between the option 51 and option 61C columns is required only if the two columns are not positioned side-by-side. If these columns are adjacent to each other, you must install column spacer kits and route cables between the columns as outlined in *Meridian 1 system installation procedures* (553-3001-210).

- 1 Install network cables between the option 51 column and the option 61C column. These cables connect network cards in the Core/Network module to the IPE Controller card in the IPE shelf of the option 51. Refer to *Upgrade engineering* (553-3001-150) for a detailed explanation of connector kits and cables required to connect network loops between a cabinet and an option 61C column.

Each network loop connection requires three cables:

- Connect the NT8D88 cable from the faceplate connector of the network card to the I/O panel connector at the rear of the Core/Network module.
 - Connect the NT8D98 cable (up to 16 feet in length) from the I/O panel connector on the Core/Network module to the I/O panel on the IPE module.
 - Connect the NT8D92 cable from the faceplate connector of the peripheral controller to the I/O panel connector at the rear of the IPE module.
- 2 Install alarm cables as outlined in “System monitor upgrade installation” on page 13-1.
 - 3 Connect the external cable to the Core/Network module I/O panel connecting PRI/DTI to the network interface.
 - 4 Install one PRI/DTI card in this module to be the master card and install the rest of the PRI/DTI cards, as slaves, in the option 51 CPU/Network shelf.

- 5 Install one PRI/DTI card in this module as the primary clock reference and install the rest of the PRI/DTI cards in the option 51 CPU/Network shelf. For installation procedures, refer to *Circuit card installation and testing* (553-3001-211).
- 6 Verify that PRI/DTI cards in the option 51 CPU/Network shelf are connected to the MDF or network interface.
- 7 Connect all external cables from the MDF to IPE shelf connectors in cabinet I/O panels and IPE module I/O panels. Refer to *Meridian 1 system installation procedures* (553-3001-210) for IPE module I/O panel external cable installation procedures.

Turning on the power and configuring the system

Before you power up the system, review installation steps and verify that all cards are in the appropriate card slots and properly cabled.

Note: Make sure a terminal is connected to J25 on the I/O panel in Core 1. If you are using only one terminal or a switch box for the CPSI ports, set the connection to Core/Net 1. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.

- 1 In Core/Net 1, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.
- 2 In Core/Net 0, set the ENB/DIS switch on the NT6D65 CNI card to DIS.
- 3 Perform the appropriate step to restore power in each Core/Network module:
 - For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- 4 In Core/Net 0, set the MAINT/NORM switch on the NT6D66 CP card to MAINT.

Note: Continue with step 5 only if you sent your database to Northern Telecom for conversion. Otherwise, if you are converting your database on-site from release 17 or 18, continue with step 6; or, if you are converting your database on-site from release 19 or later, continue with step 11.

- 5 Follow the steps below to install the customer database (converted by Northern Telecom) on Core 1.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled, before proceeding to the next step.

- To activate the Software Installation Tool, insert disk A1 from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the B1 disk with the customer database when you are prompted to do so:
 - <d> to install the database
 - <a> to install customer database
 - <a> to continue with the database installation
 - <y> to begin the installation
- Follow all screen directions until the database transfer is complete.

- Select the following options to quit and reload the system:

<q>	to quit
<yes>	to confirm quit
<a>	to reboot the system

When you have rebooted the system, proceed with step 12.

Note: Perform step 6 only if you are converting your database on-site from release 17 or 18; perform step 11 if you are converting your database on-site from release 19 or higher.

- 6 Follow the steps below to convert the release 17 or 18 database to release 19 and then to release 21, and install the customer database on the option 61C Core/Net 1. You will need the B disk previously removed from the option 51.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 19 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled before proceeding to the next step.

- To activate the Software Installation Tool, insert disk 1 (from the release 19 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all screen directions until the software, database, CP-ROM, and IOP-ROM installations are complete.
- When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit
- Remove any diskettes from the floppy drive, and type
 - <a> to reboot the system

When you have rebooted the system, proceed to the next step.

- 7 Log into the system.
- 8 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 9 Insert a B1 disk (from the release 19 disk set) titled "DATABASE BACKUP DISK" into the floppy drive in the IOP/CMDU in Core 1.

- 10** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 11** Follow the steps below to convert the database from release 19 or higher to release 21, and install the customer database on the option 61C Core/Net 1. You will need the B disk previously created when you performed a data dump in step 10, or you created when you performed a data dump at the beginning of this upgrade procedure.

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled, before proceeding to the next step.

- To activate the Software Installation Tool, insert disk 1 (from the release 21 disk set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.
- Press the MAN RST button on the NT6D66 CP card in Core/Net 1.

- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all screen directions until the software, database, CP-ROM, and IOP-ROM installations are complete.
- When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit
- Remove any diskettes from the floppy drive, and type
 - <a> to reboot the system

When you have rebooted the system, proceed with the next step.

- 12 After the system initializes, set the ENB/DIS switch to ENB on the NT6D65 CNI card in Core/Net 0.
- 13 On the NT6D66 CP card in Core/Net 0, press and release the MAN RST button. When "SYS700" messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the following messages will appear on the LCD display:

RUNNING ROM OS ENTERING CP VOTE

Within 10 minutes, an HWI533 message from the Core/Net 1 CPSI port indicates the Core 0 memory is shadowed to the Core 1 memory. Wait until the memory synchronization is complete before continuing.

- 14** Set the NORM/MAINT switch to NORM on the CP card in Core/Net 1 and perform a redundancy sanity test:

LD 135 to load the program
STAT CNI to get the status of all configured CNIs
STAT CPU to get the status of both Cores
TEST CPU to test the inactive CP card and CP-to-CP cable
TEST CNI c s to test the CNI on the inactive side

Note: Testing the CP and CNI cards may take 90 seconds or more for each test.

- 15** Test the inactive Core, then switch Cores and test the other side:

SCPU to switch to Core/Net 0
TEST CPU to test the inactive CP card and CP-to-CP cable

- 16** Get the status of the CP cards and memories and of the CNIs:

STAT CPU to get the status of both Cores
STAT CNI to get the status of all configured CNIs
******** to exit LD 135

- 17** Synchronize the hard disks. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137 to load the program
STAT to get the status of CMDUs, IOPs, and redundancy (verify that CMDU 1 is active)
SYNC to synchronize the hard disks

Note: Synchronization may take up to 30 minutes.

- 18** Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs if necessary:

STAT to get the status of CMDUs, IOPs, and redundancy
SWAP to switch CMDUs (if necessary)
******** to exit LD 137

- 19** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.

- 20** Insert a B1 database disk into each IOP/CMDU for backup. Load overlay 43 and perform a data dump to the backup disks. This command creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active CMDU if a disk is installed.

Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

- 21** When “EDD000” appears on the terminal, enter
EDD to begin the data dump

- 22** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 23** Perform the appropriate step to turn off power in each Core/Network module:
- For AC-powered systems, set the circuit breaker on the MPDU in the module to OFF (down position).
 - For DC-powered systems, set the switch on the module power supply to OFF (down position).
- 24** Label each card that is being transferred to a Core/Network module with the shelf (0 or 1) and loop (0–31) for the card.
- 25** On all cards that are being transferred to Core/Network modules, disable the faceplate switches, disconnect all cables, and remove the cards.
- 26** Connect all cables to the cards (including the NT8D88 cables from the I/O panels to the NT8D04 Superloop cards). Enable the faceplate switches.

- 27** Switch the cables at the PE end:
- If NT8D92 cables inside the IPE modules are not connected, connect them to the faceplates of the appropriate NT8D01 Controller cards.
- 28** Turn on power to the cabinet:
- Set the AC input circuit breaker on the –48V rectifier in the cabinet to ON.
 - Set the CAB INP circuit breaker on the power control shelf in the cabinet and all other shelf circuit breakers to ON.
- 29** In the option 61C, verify that all cards are enabled (all ENB/DIS switches are set to ENB).
- 30** Follow the appropriate step below to restore power in each Core/Network module.
- Note:** If power to both Core/Network modules is restored simultaneously, the CMDUs should still be synchronized.
- For AC-powered systems, simultaneously set the MPDU in both Core/Network modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network modules to ON (up position).
- 31** Reenter system configuration data into the customer database, if required, in the following sequence:
- To improve system performance, balance the network loops between both Core/Network shelves. To do this, do the following:
 - Define the target loop using the Configuration Program (LD 17).
 - Move the loops using the Move Data Blocks Program (LD 25).Refer to *X11 input/output guide* (553-3001-400) for instructions on using LD 17 and LD 25.
- Note:** You may have to add one or more network loops in the database for network shelf 1 (loops 16 through 31) to make the network shelf operational.

- Move the network cards from the option 51 to the network card slots previously defined.
 - Configure I/O devices to reflect the current configuration.
 - Reenter customer data blocks. System options and features must reflect the current configuration.
 - Configure station data blocks.
 - Configure route data blocks.
 - Configure trunk data blocks.
 - Configure remaining system configuration records.
 - Verify system operation before adding new equipment.
 - Configure new equipment and functions, if any.
- 32** Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 33** Perform the postconversion procedure as outlined in *Software conversion procedures* (553-2001-320).

The option 61C X11 release 21 system is now operational. Install all module covers to complete the upgrade.

Upgrading option 51C to option 61C

To upgrade an option 51C system to an option 61C system, you must upgrade both the hardware and the software. Upgrading the hardware consists of:

- installing a Core/Network module next to the existing option 51C column
- installing an IPE module on top of the existing option 51C column
- installing new cables

Upgrading the software consists of:

- installing new system software
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Tables 9-7 and 9-8 list the minimum items required to upgrade an AC-powered or DC-powered system to an option 61C. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade. Whenever a new column is installed, you must also provide NT8D49AA Column Spacer Kits and P0699724 Modular Side Covers.

Letters at the end of the part number may represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect network loops in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These cables are:

- NT8D88 cables that connect network cards to the Core/Network module I/O panels
- NT8D98 cables that connect the I/O panels in the Core/Network module to the IPE module I/O panels
- NT8D92 cables that connect the peripheral controller to the IPE module I/O panels

Refer to *Upgrade engineering* (553-3001-150) for additional information on cable requirements.

An NT8D01 Controller Card is provided to support the intelligent peripheral cards in the new IPE module. If analog peripheral cards are used in the IPE module, one NT8D21 Ringing Generator must be installed.

Table 9-10**Hardware requirements for an AC-powered option 61C (Part 1 of 2)**

Qty	Part number	Description
1	NT1R91AA	Modem Kit
1	NT5D20AA	I/O Processor and Core Multi-Drive Unit (Note 4)
1	NT5D21AA	Core/Network module, AC
1	NT6D65AA	Core to Network Interface Card (CNI)
1	NT6D66	Call Processor Card (CP) (Note 1)
1	NT7D00AA	Top Cap AC
1	NT7D06AA	Filler Panel
1	NT8D01BC	Controller-Four Card
1	NT8D04BA	Superloop Network Card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
1	NT8D17FA	Conference/TDS Card
1	NT8D22AC	System Monitor
1	NT8D27BB	Pedestal AC
1	NT8D29AB	Common Equipment Power Supply, AC
1	NT8D37BA	Intelligent Peripheral Equipment module, AC (Note 2)
1	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D52AB	Pedestal Blower Unit, AC
1	NT8D53BB	Power Distribution Unit, AC
2	NT8D80AZ	CPU Interface Cable (5 ft.)
2	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)

Table 9-10
Hardware requirements for an AC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AD	CPU to Network Cable (6 ft.)
2	NTND11BA	CP to CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
2	NTND21AA	Module Side Cover (Note 3)
1	QPC43R	Peripheral Signaling Card (PS)
1	QPC84S	Power Monitor
1	QPC441F	Three-Port Extender Card (3PE)
1	QPC471H	Clock Controller (see Note 5)
Note 1: Two NT6D66AA (24 MB) or NT6D66DA (48 MB) CP cards are required. Note 2: One NT8D21AA Ringing Generator, AC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Determine whether additional NTND21AA module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary and order separately. Note 4: If the option 51C contains separate NT6D63 IOP and NT6D64 CMDU, you must order separately one additional NT5D20 IOP/CMDU before performing this upgrade. Note 5: If the option 61C will have PRI or DTI cards installed, you must have two QPC471 Clock Controller cards (vintage H) to perform this upgrade. Order separately, as required.		

Table 9-11**Hardware requirements for a DC-powered option 61C (Part 1 of 2)**

Qty	Part number	Description
1	NT1R91AA	Modem Kit
1	NT5D20AA	I/O Processor and Core Multi-Drive Unit (see Note 4)
1	NT5D21DA	Core/Network module, DC
1	NT6D40AB	Peripheral Equipment Power Supply, DC
1	NT6D41AB	Common Equipment Power Supply, DC
1	NT6D65AA	Core to Network Interface Card (CNI)
1	NT6D66	Call Processor Card (CP) (Note 1)
1	NT7D00BA	Top Cap DC
1	NT7D06AA	Filler Panel
1	NT7D09CA	Pedestal, DC
1	NT7D10CA	System Monitor Panel
1	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller-Four Card
1	NT8D04BA	Superloop Network Card
1	NT8D17FA	Conference/TDS Card
1	NT8D22AC	System Monitor
1	NT8D37EC	Intelligent Peripheral Equipment module, DC (Note 2)
1	NT8D41AA	Dual-Port SDI Paddle Board
1	NT8D52DD	Pedestal Blower Unit, DC
2	NT8D80AZ	CPU Interface Cable (5 ft.)
2	NT8D84AA	SDI Paddle Board to I/O Cable (18 in.)

Table 9-11
Hardware requirements for a DC-powered option 61C (Part 2 of 2)

Qty	Part number	Description
1	NT8D91AE	Network to Controller Cable (8 ft.)
2	NT8D99AD	CPU to Network Cable (6 ft.)
2	NTND11BA	CP to CP Cable (6 ft.)
1	NTND13BC	IOP to IOP SCSI cable (6 ft.)
2	NTND21AA	Module Side Cover (Note 3)
1	QPC43R	Peripheral Signaling Card (PS)
1	QPC84S	Power Monitor
1	QPC441F	Three-Port Extender Card (3PE)
1	QPC471H	Clock Controller (see Note 5)
Note 1: Two NT6D66AA (24 MB) or NT6D66DA (48 MB) CP cards are required. Note 2: One NT6D42CC Ringing Generator, DC, must be added for each IPE module in which analog-type peripheral cards are to be used. Note 3: Determine whether additional NTND21AA module side covers (to cover all exposed sides of modules) and NT8D49AA Column Spacer Kits (to connect modules side-to-side) are necessary and order separately. Note 4: If the option 51C contains separate NT6D63 IOP and NT6D64 CMDU, you must order separately one additional NT5D20 IOP/CMDU before performing this upgrade. Note 5: If the option 61C will have PRI or DTI cards installed, you must have two QPC471 Clock Controller cards (vintage H) to perform this upgrade. Order separately, as required.		

Upgrade preparation

Some preparation is required before the conversion of the option 51C hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Provide appropriate power and ground for the increased electrical load of the option 61C.
- Install the option 61C hardware.
- Back up the customer database to disk by doing a data dump.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Power and ground

Clean power and a good ground are prerequisites to any switch upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Installing option 61C hardware

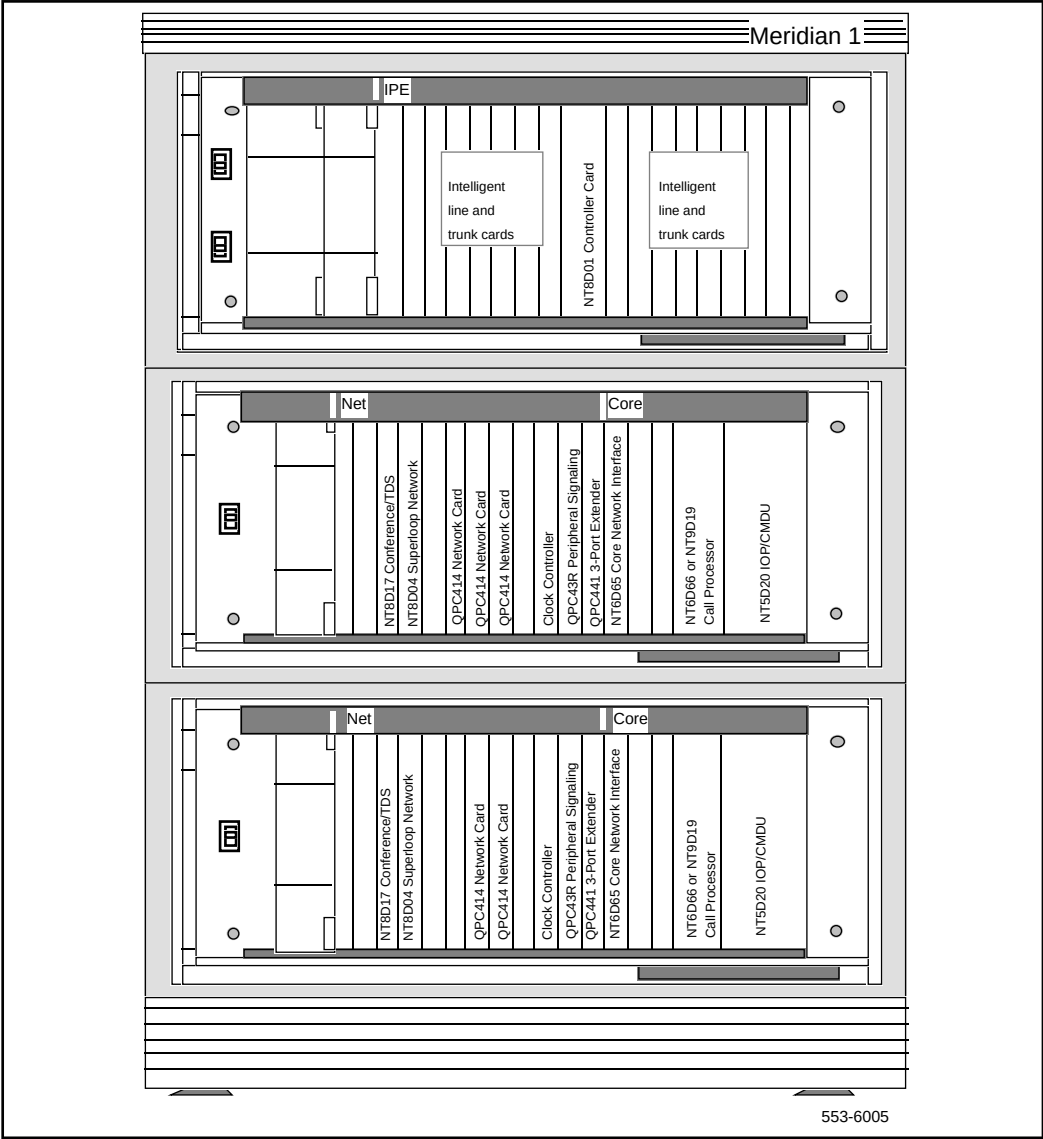
Option 61C equipment is configured at the factory according to customer requirements. This equipment includes the pedestal, Core/Network module, IPE module, cards, and top cap. Some cards, such as the IOP/CMDUs and power supplies, are shipped in separate packages to prevent damage to the cards.

To install the option 61C, first follow the procedures in *Meridian 1 system installation procedures* (553-3001-210). This requires that you remove the new IPE module from on top of the new Core/Net module, as shipped. Remove the top cap from the existing option 51C column, and install the new IPE module on top of this column. Install the top cap on the new module. Install the new Core/Net module and top cap to the left of the column.

When you have installed the new modules and cables, return to this procedure and continue with “Performing a data dump” on page 9-85.

Figure 9-10 shows option 61C in a typical configuration.

Figure 9-10
Meridian 1 option 61C



Performing a data dump

Before converting your customer database, you must perform a data dump to your current disks by using the Equipment Data Dump Program (LD 43).

- 1 Log into the option 51C.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump

- 4 Exit the program. At the prompt, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the option 51C can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 9-2 to determine the appropriate conversion procedure. The database conversion requires intermediate steps during which hardware and software are upgraded incrementally.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (option 51C) media.

Table 9-12
Database conversion requirements, option 51C to option 61C

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 20 customer database (Use conversion procedure beginning on page 9-87)			
20	21	N/A	Release 21.xx option 61C software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Installing new system software and customer database

Note: Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- 1 Set the ENB/DIS switch on the NT5D20 IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP has been successfully enabled before proceeding to the next step.

- 2 To activate the Software Installation Tool, insert diskette 1 (from the release 21 diskette set) from the software upgrade package into the NT5D20 IOP/CMDU in Core/Net 1.

- 3 Press the MAN RST button on the NT6D66 CP card in Core/Net 1.

- 4 Select the following options in sequence, and insert the customer database diskette created during previous data dump or received from Northern Telecom when you are prompted to do so:

**** to install software, database, CP-ROM, and IOP-ROM

<a> yes, start installation

<a> continue with upgrade

- 5 Follow all screen directions until the software, database, CP-ROM, and IOP-ROM installations are complete.

- 6 When the main menu appears, select the following options:

<q> to quit

<yes> to confirm quit

- 7 Remove the diskette from the floppy drive.

- 8 Power cycle the CP card in Core/Net 1 as follows: Press the MAN RST button and then immediately disengage the lock latches and unseat the card from the backplane. Wait 5 seconds, reinsert the CP card, and secure the lock latches.

The system automatically performs a sysload during which several messages will appear on the system terminal.

- Verify that the message “SYS702 48” appears on the terminal during the sysload. (The “48” portion of the message indicates that the new 48 MB of memory has been located.)

While the sysload is being performed, database conversion occurs.

- Verify that the following message appears on the system terminal:

DATA CONVERSION
X11 RELEASE 20.xx TO RELEASE 21.xx

- 9** Set the date and time:

LD 2 to load the overlay
STAD DD MM YY HR MN SC
******** to exit the program

- 10** Configure networks as CNI groups, based on the number of CNI cards in the system. Configure the CNI card in slot 12, port 0 for network group 0. Refer to *X11 input/output guide* (553-3001-400) for a complete description of the Configuration Record (LD 17):

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
•		
CEQU	YES	
•		
EXT0	3PE	Core/Net 0 extended to 3PE
_CNI	s p g	s = card slot (12) p = port (0) g = network group (0)
•		
EXT1	3PE	Core/Net 1 extended to 3PE
_CNI	s p g	s = card slot (12) p = port (0) g = network group (0)
•		

11 If the number of network groups configured in the system does not match the number of network groups equipped, you must add or remove groups. See *X11 input/output guide* (553-3001-400) for procedures describing adding and removing groups.

12 Print the Configuration Record to verify the above changes:

LD 22	to load the program
REQ PRT	to set the print option
TYPE CFN	to print the configuration
****	to exit the program

13 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next section.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Transferring call processing and installing intermodule cables

- 1 Install NT8D99AD cables between the D connectors on the backplane of each Core/Net module. Install another NT8D99AD cable between the E connectors on the backplane of each Core/Net module.
- 2 Install an NT8D80AZ cable between the J3 connector on the 3PE card in Core/Net 0 and the J3 connector on the 3PE card in Core/Net 1. Install another cable between the J4 connectors on the 3PE cards.
- 3 Set the ENB/DIS switch on the CNI card in Core/Net 0 to DIS.
- 4 Set the ENB/DIS switch on the CNI card in Core/Net 1 to ENB.
- 5 Press the MAN INT button on the CP card in Core/Net 1. Watch the initialization process; INI messages will appear on the display. Make sure the faceplate LEDs on CNI, 3PE, and IGS cards go out.

Note: If the network loop corresponding to a CNI port is not enabled, the LED for that port will not go out.

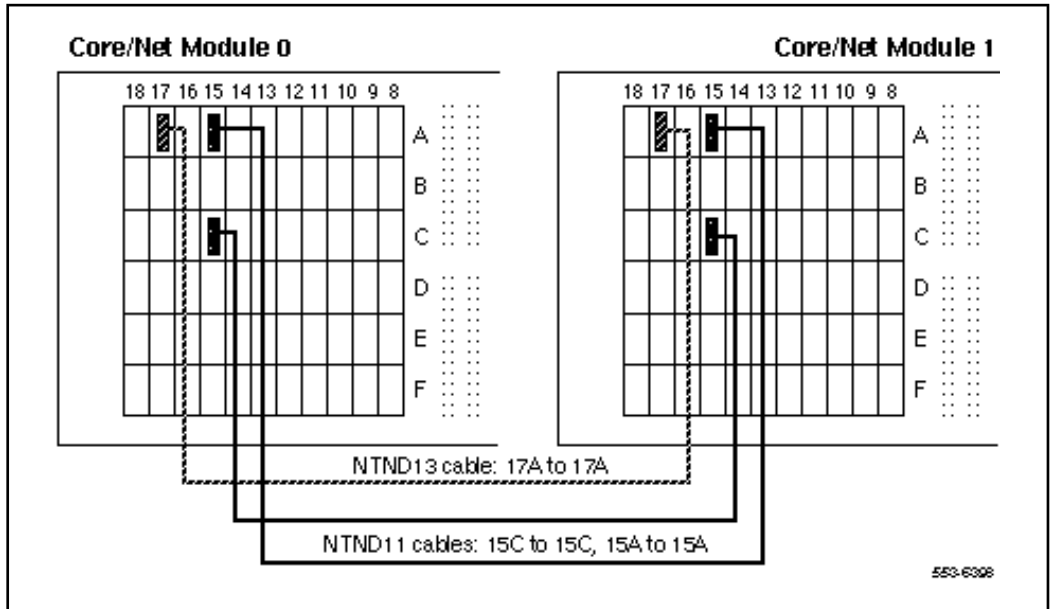
- 6 Check for dial tone. If there is no dial tone (i.e., the system is inoperable) and you cannot afford downtime, switch the loops back to Core/Net 0.
 - Set the ENB/DIS switch on each CNI card on Core/Net 1 to DIS.
 - Set the ENB/DIS switch on each CNI card on Core/Net 0 to ENB.
 - Press the MAN INT button in Core/Net 0.
 - Troubleshoot Core/Net 1 offline.

If you can afford downtime, troubleshoot Core/Net 1 online:

- Perform a visual check of the Core/Net module. Verify that each card is in the correct slot. Verify that all cards are seated, all ENB/DIS switches are set to ENB, and all red LEDs are off.
- Verify that all cables are properly and securely connected in the front and rear of the module.
- Check the status of the CNI cards with LD 135 ("STAT CNI") and ensure all configured CNIs are software enabled.

- If all CNI cards are enabled, proceed directly to step 7. If any CNI cards are disabled, enable them using LD 135; perform a data dump using LD 43; and then press the MAN INT button.
 - Check the status of the CNI cards using LD 135 (“STAT CNI”) and ensure all configured CNIs are software enabled.
 - Check for dial tone.
- 7 Install NTND11 cables between backplane locations 15A in Core/Net 0 and Core/Net 1 (see Figure 9-11) and between backplane locations 15C in Core/Net 0 and Core/Net 1. Install an NTND13 cable between backplane locations 17A in Core/Net 0 and Core/Net 1.

Figure 9-11
NT5D21 Core/Net module (rear)—connections for NTND13 and NTND11 cables



- 8 Make sure a terminal is connected to J25 on the I/O panel in Core/Net 0. If you are using only one terminal, connect it to Core/Net 0; if you are using a switch box for the CPSI ports, set the switch to Core/Net 0. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.

- Upgrade the CP and IOP ROMs on Core/Net 0.
- Insert diskette 1 from the software upgrade package into IOP/CMDU 0. Press the MAN RST button on the CP card in Core/Net 0.
- At the main menu, select option <e> for the CP ROM, follow the screen directions, and then select option <f> for the IOP ROM.

Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320), for complete instructions on upgrading software and ROMs. Do not install software or the customer database on Core/Net 0.

- 9 On the CP card in Core/Net 0, press and release the MAN RST button. When SYS700 messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the LCD will display the following messages, confirming the process:

RUNNING ROM OS
ENTERING CP VOTE

Within 10 minutes, an HWI533 message from the Core/Net 1 CPSI port indicates that Core/Net 1 memory and Core/Net 0 memory are synchronized. Wait until the memory synchronization is complete before continuing.

- 10 Set the NORM/MAINT switch to NORM on the CP card in Core/Net 1 and perform a redundancy sanity test:

LD 135	to load the program
STAT CNI	to get the status of all configured CNIs
STAT CPU	to get the status of both Cores
TEST CPU	to test the inactive CP card and CP-to-CP cable
TEST IPB	to test the backplane protocol on the inactive side
TEST CNI c s	to test each configured CNI on the inactive side

Note: Testing the CP and CNI cards can take up to 90 seconds for each test.

- 11** Test the inactive Core, then switch Cores and test the other side:
- SCPU** to switch to Core/Net 0
 - TEST CPU** to test the inactive CP card and CP-to-CP cable
 - TEST IPB** to test the backplane protocol on the inactive side
- 12** Get the status of the CP cards and memory and of the CNIs:
- STAT CPU** to get the status of both Cores
 - STAT CNI** to get the status of all configured CNIs
 - ****** to exit LD 135
- 13** Synchronize the hard disks. To be sure the contents of IOP/CMDU 1 are copied to IOP/CMDU 0, verify that IOP/CMDU 0 is disabled:
- LD 137** to load the program
 - STAT** to get the status of IOP/CMDUs and redundancy
 - SWAP** to switch IOP/CMDUs (if necessary)
 - SYNC** to synchronize the hard disks
- Note:*** Synchronization may take up to 30 minutes.
- 14** Get the status of the IOP/CMDUs and be sure IOP/CMDU 0 is active. Switch IOP/CMDUs if necessary:
- STAT** to get the status of IOP/CMDUs and redundancy
 - SWAP** to switch IOP/CMDUs (if necessary)
 - ****** to exit LD 137
- 15** In the Configuration Record (LD 17), verify that LD 37, LD 135, and LD 137 are included in the midnight routines. Add them if they are not.

- 16** Insert a B1 database diskette into each IOP/CMDU and perform a data dump to the backup disks. This creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active IOP/CMDU if a diskette is installed.

Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, the upgrade is complete.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Meridian 1 option 61 upgrades

This chapter covers these upgrades:

- Meridian 1 option 61 to X11 release 21, below
- Meridian 1 option 61 to Meridian 1 option 61C (software generic 1811) X11 release 21, page 10-29

Upgrading option 61 to X11 release 21

To upgrade an option 61 to an option 61 X11 release 21 system, you must upgrade both the hardware and the software.

Note: X11 release 21 is the highest supported X11 software release for option 61 systems. The option 61 must be upgraded to an option 61C (with software generic 2311) before converting to X11 release 22 software.

Upgrading the hardware consists of the following:

- replacing the memory card and the floppy disk unit and interface cards
- replacing some of the common equipment with new common equipment required by the new software release

Upgrading the software consists of the following:

- transferring the customer database to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Table 10-1 lists the items required to upgrade an AC-powered or DC-powered option 61. Some configurations may require items not included in the table. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number may represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Note: If the MDU is located in card slots next to a power converter, EMI shields P0727842-1 and P0727843-1 must be installed.

Table 10-1
Hardware required to upgrade an option 61 using an MDU

Quantity	Part number	Description
2	NTND08AA	ROM card
2	NTND09CA	12 MB Memory card
2	NTND10AA	Changeover & Memory Arbitrator card
1	NTND16AA	4MB Multi Disk Unit
(Note)	QPC441	3-Port Extender card (Note)
2	QPC584L and	Mass Storage Interface card
1	NT8D80AC and	MSI/MDU Interface Cable, 2ft
1	NT8D80AD	MSI/MDU Interface Cable, 5ft
	or	
2	NT9D34 and	Enhanced MSI card
1	NT9D89AB and	EMS/MDU Interface Cable, 2ft
1	NT9D89AD	EMS/MDU Interface Cable, 5ft
Note: Not included in upgrade package. Acceptable vintages of 3PE cards required for use with release 21: B1, D, E (series B), E1 (series B), or F. If any existing 3PE card in system is not one of these vintages, replace with correct vintage card before performing upgrade. All 3PE cards in system must be of same vintage. Quantity required depends on system.		

Upgrade preparation

Some preparation is required before the conversion of the hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to disk by performing a data dump.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1** Log into the system.
- 2** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3** When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the option 61 can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 10-2 to determine the appropriate conversion procedure.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (option 61) media.

CAUTION

Performing this database conversion procedure will result in disruption of call processing. If disruption is unacceptable, perform the appropriate parallel reload procedure in *Software conversion procedures* (553-2001-320) rather than this procedure.

Table 10-2**Database conversion requirements, option 61 upgrade to X11 release 21**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 15 or 16 customer database (Use conversion procedure beginning on page 10-6)			
15,16	18	NTND08	Release 18.xx option 61 software disk and data cartridge
18	19	NTND08	Release 19.xx option 61 software disk and data cartridge
19	21	NTND08	Release 21.xx option 61 software disk and data cartridge
For converting a release 17 customer database (Use conversion procedure beginning on page 10-15)			
17	19	NTND08	Release 19.xx option 61 software disk and data cartridge
19	21	NTND08	Release 21.xx option 61 software disk and data cartridge
For converting a release 18 customer database (Use conversion procedure beginning on page 10-22)			
18	19	NTND08	Release 19.xx option 61 software disk and data cartridge
19	21	NTND08	Release 21.xx option 61 software disk and data cartridge
For converting a release 19 customer database (Use conversion procedure beginning on page 10-22)			
19	21	NTND08	Release 21.xx option 61 software disk and data cartridge
For converting a release 20 customer database (Use conversion procedure beginning on page 10-22)			
20	21	NTND08	Release 21.xx option 61 software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 15 or 16 to release 21

- 1 Remove the front covers from the CPU/Network modules in the option 61.
- 2 Log into the system.
- 3 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle, then enter

******** to exit the program

- 4 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
- 5 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.

- 8 If an NT8D69 MDU is installed in the option 61, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Install the QMM42 cartridge for release 18 software on the new MSI or EMSI card for CPU 1.

Note: If the new card is a QPC584 MSI card, it must be vintage L or later.

- 10 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 11 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.
- 13 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 14 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.

- 15 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 17 Insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 18 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 20 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 21 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 22 In CPU 1, remove the QPC581 CMA card.
- 23 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 24 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 25 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 26 Remove the QPC583 Memory card from CPU 1.

- 27 Install the NTND09 Memory card in CPU 1.
- 28 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 29 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 30 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 31 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 32 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 33 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 34 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 35 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 36 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 37 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 38 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 39 Remove the QPC583 Memory card from CPU 0.
- 40 Install the NTND09 Memory card in CPU 0.
- 41 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.

- 42 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 43 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 44 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 45 Log into the system.
- 46 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 47 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 48 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.

- 49** Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 50** Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 51** In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to ENB. Verify that the MAINT/NORM switch is set to NORM.

- 52** In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.

- 53** Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 54** Log into the system.

- 55** Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 56 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 57 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 58 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 59 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 60 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:
SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 61** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 62** Log into the system.
- 63** Copy the contents of the data disks to the hard disk by entering
- | | |
|--------------|--|
| LD 43 | to load the program |
| RES | to copy the entire contents of the backup to the hard disk |
- Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter
- | | |
|-------------|---------------------|
| **** | to exit the program |
|-------------|---------------------|
- 64** Remove disk A2 from drive A and insert disk A1.
- 65** Set the ENB/DIS switch on each MSI or EMSI card to DIS.
- 66** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 67** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 68** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:
- | | |
|--------------|--|
| LD 17 | to load the program |
| IOTB | enter YES to change I/O devices |
| ADAN | enter CHG HDK 0 to add a hard disk unit |
| **** | to exit the program |
- 69** Perform a data dump:
- | | |
|--------------|------------------------|
| LD 43 | to load the program |
| EDD | to begin the data dump |
- When "DATABASE BACKUP COMPLETE" or "DATADUMP COMPLETE" displays on the terminal, enter
- | | |
|-------------|---------------------|
| **** | to exit the program |
|-------------|---------------------|

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 70 To continue upgrading the option 61 to release 21, proceed with step 71. If you are upgrading the option 61 to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 71 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 72 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 61 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Converting a database from release 17 to release 21

- 1 Remove the front covers from the CPU/Network modules in the option 61.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 5 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 6 If an NT8D69 MDU is installed in the option 61, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 7 Install the QMM42 cartridges for release 19 software on both new MSI or EMSI cards.
Note: If the new MSI card is a QPC584 MSI card, it must be vintage L or later.
- 8 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 9 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.

- 10 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 11 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 12 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 13 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 14 Set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 15 Insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 18 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 19 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 20 In CPU 1, remove the QPC581 CMA card.
- 21 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 22 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 23 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 24 Remove the QPC583 Memory card from CPU 1.
- 25 Install the NTND09 Memory card in CPU 1.
- 26 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 27 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 28 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 29 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 30 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 31 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.

- 32 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 33 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 34 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 35 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 36 Remove the QPC583 Memory card from CPU 0.
- 37 Install the NTND09 Memory card in CPU 0.
- 38 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 39 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 40 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 41 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB.
- 42 Verify that the MAINT/NORM switch on both QPC580 CPU Interface cards is set to NORM.
- 43 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 44** Log into the system.
- 45** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 46** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 47** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 48** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 49** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 50 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000

INSERT DISK A2 INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 51 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 52 Log into the system.

- 53 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 54 Remove disk A2 from drive A and insert disk A1.

- 55 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 56 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 57 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 58 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

59 Perform a data dump:**LD 43** to load the program**EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 60** If your upgrade package includes an optional NT7D44 or NT7D45 Power Monitor/Common Equipment Auxiliary Shelf, install it. Refer to *Power monitor/common equipment auxiliary shelves description and installation* (553-3001-570) for instructions.
- 61** To continue upgrading the option 61 to release 21, proceed with step 62. If you are upgrading the option 61 to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 62** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 63** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 61 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Converting a database from release 18 to release 21

- 1 Remove the front covers from the CPU/Network modules in the option 61.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software.
- 5 For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall and enable the card.
- 6 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software.
- 7 For MSI cards, set position 4 on switch SW3 to OFF. For EMSI cards, set position 4 on switch SW2 to OFF. Reinstall and enable the card.
- 8 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.

- 9** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 10** Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
- SYS000**
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 11** Log into the system.
- 12** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.
- 13** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 14** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 15** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.

- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000
INSERT DISK A2 INTO DRIVE A
SYSLOAD RLS: xxISSUE:x
DONE
INI000

- 18 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 19 Log into the system.

- 20 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program
RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 21 Remove disk A2 from drive A and insert disk A1.

- 22 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 23 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 24 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 25 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17	to load the program
IOTB	enter YES to change I/O devices
ADAN	enter CHG HDK 0 to add a hard disk unit
****	to exit the program
- 26 Perform a data dump:

LD 43	to load the program
EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 27 To continue upgrading the option 61 to release 21, proceed with step 28. If you are upgrading the option 61 to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 28 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 29 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 61 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Converting a database from release 19 or 20 to release 21

- 1 Remove the front covers from the CPU/Network modules in the option 61.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 5 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 6 Remove the disks from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 7 Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 8** Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

```
SYS000  
INSERT DISK A2 INTO DRIVE A  
SYSLOAD RLS: xxISSUE:x  
DONE  
INI000
```

- 9** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 10** Log into the system.
- 11** Copy the contents of the data disks to the hard disk by entering
- | | |
|--------------|--|
| LD 43 | to load the program |
| RES | to copy the entire contents of the backup to the hard disk |

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

```
**** to exit the program
```

- 12** Remove disk A2 from drive A and insert disk A1.
- 13** Set the ENB/DIS switch on each MSI or EMSI card to DIS.
- 14** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 15** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 16** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:
- | | |
|--------------|--|
| LD 17 | to load the program |
| IOTB | enter YES to change I/O devices |
| ADAN | enter CHG HDK 0 to add a hard disk unit |
| **** | to exit the program |

- 17 Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 18 To continue upgrading the option 61 to release 21, proceed with step 19. If you are upgrading the option 61 to an option 61C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 19 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 20 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 61 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Upgrading option 61 to option 61C

This section describes upgrading a Meridian 1 option 61 to an option 61C. Upgrading requires powering down the option 61, removing and replacing the NT6D39 CPU/Network card cages with the NT5D21 Core/Network card cages, and installing the release 21 software.

CAUTION

Do not begin a system upgrade unless you are thoroughly familiar with the process for performing the upgrade. You must read through the procedure you will use before you begin the upgrade.

Before any upgrade, we strongly recommend that you perform a thorough audit of the existing system:

- Verify the suitability of the upgrade package you are considering.
- Resolve any existing operational problems, error messages, or other problems.
- Check for minimum vintage requirements on all circuit cards that will remain in the system.
- Verify that all equipment needed for the upgrade has been identified.

CAUTION

Performing this upgrade will require system downtime. Schedule for this when planning the system upgrade.

Because an option 61 has both CPU/Network modules in the same column, power to the entire column must be shut off to accomplish the upgrade. This will cause loss of service to the whole telephone system. The upgrade must be planned for a time when the impact to the telephone users will be minimal.

Equipment required

The hardware required for this upgrade is provided in the core card cage upgrade package. All existing equipment that will be retained must be compatible with X11 release 21. You must order replacements for equipment that does not comply.

Additional equipment may also be needed to meet site requirements. Verify that all equipment needed for the upgrade has been identified.

Table 10-3 lists the equipment required to upgrade a Meridian 1 option 61 system to a Meridian 1 option 61C system.

Table 10-3
Hardware required to upgrade an option 61 system to option 61C

Quantity	Part Number	Description
2	NT5D20AA	I/O Processor and Core Multi Disk Unit
2	NT5D2103	Core/Network Card Cages (CPNET)
2	NT6D66	Call Processor card (CP) (Note 1)
2	NT6D65AA	Core to Network Interface card (CNI)
2	NTND11	CP-to-CP Cable
1	NTND13	SCSI Cable
2	NT7D89	RS-232 Cable
2	NT7D90	IOP-to-I/O Panel Ethernet Cable
2	NT8D80AZ	3PE to 3PE Cable
1	NT8D75AD	Clock to Clock Cable
2	NT8D99AB	D and E port cable
2	NT1R90AB	Trim Panel Kit
Note 1: Two NT6D66AA (24 MB) or NT6D66DA (48 MB) CP cards are required.		

In addition, verify that the QPC441 3PE card installed in your current option 61 system is vintage F or higher and that the QPC471 Clock Controller card is vintage H or higher. Vintages earlier than these will not work in an option 61C.

Terminal and modem connections

During an upgrade, and for continuing system operation, a terminal must be connected to an SDI port in a network slot to provide an I/O interface to the active Core/Net in the system. In addition, a data terminal equipment (DTE) and a data communication equipment (DCE) port on the Core/Net backplane can be used for direct access to the NT6D66 CP cards.

The CP card ports (CPSI ports) are active only when the Core/Net associated with the CP card is active. Therefore, the CPSI ports should not be used as the only I/O connection for the system.

When you transfer call processing to a Core/Net module during an upgrade, one I/O address is required for a CPSI port:

- If only one address is available, the CPSI port for a terminal connection is automatically assigned to it.
- If more than one address is available, the CPSI port for a terminal connection is automatically assigned to the first available address (the lowest number) and an I/O port for a modem connection is automatically assigned to the next available address.

CAUTION

Always configure the I/O port addresses so that one is available for the CPSI terminal port. If no address is available, address 15 is automatically assigned to the CPSI port.

- If there is no address available, the device assigned to I/O address 15 is automatically replaced by the CPSI port for a terminal connection.

When the upgrade is complete, leave a terminal and/or modem connected to the system. One SDI port in a network slot must be permanently connected to a terminal or modem. On the CPSI ports you can do one of the following:

- disconnect the ports
- leave terminals connected for local monitoring
- connect modems for remote monitoring

Refer to Appendix B: “Terminal and modem connections” on page B-1 for instructions on connecting terminals and modems to the option 61C.

Module backplane connections

Core/Net module backplanes, like all circuit boards, have a primary side and a secondary side. The primary side, which faces the front of the module, contains the primary shrouds that provide mating for the card edge connectors. The secondary side of the backplane, which faces the rear of the module, contains the secondary shrouds that provide mating for the cable connectors. The columns of secondary shrouds are designated 18 through 12 (from left to right when looking at the rear of the backplane) and the cable connector locations within each shroud are designated A through F (from top to bottom).

Before you connect cables to the backplane, visually inspect the secondary shroud connectors to make sure there are no bent pins. To connect cables:

- 1 Orient the cable connector so the strain relief paddle is to the right.
- 2 Partially insert the cable connector so its guides mate to the corresponding backplane connector shroud.
- 3 Apply a small amount of pressure to push the cable connector straight into the backplane connector. You will feel a distinct click when the connector seats.

CAUTION

Pins may be bent or broken if you try to insert the cable connector at an angle. Do not push the connector in any farther after you hear the distinct click.

Using the cable extraction tool

To disconnect cables from the Core/Net module backplane, use the P0741489 Extraction Tool provided, located in the rear of the module (behind the I/O safety panel).

Follow the procedure below to remove cable connectors from the backplane. Use extreme caution to avoid bending or breaking backplane pins. Do not insert the extraction tool unless the cable connector is locked into the securing clip; a gentle tug on the cable will allow you to determine whether or not the connector is secured. Do not force the extraction tool deeper than the tab on the side of the cable connector hood, and do not pry with the tool.

- 1 Grasp the cable connector by the strain relief tab.
- 2 Center the long flat edge at the angled end of the tool between the cable connector hood and the securing clip.

Note: There are two versions of the extractor tool. If the straight end of the tool is notched, use that end if the connector can be accessed straight-on. If you must approach the connector from any angle at all, use the angled end, if provided.

- 3 Gently insert the extraction tool and gradually apply pressure in the direction directly toward the backplane while gently pulling the cable away from the backplane. A gentle side-to-side rocking motion may be used on the cable if needed.

CAUTION

Do not pry the against the connector with the extraction tool. Simply inserting the tool between the connector and the securing clip is sufficient to unlock the connector. Prying may cause damage to the connector or the backplane pins.

- 4 Stop applying pressure as soon as the cable connector comes loose from the backplane.
- 5 Slowly remove the extraction tool and the cable connector.

Upgrade preparation

CAUTION

Read through the entire procedure before you begin this upgrade. Perform a thorough audit on the existing system to verify the suitability of the upgrade package and to resolve any existing operational problems, error messages, or other problems.

The following summarizes the steps you must perform before beginning the upgrade:

- 1 Check equipment required for the upgrade.
- 2 Prepare cables for the installation.
- 3 Check the contents of the upgrade package, including all circuit cards and cables. Make sure all of the items on the order form are on the packing slip that comes with the equipment.
- 4 Check the tool list in “Tools” on page 1-2. Make sure all the tools are on hand.
- 5 Check the cards that you will be reusing to ensure that they can be used in the 61C switch.
- 6 Separate the cables in the upgrade package. Label both ends of all cables.
- 7 If they are not already labeled, label both ends of the existing cables to the clock controller cards in both CPU 1 and CPU 0.
- 8 If QPC471 Clock Controller cards in the option 61 are not minimum vintage H, you must replace them before the upgrade. (This requirement does not apply to QPC775 Clock Controller cards.)

- 9** Customer databases prior to release 17 must first be converted to release 17 on the option 61. To convert the database on the option 61 from release 15 or 16 to release 17, perform the software procedure for converting to a higher database in *Software conversion procedures* (553-2001-320). Customer databases release 17 and later will be converted on the option 61C.

Note: If the database media is a 3.5-in. HD or ED floppy disk, it can be installed directly into a CMDU and converted to release 19 software later in the upgrade.

- 10** Follow “Procedure 1: Pre-conversion procedure,” *Software conversion procedures* (553-2001-320), and print configuration records:

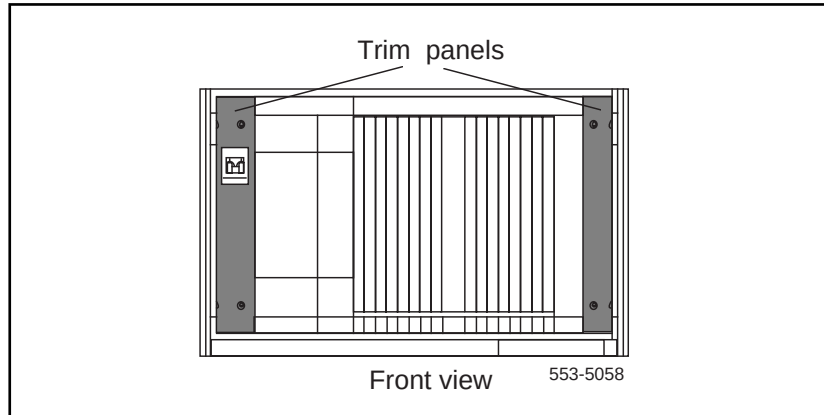
Check the configuration record printouts to identify all configured I/O ports. When you transfer call processing to Core/Network modules, one I/O address should be available for a CPSI port. Refer to “Terminal and modem connections” on page B-1 for specific information regarding the terminal and modem settings.

- If only one address is available, the CPSI port for a terminal connection is automatically assigned to it.
- If more than one address is available, the CPSI port for a terminal connection is automatically assigned to the first available address (the lowest number). If more than one address is available, the I/O port for a modem connection is also assigned automatically.
- If there is no address available, the device assigned to I/O address 15 is automatically replaced by the CPSI port for a terminal connection.

Installing the card cage

- 1 Perform the appropriate step below to turn off power to the column:
 - For AC-powered systems, set the main circuit breaker for the column to OFF (down position) in the rear of the pedestal.
 - For DC-powered systems, set the switch on each NT6D41 CE Power Supply to OFF (down position). Set the circuit breaker for the module to OFF (down position) in the rear of the pedestal.
- 2 Remove the trim panels on both sides of the modules (see Figure 10-1). Keep the screws for reuse.

Figure 10-1
Location of the trim panels



- 3 Tag and disconnect all cables connected to the front of each card in each CPU/Network module. Note the exact positions of the cables connected to cards on the network side of the card cage. They must connect to the same card when the switch is reassembled. Tape over the contacts to avoid grounding. Tape or tie all cables to the sides so the working area in front of the card cage is totally clear.
- 4 On all cards with an ENB/DIS switch on the faceplate, set the switch to DIS.

- 5 On each card cage, remove the three mounting screws that secure the front of the card cage to the bottom of the module. Keep the screws for reuse.

WARNING

It may be necessary to temporarily remove some of the cards to get to the three mounting screws. Be sure to replace these cards in exactly the same slots after the screws have been removed.

- 6 Tag and disconnect cables from the I/O panels. Remove the I/O safety panel that covers the rear of the backplane.
- 7 Tag and disconnect the system monitor ribbon cables to J1 and J2.
- 8 On each card cage, remove the two mounting screws that secure the rear of the card cage to the module. Keep the screws for reuse. (A 1/4" socket wrench is needed for this operation.)

WARNING

Be careful not to drop any of the screws, nuts, or washers that you remove. Parts that fall down into the blower assembly are difficult to retrieve, and could cause premature failure of the blower assembly.

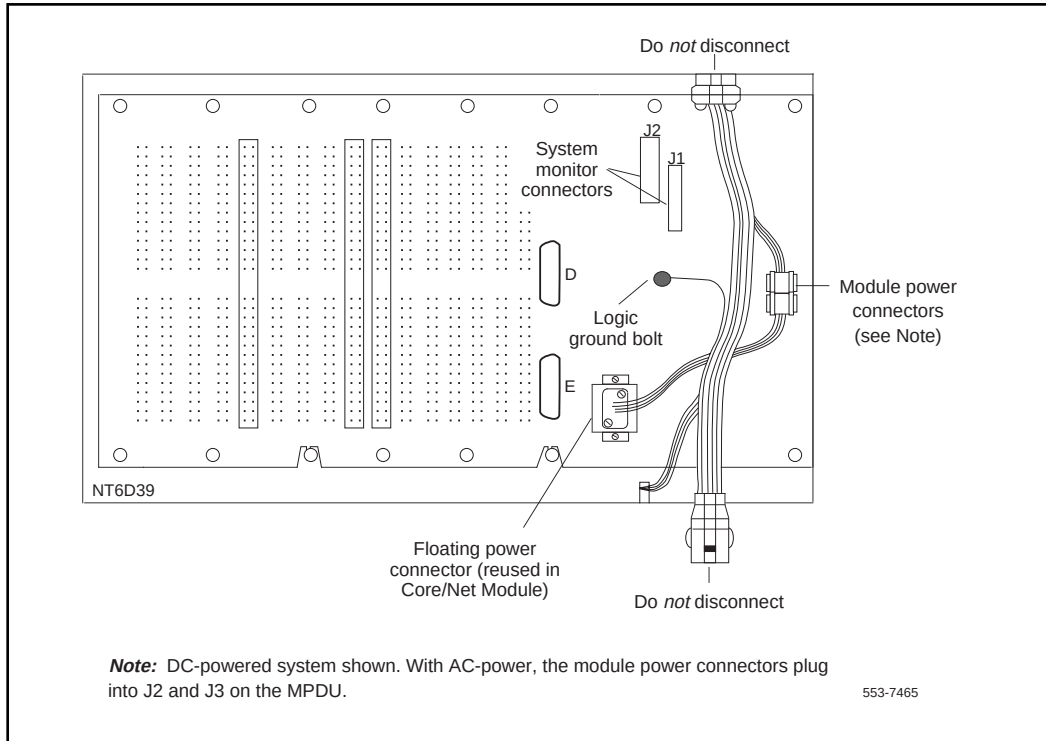
- 9 Pull each card cage forward until it is halfway out of the module.
- 10 Working from the rear of the module, tag and disconnect the two cables that connect the D and E connectors on the bottom (CPU/Network 0) module to the D and E connectors on the top (CPU/Network 1) module (see Figure 10-2).

WARNING

Do not disconnect the main power connectors (large orange connectors) at the top and bottom of the module.

- 11 Remove the logic ground (orange) wire from the backplane bolt. Be careful; do not drop the nut or lock washer into the pedestal.

Figure 10-2
Power connectors on the rear of the CPU/Network module backplanes

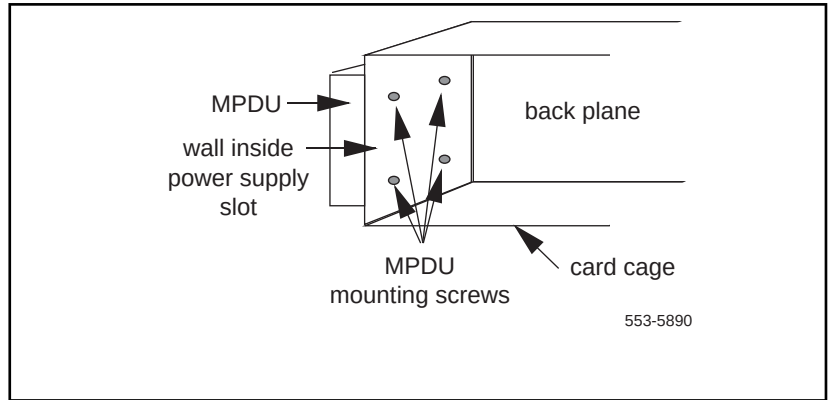


- 12 Tag and disconnect the module power connectors. These are small orange connectors plugged into the module Power Distribution Unit (MPDU) with AC power or connected to each other with DC power.

- 13 Remove the CPU card cages from the modules.

Note: For AC-powered systems: If the new NT5D21 Core/Network modules did not come with a module Power Distribution Unit (MPDU), you must remove the MPDU from each CPU/Network card cage and reinstall it on the new Core/Network card cage after the CPU/Network card cage is out of the module. The screw-heads for the MPDU are in the wall of the power supply slot (see Figure 10-3).

Figure 10-3
Location of the screws for the Module Power Distribution Unit (MPDU)



- 14** If a new floating power connector was not included in the upgrade kit, you should remove the existing floating power connector (the black connector) from the rear of each CPU card cage. Using the same mounting screws and nuts, attach the connectors to the Core/Network card cages.

Note: Check the orientation of the connector. Looking at it from the rear of the card cage, the upper left corner pin should be empty (no wire) and the lower right corner pin should have a wire installed. The green wire should be up.

- 15 Check the backplane jumpers in the Core/Network card cages to identify Core/Net 0 and Core/Net 1 (see Table 10-4 and Figure 10-4). The jumpers are located on the bottom, front side of the backplane near slot 14.

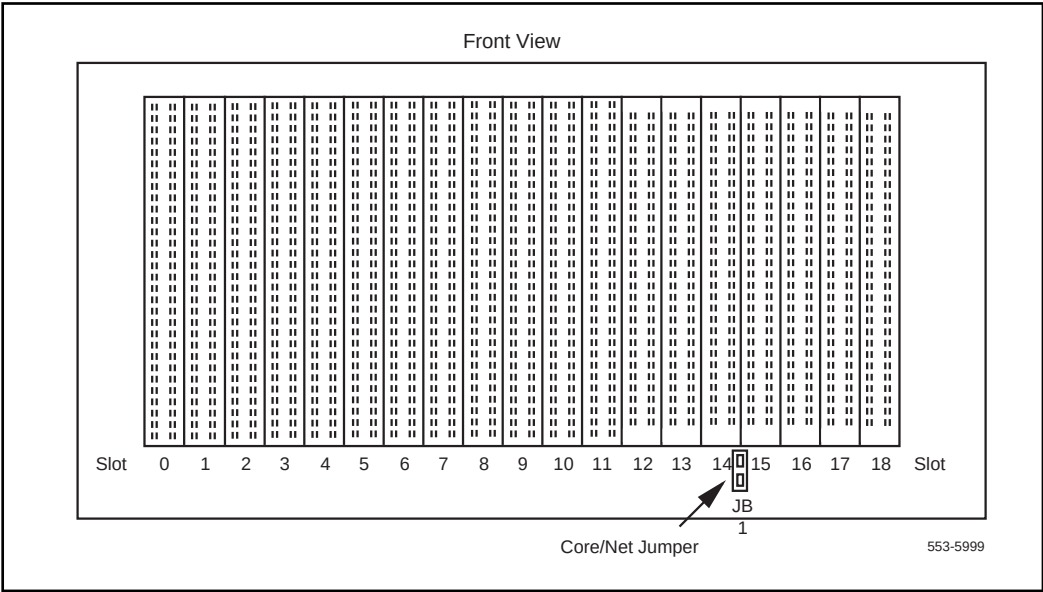
CAUTION

If the Core/Net module jumpers are set incorrectly, the system will not load and operate correctly.

Table 10-4
Backplane jumper settings for NT5D21 Core/Network module

Module	Jumper configuration
Core/Net 0	Jumper plug installed
Core/Net 1	Jumper plug not installed

Figure 10-4
Location of the jumper on the NT5D21 backplane



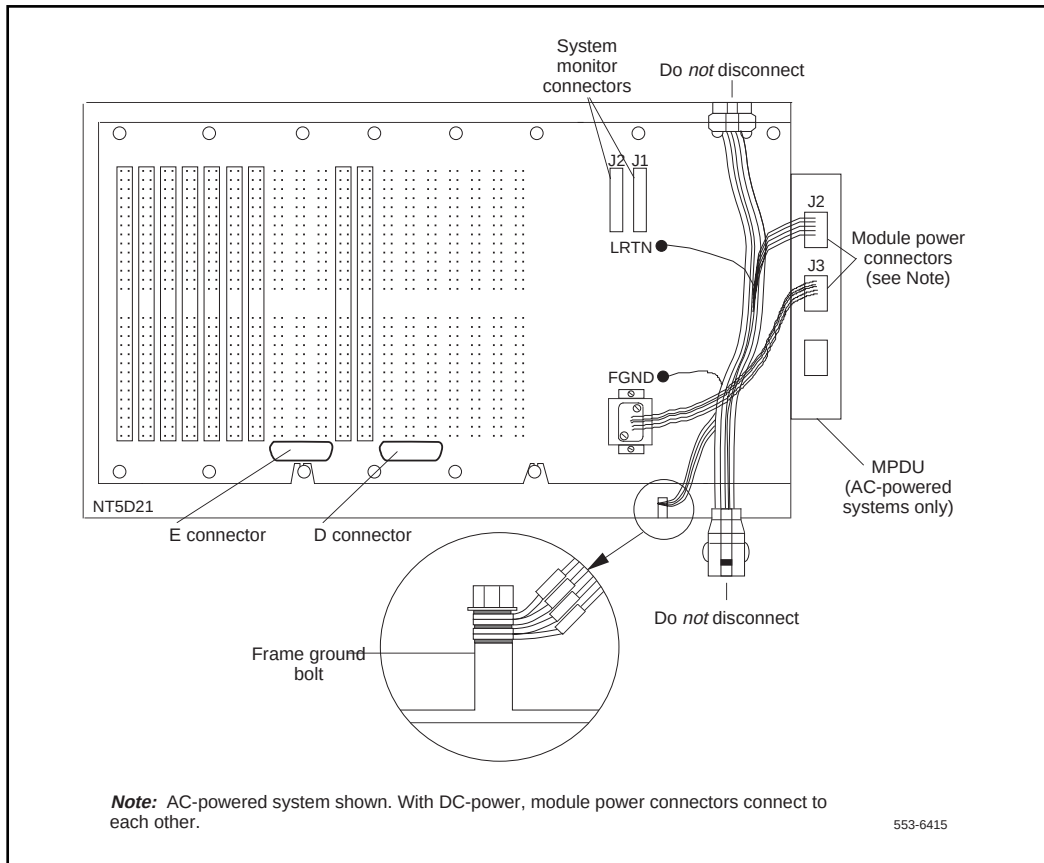
- 16** Reposition the EMI shield (it looks like a brass grill) in the base of the module. Tape over the front mounting tabs to hold the shield in position. The tape will be removed later.
- 17** Slide the Core/Net 0 card cage about halfway into the lower module. Hold the card cage firmly while attaching the power system connectors to the rear of the module (see Figure 10-5):

 - Attach the new frame ground (green) wire to the frame ground post in each module. (A 5/16" socket wrench is needed for this operation.) Remove the nut and the lock washer at the top of the post. Put the frame ground connector over the post. Reinstall the top lock washer and the nut, then tighten the nut down.

Note: For all of the connectors to fit on the post, you need to remove one of the lock washers. You must leave a lock washer at the bottom of the post and at the top of the post. Leave a third lock washer between the second and third, or the third and fourth, connectors.

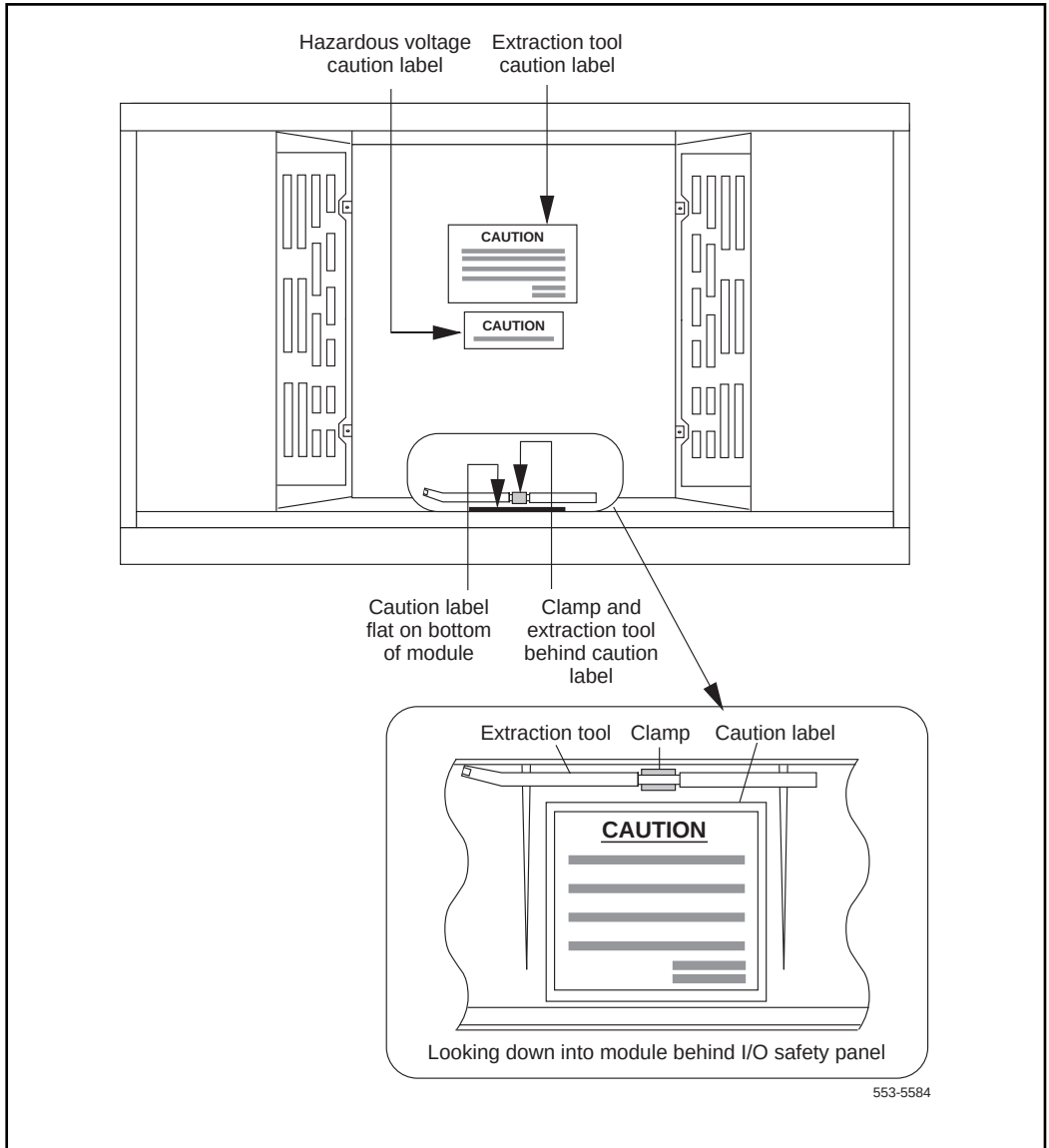
 - Attach the logic ground (orange) wires. Remove one nut and the lock washer. Put the connector over the post, reinstall the lock washer and nut, then tighten the nut down. (A 3/8" socket wrench is needed for this operation.)
 - Connect the module power connectors to the MPDU for AC power or to each other for DC power.
 - Attach the system monitor ribbon cables. J1 goes down to the pedestal, J2 goes up the column.
- 18** Repeat the previous step for the Core/Net 1 card cage.
- 19** Slide the card cage all the way into the Core/Network module.
- 20** Check the position of the EMI shield. If it has shifted, reposition it. Remove the tape holding the EMI shield.
- 21** Secure the card cage to the module with the three screws in the front and the two screws in the rear.
- 22** On the outside of the I/O safety panel, attach one extraction tool caution label above the "CAUTION hazardous voltage" label (see Figure 10-6).
- 23** In the bottom of the module, attach the other extraction tool caution label directly behind the position of the I/O safety panel.

Figure 10-5
Power connectors on the rear of the NT5D21 Core/Network module



- 24 In the bottom of the module, attach the clamp that holds the extraction tool directly behind the extraction tool caution label you just installed.
- 25 Snap the P0741489 Extraction Tool into the clamp.
- 26 Attach the Core/Network module designation labels, provided in the upgrade package, at the front and rear of the modules. These labels can go on top of the existing labels. The smaller label goes on the rear of the module.

Figure 10-6
Positioning the extraction tool and caution labels



- 27 Install the module power supply (reused from the CPU card cage) in the slot labeled “CE pwr sup” in the Core/Network card cage.
- 28 Turn on power to the module. With AC power, set the main circuit breaker to ON (up position) in the rear of the pedestal. With DC power, set the breaker to ON (up position) in the pedestal, then set the switch to ON (up position) on the power supply in the module.
- 29 Check the LED on the hybrid terminators located between slots 11 and 12. All LEDs must be off for Core/Net 0, and ON-OFF-OFF-OFF, from the top down, for Core/Net 1. The LED pattern matches the jumper settings on the backplanes. If either pattern is incorrect, check the jumper on that backplane (refer to Table 10-4).
- 30 Shut down power to the module again. With AC power, set the power supply breaker for the module to OFF (down position). With DC power, set the switch on the power supply for the module to OFF (down position).
- 31 Attach the QMM42 Security Data Cartridge (provided with the software upgrade package) to the NT5D20 IOP/CMDU card. Plug the cartridge into the connectors on the card and install the screw that secures the cartridge. Place the IOP/CMDU card in slot 17. Set the front panel ENB/DIS switch to DIS.
- 32 Set the NORM/MAINT switch to MAINT on the NT6D66 CP card. Place the CP card in slot 15.
- 33 Place the NT6D65 CNI card in slot 12. Set the front panel ENB/DIS switch to DIS.
- 34 Check the vintage of the QPC441 3PE card—it must be minimum vintage F. Set the front panel ENB/DIS switch to DIS. Set the option switches and jumper on the card (see Table 10-5). Place the card in slot 11.

CAUTION

Leave the ENB/DIS switch on the 3PE cards set to ENB. If the cards are disabled, the system will initialize.

Table 10-5
QPC441F 3PE card—option settings

D20 switch: Core/Net 1								Core/Net 0							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
off	on	on	off	on	on	on	off	off	on	on	off	on	on	on	on
RN27 jumper at E35:															
NT5D21 Core/Network module								set to A							
All other modules								set to B							

- 35** Place the QPC43 PS card in slot 10. Set the front panel ENB/DIS switch to DIS.
- 36** Set the option switches on the QPC471 Clock Controller card as shown in Table 10-6. Set the front panel ENB/DIS switch to DIS. Install the clock controller card in slot 9.

Table 10-6
QPC471 Clock Controller card switch settings

Switch	1	2	3	4
SW1	On	On	On	On
SW2	Off	Off	Off	Off
SW4	Off	On	Off	Off

- 37** Remove the network cards from the CPU/Network module and reinstall them in the new Core/Network card cage. Install the cards in slot numbers indicated in Table 10-7. Notice that although the slot numbers have changed, the relative positions of the cards in the modules have not.
- 38** Install the NTND13 SCSI cable from backplane connector 17A in Core/Net 0 to connector 17A in Core/Net 1 (see Figure 10-7).

Table 10-7
Slot number translation for network cards

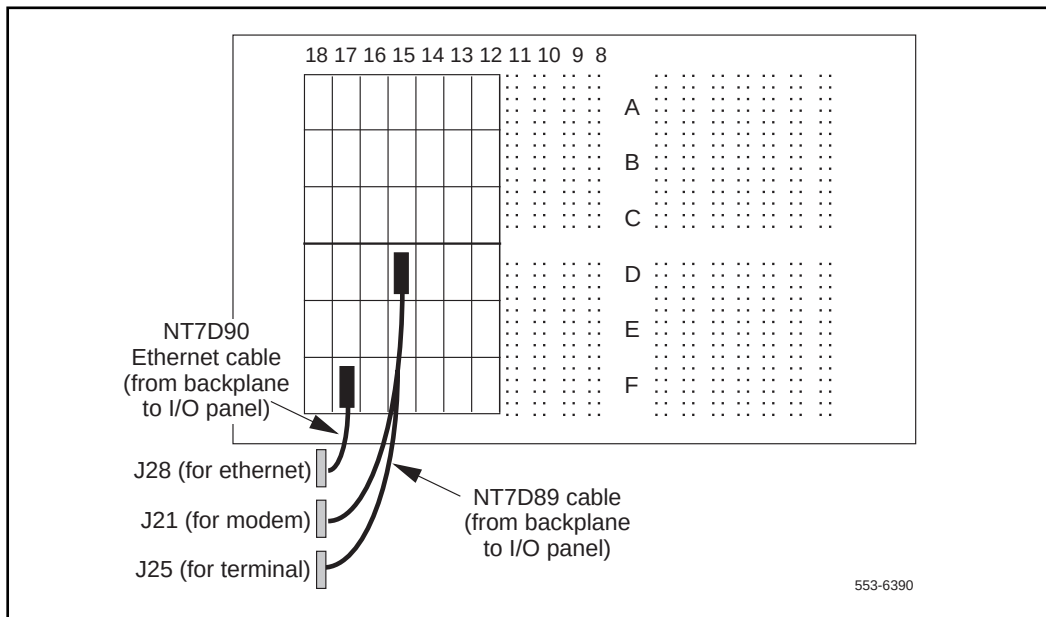
NT6D39 CPU/Net Slot Number	NT5D21 Core/Net Slot Number
1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7

- 42 Follow the steps below to install the NT7D89 RS-232 cable that connects the CPSI ports on the NT6D66 CP card to the left I/O panel. The Y-cable connects one backplane connector to two connectors on the I/O panel (see Figure 10-8).

Note: The inside of the I/O panel faces the backplane. The word LEFT faces the outside of the module. The slot numbers listed below match the designations on the outside of the panel.

- On the inside of the I/O panel, connect port A (for modem connection) to J21.
- On the inside of the I/O panel, connect port B (for terminal connection) to J25.
- Connect the single connector end of the cable to backplane connector position 15D.

Figure 10-8
NT5D21 Core/Network module (rear)—RS-232 cable connections for CPSI ports



- 43 Install the first NT8D99AB D and E cable from the backplane connector labeled D in Core/Net 0 to the backplane connector labeled D in Core/Net 1.
- 44 Install the second NT8D99AB D and E cable from the backplane connector labeled E in Core/Net 0 to the backplane connector labeled E in Core/Net 1.
- 45 Follow the appropriate steps below to connect the clock controller cables:
 - For a QPC471 card, connect the NT8D75 cable from J3 (on the faceplate of the clock controller card) in Core/Net 0 to J3 of the clock controller card in Core/Net 1.
 - For QPC775 Clock Controller cards, connect the NT8D75 cables from J2 (on the faceplate of the clock controller card) in Core/Net 0 to J2 of the clock controller card in Core/Net 1.
 - Leave the ENB/DIS switch set to DIS on QPC471 or QPC775 cards.
- 46 Connect the 3PE module in Core/Net 0 to the 3PE module in Core/Net 1 using the two existing cables. Connector J4 on the faceplate of the 3PE module in Core/Net 0 is connected to connector J4 on the faceplate of the 3PE module in Core/Net 1. Connector J3 on the faceplate of the 3PE module in Core/Net 0 is connected to connector J3 on the faceplate of the 3PE module in Core/Net 1.
- 47 Connect any remaining network and serial cables to the network cards installed in slots 0 through 7. The cables should go to exactly the same connector that they were connected to on the old CPU module.

Note: You may have cables left over after completing this step. You should leave these cables installed until the new option 61C switch has been tested and is working correctly. They will be removed later in this procedure.
- 48 Connect a terminal to the J25 (DCE) port on the I/O panel in Core/Net 0. You must use the following settings on the terminal:

9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol

Note: Refer to Appendix B: “Terminal and modem connections” on page B-1 before connecting the terminal.

- 49** Perform the appropriate step to turn on power to the column:
- For AC-powered systems, set the main circuit breaker to ON (up position) in the rear of the pedestal.
 - For DC-powered systems, set the breaker to ON (up position) in the pedestal, then set the switch to ON (up position) on the power supply in the individual modules.

- 50** Enable the NT5D20 IOP/CMDU card in Core/Net 0 by setting the ENB/DIS switch to ENB.

As the card performs card-level power-up tests, watch the faceplate display for error codes. See *X11 input/output guide* (553-3001-400) for an explanation of the codes.

If the IOP/CMDU card fails the self-test, refer to Appendix C: “Troubleshooting” on page C-1.

- 51** Enable the NT5D20 IOP/CMDU card in Core/Net 0 by setting the ENB/DIS switch to ENB.

- 52** Reset the NT6D66 CP card in Core/Net 0 by pressing the MAN RST button on the front panel. As the card performs card-level power-up tests, watch the LCD display and output from the CPSI port for error messages.

If the CP card fails the self-test, refer to Appendix C: “Troubleshooting” on page C-1.

Following the “Self-test Complete” message, watch the LCD on the CP card for the message “IOP in Slot 17.” If the message does not appear, refer to Appendix C: “Troubleshooting” on page C-1.

- 53** Connect a terminal to the J25 port on the I/O panel in Core/Net 1. You must use the following settings on the terminal:

9600 baud, 7 data, space parity, 1 stop bit, full duplex, XON

- 54** Enable the NT5D20 IOP/CMDU card in Core/Net 1 by setting the ENB/DIS switch to ENB. As the card performs card-level power-up tests, watch the faceplate HEX display for flashing error codes. See *X11 input/output guide* (553-3001-400) for an explanation of the codes.

If the IOP/CMDU card fails the self-test, refer to Appendix C: “Troubleshooting” on page C-1.

- 55** Reset the NT6D66 CP card in Core/Net 1 by pressing the MAN RST button on the front panel. As the card performs card-level power-up tests, watch the LCD display and output from the CPSI port for error messages.

If the CP card fails the self-test, refer to Appendix C: “Troubleshooting” on page C-1.

Following the “Self-test Complete” message, watch the LCD on the CP card for the message “IOP in Slot 17.” If the message does not appear, refer to Appendix C: “Troubleshooting” on page C-1.

Upgrading Core 0 and converting the customer database

To convert and install the customer database on Core 0, you will need the B disk previously removed from the option 61. Refer to “Converting to option 81/61C Media” in the “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

Converting a database from release 17 or 18 to release 21

Follow the steps below to convert the release 17 or 18 database to release 19 and then to release 21, and install the customer database on the option 61C Core 0.

- 1 Set the NORM/MAINT switch on the NT6D66 CP card in Core/Net 0 to MAINT.
- 2 Set the ENB/DIS on the CNI card in Core/Net 1 to DIS.
- 3 Set the ENB/DIS on the IOP/CMDU card in Core/Net 1 to DIS.
- 4 Set the NORM/MAINT switch on the NT6D66 CP card in Core/Net 1 to MAINT.
- 5 Set the ENB/DIS switch on the NT5D20 IOP/CMDU card in Core/Net 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.

Note: Wait for 30 seconds until system messages indicate that the IOP/CMDU card has been successfully enabled, before proceeding to the next step.

- 6 To activate the Software Installation Tool, insert disk 1 (from the release 19 disk set) into the NT5D20 IOP/CMDU in Core/Net 0.
- 7 Press the MAN RST button on the NT6D66 CP card in Core/Net 0.
- 8 Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade

- 9 Follow all screen directions until the software, database, CP-ROM, and IOP-ROM installations are complete.
- 10 When the main menu appears, select the following options:

<q>	to quit
<yes>	to confirm quit
- 11 Remove any diskettes from the floppy drive, and type

<a>	to reboot the system
- 12 Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, Core 0 is operational. If the sysload or initialization fails, refer to “Troubleshooting” on page C-1.
- 13 Log into the system.
- 14 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43	to load the program
- 15 Insert a B1 disk (from the release 20 disk set) titled “DATABASE BACKUP DISK” into the floppy drive in the IOP/CMDU in Core/Net 0.
- 16 Perform a data dump. At the prompt, enter

EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Follow the steps below to convert the release 19 database to release 21 and install the customer database on the option 61C Core 0. You will need the B disk (release 21) previously created when you performed a data dump in step 16.

- 17** To activate the Software Installation Tool, insert disk 1 (from the release 21 disk set) into the NT5D20 IOP/CMDU in Core/Net 0.
- 18** Press the MAN RST button on the NT6D66 CP card in Core/Net 0.
- 19** Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- 20** Follow all screen directions until the software, database, CP-ROM, and IOP-ROM installations are complete.
- 21** When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit
- 22** Remove any diskettes from the floppy drive, and type
 - <a> to reboot the system
- 23** Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, Core 0 is operational. If the sysload or initialization fails, refer to “Troubleshooting” on page C-1.

Proceed to “Completing the Core 0 upgrade” on page 10-56 to continue with the upgrade.

Converting a database from release 19 or 20 to release 21

Use this procedure to convert an option 61 customer database to release 21 on the option 61C.

Note: The system software on the floppy disks is normally shipped preinstalled on the hard disks in the IOP/CMDUs. If you received hardware and software separately, or if there is any indication that the software on the floppy disks may not match the hard disk, you must also upgrade the software and the ROMs on the CP and IOP/CMDU cards. Use the instructions in “Procedure 11: Software Installation Tool,” *Software conversion procedures* (553-2001-320), to perform this upgrade.

- 1 Insert disk A1 from the software upgrade package into IOP/CMDU 0.
- 2 Set the NORM/MAINT switch on the NT6D66 CP card in Core/Net 0 to MAINT.
- 3 Set the ENB/DIS on the CNI card in Core/Net 1 to DIS.
- 4 Set the ENB/DIS on the IOP/CMDU card in Core/Net 1 to DIS.
- 5 Set the NORM/MAINT switch on the NT6D66 CP card in Core/Net 1 to MAINT.
- 6 Press the MAN RST button on the CP card in Core/Net 0.

Note: If the Install screen does not appear, this indicates system software is not installed on the hard drive. Install the software onto the hard drive using the instructions in “Procedure 11: Software Installation Tool,” *Software conversion procedures* (553-2001-320), before proceeding.

- 7 When the install screen appears, select the following options in sequence, and insert the B diskette containing the customer database (that you converted during the upgrade preparation procedures) when you are prompted to do so:

<d>	to install the database
<c>	to transfer the pre-option 61C database
<a>	to transfer the database to hard disk
<a>	to convert from an HD floppy disk
	or
	to convert from an ED floppy disk
<y>	to begin the installation
<a>	to confirm the database conversion

Follow all screen directions until the database transfer is complete.

- 8 Select the following options to quit and reload the system:

<q>	to quit
<yes>	to confirm quit

- 9 Remove any diskettes from the floppy drive and type

<a>	to reboot the system

- 10 Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, Core 0 is operational. If the sysload or initialization fails, refer to “Troubleshooting” on page C-1.

Completing the Core 0 upgrade

- 1 Configure networks as CNI groups, based on the number of CNI cards in the system. In an option 61C configuration, there is only one CNI card and one network group. See *X11 input/output guide* (553-3001-400) for a complete description of the Configuration Record (LD 17).
- 2 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 1000 and 500, respectively). Refer to *Meridian 1 capacity engineering* (553-3001-149). If changes are required, reconfigure the values in LD 17.

- 3 Load overlay 22 and print the Configuration Record to verify the above changes:

LD 22 to load the program
REQ PRT to set the print Option
TYPE CFN to print the configuration
******** to exit the program

After verifying the changes, enter

******** to exit the program

- 4 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 Set the ENB/DIS switch to ENB on the clock controller card in Core/Net 0.
- 6 Set the ENB/DIS switch to ENB on the CNI card in Core/Net 0.
- 7 Set the ENB/DIS switch to ENB on the clock controller card in Core/Net 1.
- 8 Set the ENB/DIS switch to ENB on all of the cards in the network area of the Core/Network modules in both shelves.

- 9 Press the MAN INT button on the CP card in Core/Net 0. Watch the initialization process. Make sure the CNI and 3PE cards are auto-enabled. (The faceplate LEDs should go out.)

Note: If the network loop corresponding to a CNI port is not enabled, the LED for that port may not go out.

- 10 Check for dial tone. If there is no dial tone:

- Perform a visual check of the core module. Verify that each card is in the correct slot. Verify that all cards are seated, all ENB/DIS switches are set to ENB, and all red LEDs are off.
- Verify that all cables are properly and securely connected in the front and rear of the module.
- Check the status of the CNI cards with LD 135 “STAT CNI” and ensure all configured CNIs are software enabled.
- If any configured CNI cards are software disabled, test the card with LD 135 “TEST CNI c s.”
- If the test is successful, enable the card in LD 135, perform a data dump with LD 43, and recheck the CNI status in LD 135.
- Check for dial tone again.

- 11 Following a successful dial tone test, perform the following basic sanity tests:

- Make sure calls can be placed.
- Check for error messages, line noise, chatter, or other problems. Track sources and resolve problems as necessary.

The upgrade of Core 0 is complete, and the customer database is converted. The system is operating in split-mode with call processing on Core 0.

Upgrading Core 1

- 1 Set the ENB/DIS switch to ENB on the CNI card in Core/Net 1.
- 2 Set the ENB/DIS switch to ENB on the IOP/CMDU card in Core/Net 1.
- 3 On the CP card in Core/Net 1, press and release the MAN RST button. When SYS700 messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the LCD will display the following messages, confirming the process:

RUNNING ROM OS

ENTERING CPU VOTE

Within 10 minutes, an HWI533 message from the CPSI (Core 0) or SDI port indicates the Core 0 memory is shadowed to the Core 1 memory. Wait until the memory synchronization is complete before continuing.

Note 1: At this point, Core 0 is still active and in maintenance mode. Core 1 is the standby (inactive) side. The memories are shadowed (synchronized), but the hard disks are not synchronized (redundancy is disabled).

- 4 Set the NORM/MAINT switch to NORM on the CP card in Core/Net 0 and perform a redundancy sanity test:

LD 135 to load the program

STAT CNI to get the status of all configured CNIs

STAT CPU to get the status of both Cores

TEST CNI c s to test the CNI on the inactive side

Note: Testing the CNI cards may take up to 90 seconds for each test.

- 5 Test the inactive Core, then switch Cores and test the other side:

TEST CPU to test the inactive CP card and CP-to-CP cable

SCPU to switch to Core 0

TEST CPU to test the inactive CP card and CP-to-CP cable

Note: Testing the CP cards may take up to 90 seconds for each test.

- 6 Get the status of the CP cards and memory and of the CNIs:
STAT CPU to get the status of both Cores
STAT CNI to get the status of all configured CNIs
******** to exit LD 135
- 7 Synchronize the hard disks. To be sure the contents of CMDU 0 are copied to CMDU 1, verify that CMDU 1 is disabled:
LD 137 to load the program
STAT to get the status of CMDUs, IOPs, and redundancy (verify that CMDU 0 is active)
SYNC to synchronize the hard disks

Note: Synchronization may take up to 30 minutes.

After synchronization is complete, exit the program:

******** to exit LD 137

- 8 In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.
- 9 Insert a backup database disk from the set of installation diskettes into IOP/CMDU 0 and another backup database disk into IOP/CMDU 1. Load overlay 43 and data dump to the backup disk. This command saves the database on both hard drives when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active CMDU if a disk is installed.

- 10** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

The upgrade is complete; the option 61C is running X11 release 21. Continue with “Completing the upgrade” on page 10-62 to confirm system function.

Completing the upgrade

To complete the card cage upgrade, perform the following steps:

- 1 Test the IOP to IOP SCSI connection and test the CMDUs:
 - LD 137** to load the program
 - TEST SCSI** to check the IOP to IOP connection and access to the CMDUs
 - TEST CMDU** to test the hard and floppy disk drives (a floppy disk must be installed)
 - ****** to exit the program

- 2 Test core functions:
 - LD 135** to load the program
 - TEST CPU** to test the inactive CP card and CP-to-CP cable
 - TEST IPB** to test the backplane protocol on the inactive side
 - TEST CNI c s** to test each configured CNI on the inactive side

If all the tests pass, switch Cores and test the side that is now inactive:

 - SCPU** to switch to the other Core
 - TEST CPU** to test the inactive CP card and CP-to-CP cable
 - TEST IPB** to test the backplane protocol on the inactive side
 - TEST CNI c s** to test each configured CNI on the inactive side

- 3 Clear displays, major alarms, and minor alarms:
 - CDSP** to clear the display
 - CMAJ** to clear all major alarms
 - CMIN ALL** to clear all minor alarms
 - SCPU** to switch to the other Core
 - CDSP** to clear the display
 - ****** to exit LD 135

- 4 Load overlay 60 and software enable clock controller cards and any PRI/DTI cards in the Core/Network modules:

LD 60	to load the program
ENL CC x	to enable clock controller card 0 or 1
TRCK aaa	if necessary, to set tracking
ENLL loop	to enable the specified network loop and associated PRI/DTI card
****	to exit the program
- 5 For both Core/Network modules, install the appropriate trim panels from the upgrade package.
- 6 Perform all applicable acceptance test procedures in *Meridian 1 system installation procedures* (553-3001-210).

Meridian 1 option 71 upgrade

This chapter describes the circuit card upgrade of a Meridian 1 option 71 to a Meridian 1 option 71 X11 release 21 system.

Upgrading option 71 to X11 release 21

To upgrade an option 71 to an option 71 X11 release 21 system, you must upgrade both the hardware and the software.

Note: X11 release 21 is the highest supported X11 software release for option 71 systems. The option 71 must be upgraded to an Option 81C before converting to X11 release 22 software.

Upgrading the hardware consists of the following:

- replacing the memory card and the floppy disk unit and interface card
- replacing some of the common equipment with new common equipment required by the new software release

Upgrading the software consists of the following:

- transferring the customer database to extra-high-density disks
- for those customers who so choose, sending the customer database disks to Northern Telecom for conversion
- for those customers who choose to convert the database on-site, converting the customer database to X11 release 21 compatibility

Equipment required

Table 11-1 lists the items required to upgrade an AC-powered or DC-powered option 71. Some configurations may require items not included in the tables. All required items must be identified and on hand before you begin the upgrade.

Letters at the end of the part number may represent the minimum vintage of the upgrade equipment. Only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Note: If the MDU is located in card slots next to a power converter, EMI shields P0727842-1 and P0727843-1 must be installed.

Table 11-1
Hardware required to upgrade an option 71 using an MDU

Quantity	Part number	Description
2	NTND08AA	ROM Card
2	NTND09CA	12 Mbyte Memory Card
2	NTND10AA	Changeover & Memory Arbitrator Card
1	NTND16AA	4MB Multi Disk Unit
(Note)	QPC441	3-Port Extender Card (Note)
2	QPC584L and	Mass Storage Interface (MSI) Card
1	NT8D80AC and	MSI/MDU Interface Cable, 2ft
1	NT8D80AD	MSI/MDU Interface Cable, 5ft
	or	
2	NT9D34 and	Enhanced MSI Card
1	NT9D89AB and	EMSI/MDU Interface Cable, 2ft
1	NT9D89AD	EMSI/MDU Interface Cable, 5ft
Note: Not included in upgrade package. Acceptable vintages of 3PE cards required for use with release 21: B1, D, E (series B), E1 (series B), or F. If any existing 3PE card in system is not one of these vintages, replace with correct vintage card before performing upgrade. All 3PE cards in system must be of same vintage. Quantity required depends on system.		

Upgrade preparation

Some preparation is required before the conversion of the hardware and software begins. You must first do the following:

- Inventory all equipment required for the upgrade.
- Back up the customer database to disk by performing a data dump.

Performing a data dump

Before converting your customer database, you must perform a data dump to your current tapes or disks.

- 1** Log into the system.
- 2** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3** When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting the customer database

The customer database on the option 71 can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 11-2 to determine the appropriate conversion procedure.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the “Preconversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the preconversion procedure, always enter LD 43 using the source (option 71) media.

CAUTION

Performing this database conversion procedure will result in disruption of call processing. If disruption is unacceptable, perform the appropriate parallel reload procedure in *Software conversion procedures* (553-2001-320) rather than this procedure.

Table 11-2**Database conversion requirements, option 71 upgrade to X11 release 21**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 15 or 16 customer database (Use conversion procedure beginning on page 11-6)			
15, 16	18	NTND08	Release 18.xx option 71 software disk and data cartridge
18	19	NTND08	Release 19.xx option 71 software disk and data cartridge
19	21	NTND08	Release 21.xx option 71 software disk and data cartridge
For converting a release 17 customer database (Use conversion procedure beginning on page 11-15)			
17	19	NTND08	Release 19.xx option 71 software disk and data cartridge
19	21	NTND08	Release 21.xx option 71 software disk and data cartridge
For converting a release 18 customer database (Use conversion procedure beginning on page 11-22)			
18	19	NTND08	Release 19.xx option 71 software disk and data cartridge
19	21	NTND08	Release 21.xx option 71 software disk and data cartridge
For converting a release 19 or 20 customer database (Use conversion procedure beginning on page 11-22)			
19, 20	21	NTND08	Release 21.xx option 71 software disk and data cartridge
Note: Use the latest software release (e.g., 15.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 15.53 and 15.57), it must be used.			

Converting a database from release 15 or 16 to release 21

- 1 Remove the front covers from the CPU/Network modules in the option 71.
- 2 Log into the system.
- 3 Load the Common Equipment Diagnostic Program (LD 35) and check the status of the CPUs:

LD 35 to load the program
STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle. If CPU 0 is enabled, test and switch the CPUs:

TCPU to test the CPUs
SCPU to swap the CPUs

Check the status of the CPUs again:

STAT CPU to get the CPU status

Verify that CPU 1 is enabled and CPU 0 is idle.

******** to exit the program

- 4 In CPU 1, set the MAINT/NORM switch on the QPC580 CPU Interface card to MAINT.
- 5 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When "EDD000" appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 6 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 7 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.

- 8 If an NT8D69 MDU is installed in the option 71, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 9 Install the QMM42 cartridge for release 18 software on the new MSI or EMSI card for CPU 1.

Note: If the new MSI card is a QPC584 MSI card, it must be vintage L or later.
- 10 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 11 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.
- 12 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.
- 13 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 14 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.

- 15 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 16 In CPU 1, set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 17 Insert ED floppy disks with release 18 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 18 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 19 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 20 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 21 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 22 In CPU 1, remove the QPC581 CMA card.
- 23 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 24 Connect the cables to the NTND10 CMA card; connect the bottom cable first.

- 25 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 26 Remove the QPC583 Memory card from CPU 1.
- 27 Install the NTND09 Memory card in CPU 1.
- 28 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 29 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 30 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 31 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 32 Verify that the MAINT/NORM switch on the QPC580 CPU Interface card in CPU 1 is set to MAINT.
- 33 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 34 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 35 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 36 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 37 Connect the cables to the NTND10 CMA card; connect the bottom cable first.

- 38 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 39 Remove the QPC583 Memory card from CPU 0.
- 40 Install the NTND09 Memory card in CPU 0.
- 41 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 42 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC602 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 43 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card. Leave the ENB/DIS switch set to DIS.
- 44 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 45 Log into the system.
- 46 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 47 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 48 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Install the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 49 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 50 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 51 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB. Verify that the MAINT/NORM switch is set to NORM.
- 52 In CPU 1, set the MAINT/NORM switch on the QPC580 Interface card to NORM.
- 53 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:
SYS000
SYSLOAD RLS: xxISSUE:x
DONE
INI000
- 54 Log into the system.

- 55** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 56** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 57** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 58** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 59** Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 60** Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

```
SYS000  
INSERT DISK A2 INTO DRIVE A  
SYSLOAD RLS: xxISSUE:x  
DONE  
INI000
```

- 61** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 62** Log into the system.

- 63** Copy the contents of the data disks to the hard disk by entering

```
LD 43          to load the program  
RES           to copy the entire contents of the backup to the hard  
                disk
```

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

```
****           to exit the program
```

- 64** Remove disk A2 from drive A and insert disk A1.

- 65** Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 66** Remove each MSI or EMSI card and set position 4 on switch SW3 to ON.

- 67** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 68** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

```
LD 17          to load the program  
IOTB          enter YES to change I/O devices  
ADAN          enter CHG HDK 0 to add a hard disk unit  
****          to exit the program
```

69 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 70** To continue upgrading the option 71 to release 21, proceed with step 71. If you are upgrading the option 71 to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 71** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 72** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 71 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Converting a database from release 17 to release 21

- 1 Remove the front covers from the CPU/Network modules in the option 71.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4 Set the ENB/DIS switch on the MSI or EMSI cards in CPU 0 and CPU 1 to DIS.
- 5 Disconnect cables to the faceplates of both MSI or EMSI cards and remove the cards.
- 6 If an NT8D69 MDU is installed in the option 71, remove it by gently pulling the unit forward two or three inches. Wait at least 10 seconds, and then remove it from the card slot.

CAUTION

Wait at least 10 seconds before you remove the MDU from the card slot to allow the hard disk to stop spinning.

- 7 Install the QMM42 cartridges for release 19 software on both new MSI or EMSI cards.
Note: If the new MSI card is a QPC584 MSI card, it must be vintage L or later.
- 8 Set the ENB/DIS switch on both new MSI or EMSI cards to DIS.
- 9 On both MSI or EMSI cards, set positions 1, 5, and 7 on switch SW3 to ON.

- 10 Install the NTND16 MDU into its assigned position in the CPU/Network shelf card slots. Install the MDU in the position previously occupied by the NT8D69 MDU.

Note: If the NTND16 MDU must be located close to a 5/12 V converter card, install the EMI shield (provided in the upgrade package) between the shelf rails next to the power converter card.

- 11 With the ENB/DIS switch set to DIS, insert each new MSI or EMSI card into its assigned position.
- 12 For systems using MSI cards, connect one end of an NT8D80AC cable to the connector on the MSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AB cable to the connector on the EMSI card in CPU 0. Connect the other end to faceplate connector 0 on the NTND16 MDU.
- 13 For systems using MSI cards, connect one end of an NT8D80AD cable to the connector on the MSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU. For systems using EMSI cards, connect one end of an NT9D89AD cable to the connector on the EMSI card in CPU 1. Connect the other end to faceplate connector 1 on the NTND16 MDU.
- 14 Set the ENB/DIS switch on each MSI or EMSI card to ENB.
- 15 Insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 16 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 17 In CPU 1, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 18 In CPU 1, set the ENB/DIS switch on the QPC581 CMA card to DIS.
- 19 Disconnect both cables from the QPC581 CMA card faceplate connectors.
- 20 In CPU 1, remove the QPC581 CMA card.
- 21 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 22 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 23 Set the ENB/DIS switch on the NTND10 CMA card in CPU 1 to ENB.
- 24 Remove the QPC583 Memory card from CPU 1.
- 25 Install the NTND09 Memory card in CPU 1.
- 26 In CPU 1, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 27 In CPU 1, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 28 In CPU 1, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 29 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 1 to ENB.
- 30 In CPU 0, set the ENB/DIS switch on the QPC580 CPU Interface card to DIS.
- 31 In CPU 0, set the ENB/DIS switch on the QPC581 CMA card to DIS.

- 32 Disconnect both cables from the QPC581 CMA card faceplate connectors and remove the card.
- 33 On the NTND10 CMA card, connect pins 1 and 2 on the jumper at J3 and install the card.
- 34 Connect the cables to the NTND10 CMA card; connect the bottom cable first.
- 35 Set the ENB/DIS switch on the NTND10 CMA card in CPU 0 to ENB.
- 36 Remove the QPC583 Memory card from CPU 0.
- 37 Install the NTND09 Memory card in CPU 0.
- 38 In CPU 0, disconnect the cable between the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 39 In CPU 0, remove the QPC579 CPU Function card. Remove the QPC939 ROM card and replace it with the NTND08 ROM card. Reinstall the CPU card.

CAUTION

Carefully align the connector pins when installing a ROM card. Failure to use care may result in damage to one of the cards or system failure.

- 40 In CPU 0, connect the cable to the QPC579 CPU Function card and the QPC580 CPU Interface card.
- 41 Set the ENB/DIS switch on the QPC580 CPU Interface card in CPU 0 to ENB.
- 42 Verify that the MAINT/NORM switch on both QPC580 CPU Interface cards is set to NORM.
- 43 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 44** Log into the system.
- 45** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 46** Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 47** Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 48** Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 49** Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 50 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000

INSERT DISK A2 INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 51 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 52 Log into the system.

- 53 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 54 Remove disk A2 from drive A and insert disk A1.

- 55 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 56 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 57 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 58 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

59 Perform a data dump:

LD 43 to load the program

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

60 Remove disk A2 from the A drive and insert disk A1.

61 To continue upgrading the option 71 to release 21, proceed with step 62. If you are upgrading the option 71 to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.

62 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.

63 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 71 X11 release 21 system is now operational. Install all covers to complete the installation.

Converting a database from release 18 to release 21

- 1 Remove the front covers from the CPU/Network modules in the option 71.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- 4 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 5 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 18 software with the QMM42 cartridge for release 19 software. Reinstall and enable the card.
- 6 Remove the disks containing release 18 software from the drives and insert ED floppy disks with release 19 software into the NTND16 MDU drives. Insert disk A in DRV A and disk B in DRV B.
- 7 Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 8 Simultaneously press both RLD buttons on the NTND10 CMA cards. System messages similar to the following will appear:

SYS000

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 9 Log into the system.
- 10 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 11 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 12 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge for release 19 software with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 13 Remove the disks containing release 19 software from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 14 Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 15 Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

SYS000

INSERT DISK A2 INTO DRIVE A

SYSLOAD RLS: xxISSUE:x

DONE

INI000

- 16 Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.

- 17 Log into the system.

- 18 Copy the contents of the data disks to the hard disk by entering

LD 43 to load the program

RES to copy the entire contents of the backup to the hard disk

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

******** to exit the program

- 19 Remove disk A2 from drive A and insert disk A1.

- 20 Set the ENB/DIS switch on each MSI or EMSI card to DIS.

- 21 Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.

- 22 Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.

- 23 If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:

LD 17 to load the program

IOTB enter **YES** to change I/O devices

ADAN enter **CHG HDK 0** to add a hard disk unit

******** to exit the program

24 Perform a data dump:**LD 43** to load the program**EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

25 Remove disk A2 from the A drive and insert disk A1.**26** To continue upgrading the option 71 to release 21, proceed with step 27. If you are upgrading the option 71 to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.**27** Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.**28** Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 71 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Converting a database from release 19 or 20 to release 21

- 1 Remove the front covers from the CPU/Network modules in the option 71.
- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media. Do not exit LD 43. When “EDD000” appears on the terminal, proceed to the next step.

- 4 Set the ENB/DIS switch on the MSI or EMSI card in CPU 1 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 5 Set the ENB/DIS switch on the MSI or EMSI card in CPU 0 to DIS and remove the card. Replace the QMM42 cartridge with the QMM42 cartridge for release 21 software. Reinstall and enable the card.
- 6 Remove the disks from the drives and insert ED floppy disks with release 21 software into the NTND16 MDU drives. Insert disk A1 in DRV A and disk B1 in DRV B.
- 7 Perform a data dump. At the prompt, enter **EDD** to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 8** Simultaneously press both RLD buttons on the NTND10 CMA cards. When prompted, remove disk A1 from the A drive and insert disk A2. System messages similar to the following will appear:

```
SYS000  
INSERT DISK A2 INTO DRIVE A  
SYSLOAD RLS: xxISSUE:x  
DONE  
INI000
```

- 9** Immediately following the system initialization sequence, remove disk A2 from drive A and insert disk A1.
- 10** Log into the system.
- 11** Copy the contents of the data disks to the hard disk by entering
- | | |
|--------------|--|
| LD 43 | to load the program |
| RES | to copy the entire contents of the backup to the hard disk |

Insert the additional system disk (A2) when requested. When the restore sequence is complete, enter

```
****          to exit the program
```

- 12** Remove disk A2 from drive A and insert disk A1.
- 13** Set the ENB/DIS switch on each MSI or EMSI card to DIS.
- 14** Remove each MSI or EMSI card. For MSI cards, set position 4 on switch SW3 to ON. For EMSI cards, set position 4 on switch SW2 to ON.
- 15** Reinstall each MSI or EMSI card and set the ENB/DIS switch to ENB.
- 16** If you are installing an MDU and the system is not configured for a hard disk drive, change the configuration record:
- | | |
|--------------|--|
| LD 17 | to load the program |
| IOTB | enter YES to change I/O devices |
| ADAN | enter CHG HDK 0 to add a hard disk unit |
| **** | to exit the program |

- 17 Perform a data dump:

LD 43 to load the program
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” displays on the terminal, enter

******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 18 Remove disk A2 from the A drive and insert disk A1.
- 19 To continue upgrading the option 71 to release 21, proceed with step 20. If you are upgrading the option 71 to an option 81C X11 release 22, remove the database disk and use the procedures in *Upgrade system installation to X11 release 22* (553-3001-258) to upgrade the system hardware and convert the software to release 22.
- 20 Verify the system by using the test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 21 Follow the “Postconversion procedure” in *Software conversion procedures* (553-2001-320).

The option 71 X11 release 21 system is now operational. Install all covers to complete the upgrade.

Upgrades to Meridian 1 option 81

This chapter describes these upgrades to the Meridian 1 option 81:

- Option 61C Core Module upgrade to option 81, page 12-5
- Option 71 Core card cage upgrade to option 81, page 12-34
- XT and option 71 (in cabinets) Core module upgrade to option 81, page 12-92
- XT system Core module and Network module upgrade to option 81, page 12-163.

If you are upgrading to an option 81 from an option 61, use the XT system Core module and Network module upgrade procedures on page 12-163.

CAUTION

Do not begin a system upgrade unless you are thoroughly familiar with the process for performing the upgrade. Read through the procedure you will use before you begin the upgrade.

Before beginning an upgrade, read the important information on the next few pages pertaining to connection of a system monitor or modem, and backplane connections. Then perform a thorough audit of the system you are upgrading:

- Verify the suitability of the upgrade package you are considering.
- Resolve any existing operational problems, error messages, or other problems.
- Check for minimum vintage requirements on all circuit cards that will remain in the system.
- Verify that all equipment needed for the upgrade has been identified.

Terminal and modem connections

During an upgrade, and for continuing system operation, connect a terminal to an SDI port in a network slot to provide an I/O interface to the active CPU in the system. Connect another terminal or a modem (for remote access) to either the DTE port or the DCE port on the Core/Net module backplane to provide communication with the CP card in the system. The terminals must be RS-232 and capable of 9600 baud.

The Call Processor card serial interface ports (CPSI ports) are active only when the Core associated with the CP card is active. Therefore, the CPSI ports should not be used as the only I/O connection for the system.

Note: When transferring call processing to a Core module during an upgrade, one I/O address is required for a CPSI port. If there is no address available, an SYS 4532 error is displayed. You must make available one port assignment for a CPSI port.

When the upgrade is complete, leave a terminal and/or modem connected to the system. One SDI port in a network slot must be permanently connected to a terminal or modem. On the CPSI ports you can do one of the following:

- disconnect the ports
- leave terminals connected for local monitoring
- connect modems for remote monitoring

Refer to Appendix B: “Terminal and modem connections” on page B-1 for instructions on connecting terminals and modems to the Option 81.

Module backplane connections

Module backplanes have a primary side and a secondary side. The primary side (the side that faces the front of the module) contains the primary shrouds that provide mechanical guidance for the pins of the card edge connectors. The secondary side of the backplane (the side that faces the rear of the module) contains the secondary shrouds that provide mechanical guidance for cable connectors.

The columns of secondary backplane shrouds are designated 18 through 8 from left to right (facing the rear of the backplane). This numbering matches the card slots in the front of the module. The rows of connectors on the secondary backplane shrouds are designated A through F from top to bottom.

Before you connect cables to the backplane, visually inspect the secondary shroud connectors to make sure there are no bent pins. To connect cables, do the following:

- 1** Hold the cable so that the connector is perpendicular to the backplane, with the cable extending down at a 45-degree angle.
- 2** Partially insert the cable connector so its guides mate to the corresponding backplane connector.
- 3** Apply a small amount of pressure to push the cable connector straight into the backplane connector. You will feel a distinct click when the connector seats.

CAUTION

Do not push the connector in any further after you hear the click. Pins may be bent or broken if you force the cable connector or insert it at an angle.

Using the cable extraction tool

To disconnect cables from the Core/Network module backplane, you will be required to use the extraction tool provided, located in the rear of the module (behind the I/O safety panel).

CAUTION

You must use the extraction tool to disconnect cables from the backplane in modules to avoid bending or breaking backplane pins. Do not improvise with common hand tools.

Follow the procedure below to remove cable connectors from the backplane. Use extreme caution to avoid bending or breaking backplane pins. Do not insert the extraction tool unless the cable connector is locked into the securing clip; a gentle tug on the cable will allow you to determine whether or not the connector is secured. Do not force the extraction tool deeper than the tab on side of the cable connector hood, and do not pry with the tool.

- 1 Grasp the cable just behind the connector hood.
- 2 Center the long flat edge at the angled end of the tool between the cable connector hood and the securing clip.

Note: There are two versions of the extractor tool, if the straight end of the tool is notched, use that end if the connector can be accessed straight-on. If you must approach the connector from any angle at all, use the angled end.

- 3 Gently insert the extraction tool and gradually apply pressure in the direction directly toward the backplane while gently pulling the cable away from the backplane. A gentle side-to-side rocking motion may be used on the cable if needed.

CAUTION

Do not pry the against the connector with the extraction tool. Simply inserting the tool between the connector and the securing clip is sufficient to unlock the connector. Prying may cause damage to the connector or the backplane pins.

- 4 Stop applying pressure as soon as the cable connector comes loose from the backplane.
- 5 Slowly remove the extraction tool and the cable connector.

Upgrading option 61C to option 81

This section describes how to upgrade a Meridian 1 option 61C system to a Meridian 1 option 81.

This upgrade procedure describes the installation of hardware and software included in software upgrade package 298. Be sure that you have this upgrade package on hand before beginning the upgrade.

To upgrade an option 61C, you must upgrade both the hardware and the software. Upgrading the hardware consists of the following:

- installing Meridian 1 option 81 equipment next to the 61C
- removing the Core 1 CPU equipment from the option 61C and installing it into the Core 1 Module in the option 81
- upgrading CP card memory
- transferring network cards from the option 61C to the option 81
- verifying that the phones are working
- removing the Core 0 CPU equipment from the option 61C and installing it into the Core 0 Module in the option 81
- removing the Core/Network card cages from the option 61C

Upgrading the software consists of the following:

- installing X11 release 21 software on the option 81
- transferring the customer database from the option 61C to the option 81

Note: Read the entire procedure that applies to the upgrade you are planning before you proceed. Be sure you understand every step in the procedure and what equipment is required.

Equipment required

Tables 12-1 and 12-2 list the items required to upgrade an AC- or DC-powered 61C system to a Meridian 1 option 81. Some configurations may require items not included in the tables. All required items must be identified and on hand before the upgrade can start.

Letters at the end of a part number represent the minimum vintage equipment that can be used in the upgrade; only equipment of that vintage or later can be used. Refer to *Product compatibility* (553-3001-156) for equipment compatibility information.

Network cables are required to connect peripheral shelves in the cabinet to network cards in the column. The number of cables required depends on the number of network cards installed. These are the cables:

- NT8D86AC cables that connect the network card and the peripheral buffer card to the I/O panel
- NT9J96 cables that connect the I/O panel in the Core/Network module to the cabinet I/O panel

An NT8D01 Controller Card is provided to support the intelligent peripheral cards in the new IPE Module. If analog peripheral cards are used in the IPE Module, one NT8D21 Ringing Generator must be installed.

Upgrade preparation

Some preparation is required before the conversion of the 61C hardware and software begins. You must first

- inventory all equipment required for the upgrade
- provide appropriate power and ground for the increased electrical load of the option 81
- install the option 81 hardware
- back up the option 61C customer database to disk by doing a data dump
- disable CPU 1 in the option 61C

Table 12-1
Hardware requirements for an AC-powered option 81 (Part 1 of 2)

Qty	Part number	Description
2	NT6D60CA	Core Module, AC
2	NT6D65AA	Core-to-Network Interface Card (CNI)
2	NT7D00AA	Top Cap, AC
1	NT7D06AA	Filler Panel
1	NT8D01BC	Controller, Four Card
1	NT8D04BA	SuperLoop Network Card
1	NT8D06AA	Peripheral Equipment Power Supply, AC
2	NT8D17FA	Conference/TDS Card
2	NT8D22AC	System Monitor
2	NT8D27EE	Pedestal, AC
4	NT8D29AB	Common Equipment Power Supply, AC
4	NT8D35AA	Network Module, AC
1	NT8D36AA	Inter Group Module
1	NT8D37BA	Intelligent Peripheral Equipment Module, AC
1	NT8D46AD	System Monitor-to-SDI cable (60 in.)
1	NT8D46AL	System Monitor Serial Link Cable (7 ft.)
1	NT8D46AS	System Monitor Inter-CPU Cable (30 in.)
1	NT8D46BH	System Monitor-to-MDF Cable (32 ft.)
2	NT8D52AB	Pedestal Blower Unit, AC
2	NT8D53BB	Power Distribution Unit, AC
1	NT8D74BE	Clock Controller-to-Junctor (8 ft.)
1	NT8D74BF	Clock Controller-to-Junctor (10 ft.)
2	NT8D76BD	Intergroup Switch-to-Intergroup Module Cable (5 ft.)
2	NT8D76BE	Intergroup Switch-to-Intergroup Module Cable (8 ft.)

Table 12-1
Hardware requirements for an AC-powered option 81 (Part 2 of 2)

Qty	Part number	Description
2	NT8D76BF	Intergroup Switch-to-Intergroup Module Cable (5 ft.)
1	NT8D82AD	SDI-to-I/O Cable (6 ft.)
1	NT8D90AF	SDI Multi-Port Extension Cable (10 ft.)
1	NT8D91AE	Network-to-Controller Cable (8 ft.)
5	NT8D99AB	CPU-to-Network Cable (2 ft.)
4	NTND14BA	CNI-to-3PE Cable (6 ft.)
2	NTND14BC	CNI-to-3PE Cable (10 ft.)
2	NTND14BD	CNI-to-3PE Cable (12 ft.)
8	QPC412C	Intergroup Switch
1	QPC417	Junctor Board
2	QPC43R	Peripheral Signalling Card
4	QPC441F	Three-Port Extender Card
4	QPC477A9	Bus Terminating Unit
4	QPC477B10	Bus Terminating Unit
1	QPC841	Four-Port SDI Card
Note: If not already equipped, 2 QPC471 (vintage H or later) clock controller cards must be ordered separately.		

Power and ground

Clean power and a good ground are prerequisites to any system upgrade. Refer to *Upgrade engineering* (553-3001-150) to verify that sufficient power is available for the new equipment. Follow the procedures outlined in *Meridian 1 system installation procedures* (553-3001-210) when installing new power equipment and to provide a good ground for the equipment.

Table 12-2
Hardware requirements for a DC-powered option 81 (Part 1 of 2)

Qty	Part number	Description
1	NT6D40AB	Peripheral Equipment Power Supply, DC
4	NT6D41AB	Common Equipment Power Supply, DC
2	NT6D60DA	Core Module, DC
2	NT6D65AA	Core-to-Network Interface Card (CNI)
2	NT7D00BA	Top Cap, DC
1	NT7D06AA	Filler Panel
2	NT7D09CA	Pedestal, DC
2	NT7D10CA	System Monitor Panel
2	NT7D67CB	Power Distribution Unit, DC
1	NT8D01BC	Controller, Four Card
1	NT8D04BA	SuperLoop Network Card
2	NT8D17FA	Conference/TDS Card
2	NT8D22AC	System Monitor
4	NT8D35DA	Network Module, DC
1	NT8D36AA	Inter Group Module
1	NT8D37BC	Intelligent Peripheral Equipment Module, DC
1	NT8D46AD	System Monitor-to-SDI cable (60 in.)
1	NT8D46AL	System Monitor Serial Link Cable (7 ft.)
1	NT8D46AS	System Monitor Inter-CPU Cable (30 in.)
1	NT8D46BH	System Monitor-to-MDF Cable (32 ft.)
2	NT8D52DD	Pedestal Blower Unit, DC
1	NT8D74BE	Clock Controller-to-Junctor (8 ft.)
1	NT8D74BF	Clock Controller-to-Junctor (10 ft.)
2	NT8D76BD	Intergroup Switch-to-Intergroup Module Cable (5 ft.)

Table 12-2
Hardware requirements for a DC-powered option 81 (Part 2 of 2)

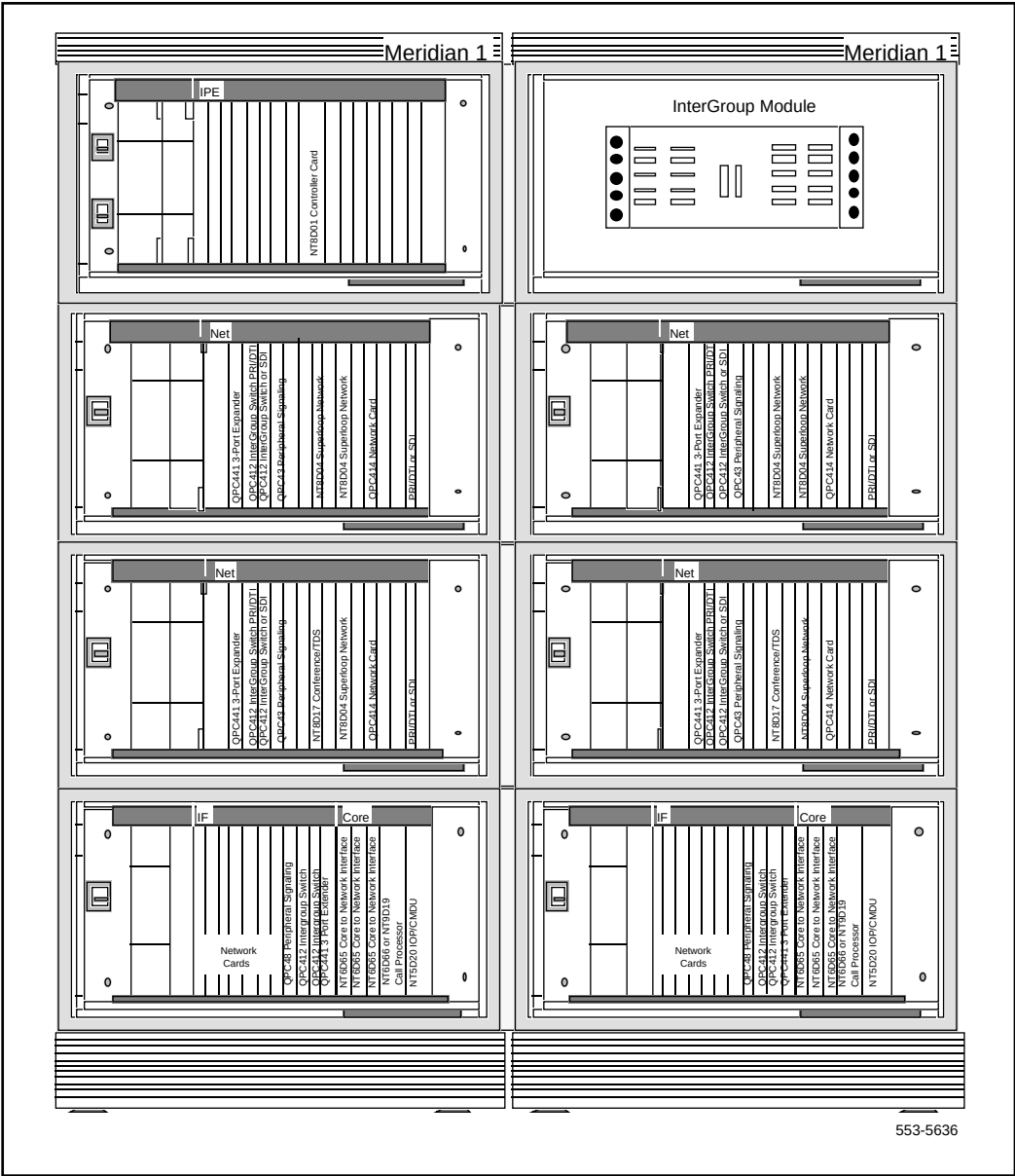
Qty	Part number	Description
2	NT8D76BE	Intergroup Switch-to-Intergroup Module Cable (8 ft.)
2	NT8D76BF	Intergroup Switch-to-Intergroup Module Cable (5 ft.)
1	NT8D82AD	SDI-to-I/O Cable (6 ft.)
1	NT8D90AF	SDI Multi-Port Extension Cable (10 ft.)
1	NT8D91AE	Network-to-Controller Cable (8 ft.)
5	NT8D99AB	CPU-to-Network Cable (2 ft.)
4	NTND14BA	CNI-to-3PE Cable (6 ft.)
2	NTND14BC	CNI-to-3PE Cable (10 ft.)
2	NTND14BD	CNI-to-3PE Cable (12 ft.)
8	QPC412C	Intergroup Switch
1	QPC417	Junctor Board
2	QPC43R	Peripheral Signalling Card
4	QPC441F	Three-Port Extender Card
4	QPC477A9	Bus Terminating Unit
4	QPC477B10	Bus Terminating Unit
1	QPC841	Four-Port SDI Card
Note: If not already equipped, 2 QPC471 (vintage H or later) clock controller cards must be ordered separately.		

Installing option 81 hardware

The option 81 equipment is pre-configured at the factory according to your requirements. The equipment consists of two columns, each containing a pedestal, Core Module, 2 Network Modules, cards, and top cap. In addition, one column comes with a intelligent peripheral equipment module (IPE), and the other comes with an intergroup module (IGM). Cards such as CMDUs and power supplies are shipped in separate packages to prevent damage to the cards. Figure 12-1 shows the option 81 as typically configured.

- 1 Install the option 81 columns. Follow the procedures in *Meridian 1 system installation procedures* (553-3001-210) when installing the system:
 - Prepare equipment for installation.
 - Place a fourth module on a column (if required).
- 2 Install the module power supply in each module:
 - Make sure the system is disconnected from any power source.
 - Set the switch and breakers on all module power supplies or module power distribution units (MPDUs) to OFF.
 - Insert the power supply and hook the locking devices.
- 3 Install AC or DC power equipment. Refer to *Upgrade engineering* (553-3001-150) for ground wiring.
- 4 Make changes at the MDF as required to accommodate equipment in the new columns and system monitor connections.
- 5 Install PFTUs (if required).
- 6 Configure the system monitor. Set the switches according to the tables in *Meridian 1 system installation procedures* (553-3001-210).
- 7 Verify that an NTND11 CP-to-CP cable is connected between backplane locations 14A, and one between backplane locations 14C of the two Core modules in the Option 81.
- 8 Verify that an NTND13 IOP cable is installed between backplane locations 14A of the two Core modules in the Option 81.

Figure 12-1
Meridian 1 option 81 CPU/Network and IPE modules



553-5636

Performing a data dump

To provide a safety backup of the customer database, you must perform a data dump to your current disks:

- 1 On the 61C system, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Splitting the CPUs on the option 61C

Before beginning the upgrade, you must disable CPU 1. To do this, perform these steps:

- 1 In the option 61C, verify that CPU 0 is the active CPU, and switch CPUs if it is not:
LD 135 to load the program
STAT CPU to get the status of the CPUs
SCPU to switch CPUs (if required)
******** to exit the program

- 2 In the option 61C, set the NORM/MAINT switch on the CP card in CPU 0 to MAINT.

Note: Testing the CNI cards can take up to 90 seconds each. Testing the CP card can take up to 20 minutes.

- 3 Perform the next 3 steps in rapid succession to avoid prolonged interruption of call processing:
 - Press and hold the MAN INT button on the CP card in CPU 1.
 - Set the NORM/MAINT switch on the CP card in CPU 1 to MAINT.
 - Release the MAN INT button on the CP card in CPU 1.

Converting the hardware

CAUTION

Continuing with the upgrade will disrupt some telephone service. Plan the upgrade for a time when the impact on customers will be minimal.

CAUTION

Northern Telecom recommends that only properly trained distributor personnel perform this memory SIMM upgrade. Upgrade memory on NT6D66 CP cards involves some risk of damage to SIMMs and CP cards; personnel performing this upgrade do so at their own risk. Personnel should have spare CP cards on hand or risk installation delay or system down time. Northern Telecom assumes no responsibility for any damage incurred, installation delays due to board damage, or loss due to damage or system down time.

Upgrading Core 1

These steps describe how to move CPU 1 from the option 61C to the option 81:

CAUTION

Memory SIMMs are static-sensitive semiconductor devices which require that you take some electrostatic discharge (ESD) precautions. An ESD-safe work station is recommended on which the CP card can be placed. The minimum requirement is a properly-grounded ESD ground strap worn by the upgrade personnel at all times.

If your system is equipped with 24 MB NT6D66 CP cards, you must first increase on-board CP card memory from 24 MB to 48 MB. View the video tape “CP Card SIMMs Installation Video” included in the CP Card Memory Upgrade Package before attempting to upgrade the CP Card memory in your system.

Upgrading a NT6D66 CP card consists of

- removing one 8 MB SIMM or two 4 MB SIMMs from the CP card (depending on the version of the card)
- installing two 16 MB SIMMs onto the CP card

Note: These instructions cover two different vintages of the NT6D66 CP card: the NT6D66AA (with six SIMM sockets) which will become an NT6D66AD and the NT6D66BA (with four SIMM sockets) which will become an NT6D66BD.

1 In the Option 61C, note the slot location of each card in the core half of Core/Net module 1. Write these down so that they are available in case you need to return the cards to their original positions if you must temporarily abort the upgrade.

2 Disengage the lock latches and remove the CP card from Core/Net 1.

Note: If you are not installing SIMMs on the CP cards to upgrade them to 48 MB, but instead are installing *new* 48 MB CP cards, skip step 3 through step 7 and proceed directly to step 8 on page 12-21.

3 Place the CP card SIMM-side up on the antistatic mat.

4 Locate the SIMM(s) to be removed:

- On the NT6D66AA card, locate the two SIMMs designated T5 and T6 (see Figure 12-2)
- On the NT6D66BA card, locate the SIMM designated T3 (see Figure 12-3)

Figure 12-2
SIMM Identification on the NT6D66AA CP card

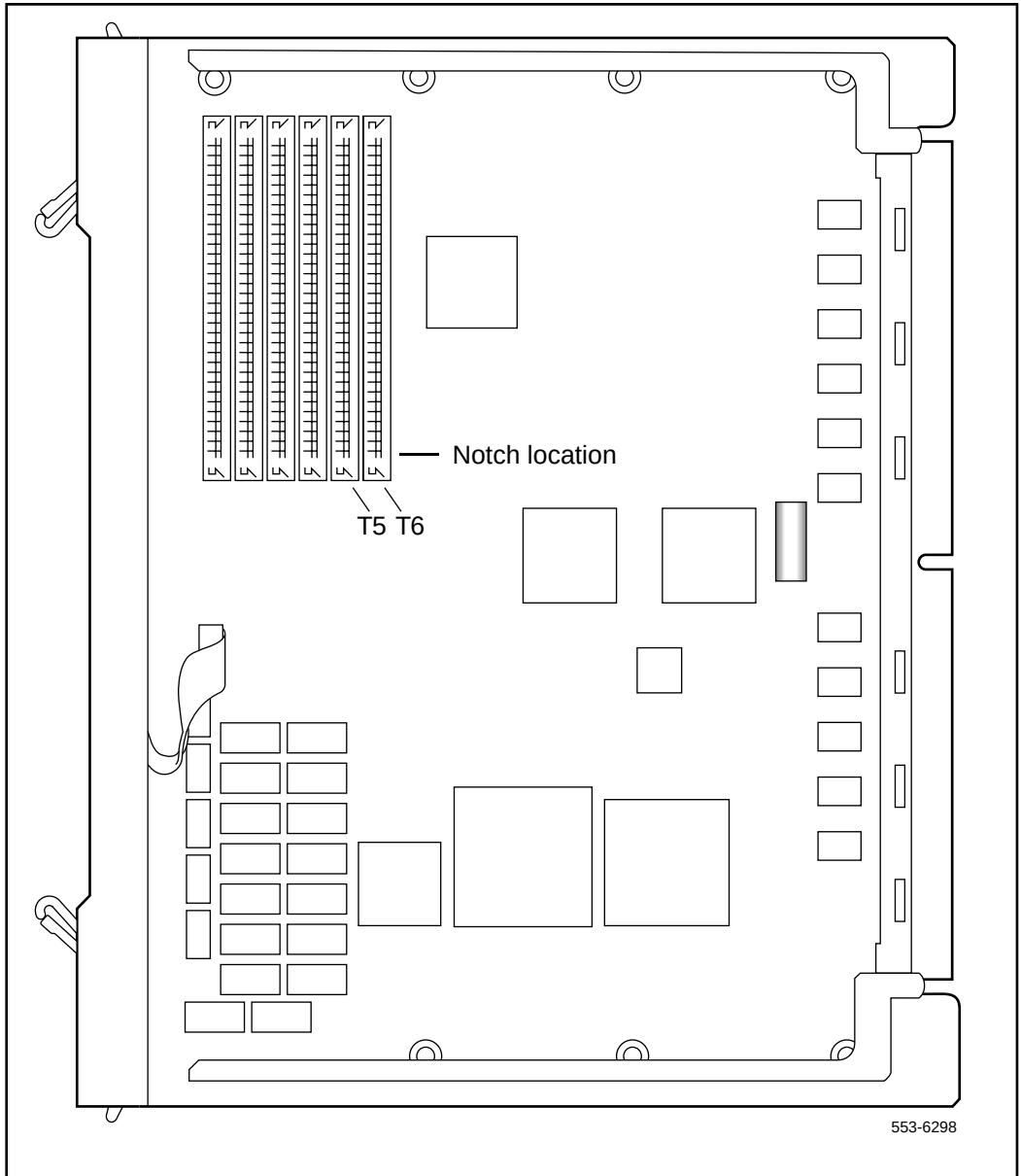
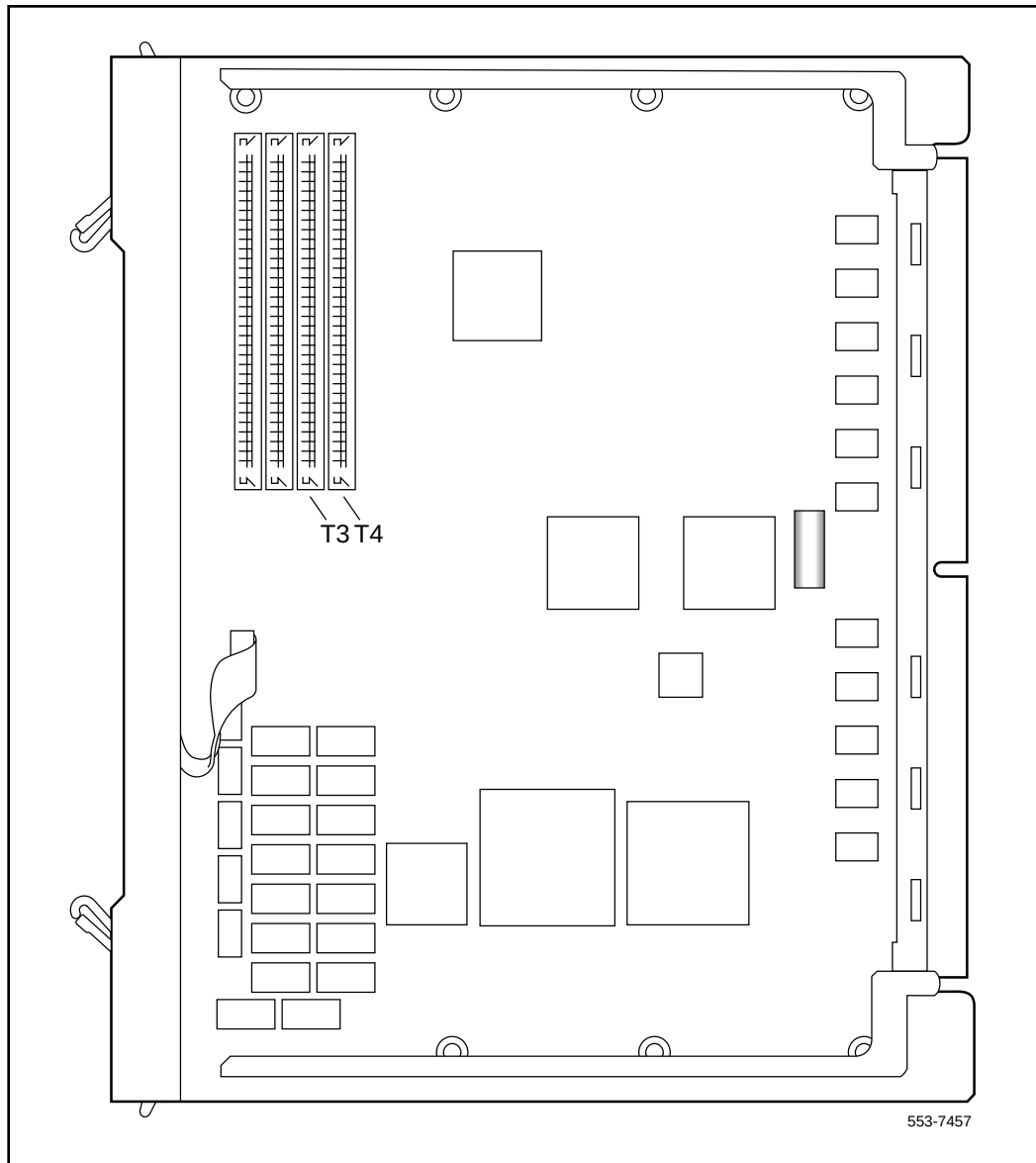


Figure 12-3
SIMM Identification on the NT6D66BA CP card



- 5 Remove the SIMM(s). On the NT6D66BA card, remove the SIMM from location T3; on the NT6D66AA card, remove the SIMM from location T6 first, then from T5:
 - Using the non-conductive screw driver provided, carefully move each latch away first from one end of the SIMM, and then the other end. The SIMM will pivot away from the others until it is at approximately a 50- to 70-degree angle to the board (see Figures 12-4 and 12-5).

Figure 12-4
SIMM Installation on the NT6D66AA CP card

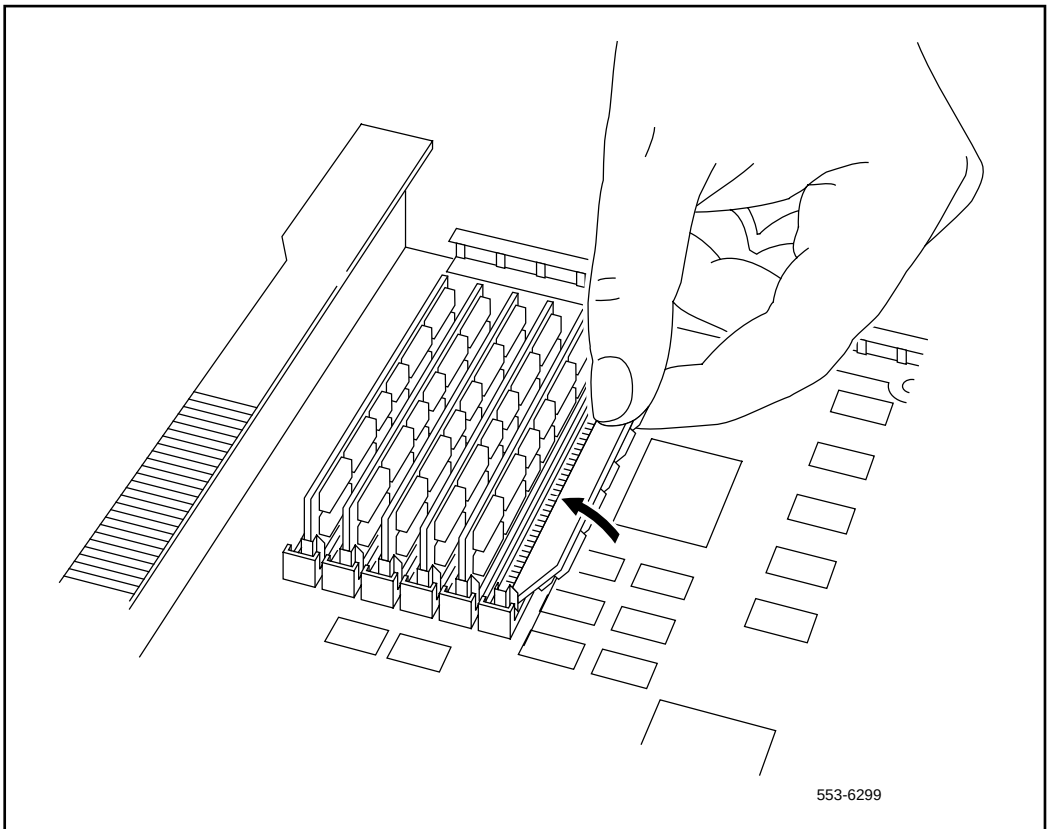
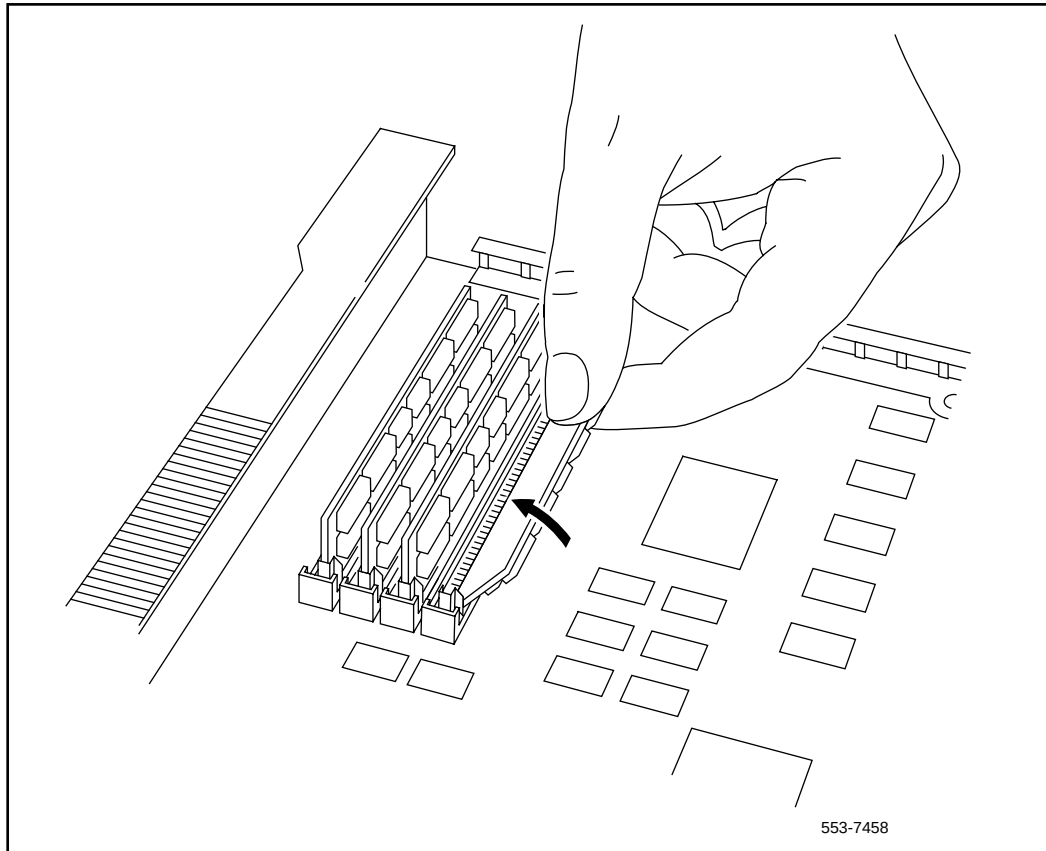


Figure 12-5
SIMM Installation on the NT6D66BA CP card



Note: If, using the non-conductive screw driver, the SIMM does not release from the latches, use your thumbnails, one on each latch, to release the latches: for plastic latches, the latches are located on the ends of each SIMM; for metal latches, levers protrude from each latch. Carefully move the latches outward simultaneously until the SIMM pivots away from the others and it is at approximately a 50- to 70-degree angle to the board.

- Gently pull the SIMM out of the socket.

- 6 Install the two new SIMMs. On the NT6D66BA card, install the SIMM at location T3 first, then at T4; on the NT6D66AA card, install the SIMM at location T5 first, then at T6:
 - Orient the new SIMM so that the notch at one end of the SIMM aligns with the key at one end of the SIMM socket (see Figures 12-2 and 12-3).
 - Hold the SIMM at approximately a 50- to 70-degree angle and gently insert the SIMM into the socket (see Figures 12-4 and 12-5).

CAUTION

Do not force the SIMM into the socket. Any damage caused to the socket will require replacement of the NT6D66 CP card.

- Using your thumbs and index fingers only (at the upper corners of the SIMM), carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use the non-conductive screw driver to assist you in opening each latch while you move the SIMM into the upright position.
- 7 Apply new labels to the upgraded card, making sure to use the correct label for the card you are upgrading:
 - Apply the new faceplate label over the existing label at the center of the faceplate: Place an NT6D66DA label over an NT6D66AA label or an NT6D66BD label over an NT6D66BA label.
 - Apply the new bar code label next to the existing bar code label at the top of the faceplate; do not cover the existing label with the new one.

Discard all unused labels.

- 8 Verify that the NORM/MAINT switch on the 48 MB CP card is set to MAINT.

- 13 Set the ENB/DIS switch to DIS for each of the cards you just installed in the option 81 Core 1 Module.
- 14 In the option 81, confirm that the NORM/MAINT switch on the CP card in Core 1 is set to MAINT.
- 15 Turn on power to the option 81. Watch the LCD display on the CP card in Core 1. The message "SELFTEST COMPLETE" will be displayed when the system initialized successfully. The message "IOP IN SLOT xx" will also display to indicate a successful system initialization. If these messages do not appear, refer to "Troubleshooting" on page C-1.

Installing the System Software and Customer Database

Install X11 release 21 software and the customer database from the option 61C by performing these steps:

- 1 In the option 81, insert diskette 1 from the software upgrade package into CMDU 1.
- 2 Set the ENB/DIS switch on all CNI cards (if installed) in Core 1 to DIS.
- 3 Press the MAN RST button on the CP card in Core 1.

Note: At this time you will install system software if it is not already installed on the hard drive. Install the release 21 software onto the hard drive using the instructions in Procedure 11: "Software Installation Tool," *Software conversion procedures* (553-2001-320). Choose option from the Software Installation Tool main menu to install of software, database, and to update the ROMs. When you have completed the installation, return to this procedure and proceed with the next step.

- 4 When requested, insert the diskette containing the customer database in the CMDU drive.
- 5 Select the following options to quit and reload the system:

<q>	to quit
<yes>	to confirm quit
- 6 Remove the diskette from the floppy drive and type

<a>	to reboot the system

- 7 Power cycle the CP card in Core 1 as follows: Press the MAN RST button and then immediately disengage the lock latches and unseat the card from the backplane. Wait 5 seconds, reinsert the CP card, and secure the lock latches.

The system will automatically perform a sysload during which several messages will appear on the system terminal.

- Verify that the message “SYS702 48” appears on the terminal during the sysload. (The “48” portion of the message indicates that 48MB of memory has been located.)

While the sysload is being performed, database conversion occurs.

- Verify that the following message appears on the system terminal:

DATA CONVERSION
X11 RELEASE <old rls #> TO RELEASE 21.xx

- 8 Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, Core 1 is operational. If the sysload or initialization fails, refer to “Troubleshooting” on page C-1.

- 9 Set date and time:

LD 2 to load the overlay
STAD **DD MM YY HR MN SC**

- 10 Configure the system with the new memory configuration:

LD 17 to load the overlay

- 11 For each prompt, type the following response:

REQ **CHG**
TYPE **CEQU**

- 12 Press the RETURN key until the “MCFN” prompt appears and enter:

MCFN **4 4 4 4 16 16**

Note: Be sure to insert one space between the values when typing.

- 13 Press the RETURN key until the “REQ” prompt appears and then enter:

REQ ********

- 14** Load overlay 22 and print the Configuration Record to verify the above changes:

LD 22 to load the program
REQ PRT to set the print option
TYPE CFN to print the configuration

After verifying the changes, enter

******** to exit the program

- 15** Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Moving the Network Cards

These steps describe how to move the network cards from the option 61C to the option 81 and transfer call processing on the option 81:

- 1 In the option 61C, note the slot number each network card is located in the option 61C Network slots of the Core/Network Modules. Write these down so that they are available in case you need to return the cards to the option 61C if you must temporarily abort the upgrade.

Move the network cards from the option 61C Core/Network Module 0 slots and install them in option 81 Network Group 0, shelf 0. Install the cards in slot numbers indicated in Table 12-3.

Move the network cards from the option 61C Core/Network Module 1 slots and install them in option 81 Network Group 0, shelf 1. Install the cards in slot numbers indicated in Table 12-3.

Table 12-3
Slot number translation from option 61C to option 81 for Network cards

Option 61C Slot Number	Option 81 Slot Number
0	5
1	6
2	7
3	8
4	9
5	10
6	11
7	12

- 2 Install cables from network cards in the option 81 Network Group 0 modules to the PE interface cards in the option 61C PE Modules. See “Cabling” in *Meridian 1 equipment identification* (553-3001-154) to determine the correct cable part numbers.
- 3 Set the ENB/DIS switch on all the CNI cards to ENB.

- 4 In the option 81, press the MAN INT button on the CP card in Core 1.
- 5 After the initialization message (“INI”) appears on the display, check for dial tone.
- 6 Load overlay 135 and check the status of all configured CNI cards:

LD 135	to load the program
STAT CNI	to get the status of all configured CNIs
****	to exit the program

Upgrading Core 0

These steps describe how to move CPU 0 from the option 61C to the option 81:

First, upgrade the memory on the NT6D66 CP card in Core/Net 0.

Note: These instructions cover two different vintages of the NT6D66 CP card: the NT6D66AA (with six SIMM sockets) which will become an NT6D66AD and the NT6D66BA (with four SIMM sockets) which will become an NT6D66BD.

- 1 In the Option 61C, note the slot location of each card in the core half of Core/Net module 0. Write these down so that they are available in case you need to return the cards to their original positions if you must temporarily abort the upgrade.
- 2 Disengage the lock latches and remove the CP card from Core/Net 0.
Note: If you are not installing 16MB SIMMs on the CP cards to upgrade them to 48 MB, but instead are installing *new* 48 MB CP cards, skip step 3 through step 7 and proceed directly to step 8 on page 12-29.
- 3 Place the CP card SIMM-side up on the antistatic mat.
- 4 Locate the SIMM(s) to be removed:
 - On the NT6D66AA card, locate the two SIMMs designated T5 and T6 (see Figure 12-2 on page 12-17)
 - On the NT6D66BA card, locate the SIMM designated T3 (see Figure 12-3 on page 12-18)

5 Remove the SIMM(s). On the NT6D66AA card, remove SIMM T6 first:

- Using the non-conductive screw driver provided, carefully move each latch away first from one end of the SIMM, and then the other end. The SIMM will pivot away from the others until it is at approximately a 50- to 70-degree angle to the board (see Figure 12-4 on page 12-19 and Figure 12-5 on page 12-20).

Note: If, using the non-conductive screw driver, the SIMM does not release from the latches, use your thumbnails, one on each latch, to release the latches: for plastic latches, the latches are located on the ends of each SIMM; for metal latches, the levers protrude from each latch. Carefully move the latches outward simultaneously until the SIMM pivots away from the others and it is at approximately a 50- to 70-degree angle to the board.

- Gently pull the SIMM out of the socket.

6 Install the two new SIMMs. On the NT6D66AA card, install SIMM T5 first; on the NT6D66BA card, install SIMM T3 first:

- Orient the new SIMM so that the notch at one end of the SIMM aligns with the key at one end of the SIMM socket (see Figure 12-2 on page 12-17 and Figure 12-3 on page 12-18).
- Hold the SIMM at approximately a 50- to 70-degree angle and gently insert the SIMM into the socket (see Figure 12-4 on page 12-19 and Figure 12-5 on page 12-20).

CAUTION

Do not force the SIMM into the socket. Any damage caused to the socket will require replacement of the NT6D66 CP card.

- Using your thumbs and index fingers only (at the upper corners of the SIMM), carefully lean the SIMM toward the others until it is upright and the latch at each end of the SIMM snaps into place. If necessary, use the non-conductive screw driver to assist you in opening each latch while you move the SIMM into the upright position.

- 7 Apply new labels to the upgraded card, making sure to use the correct label for the card you are upgrading:
 - Apply the new faceplate label over the existing label at the center of the faceplate: Place an NT6D66DA label over an NT6D66AA label or an NT6D66BD label over an NT6D66BA label.
 - Apply the new bar code label next to the existing bar code label at the top of the faceplate; do not cover the existing label with the new one.

Discard all unused labels.

- 8 Verify that the NORM/MAINT switch on the 48 MB CP card is set to MAINT.
- 9 Insert the 48 MB CP card in slot 14 in Core 0 as indicated in Figure 12-6 on page 12-22 and secure the lock latches. Watch the LCD display on the CP card in Core 0. The message “SELFTTEST COMPLETE” will be displayed when the system initializes successfully. The message “IOP IN SLOT xx” will also display to indicate a successful system initialization. If these messages do not appear, refer to Appendix C: “Troubleshooting” on page C-1.
- 10 Remove each remaining card from the option 61C core half of Core/Net 0 and install it in the slot in option 81 Core 0 as indicated in Figure 12-6 on page 12-22.
- 11 Verify that the NORM/MAINT switch on the CP card is set to MAINT.
- 12 In earlier steps, if you upgraded the CP and IOP ROMs on Core 1, you must now do the same on Core 0. Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320) for specific instructions.
 - Install the A1 diskette in CMDU 0.
 - Press the MAN RST button on the CP card in Core 0.
 - Select option <e> for the CP ROM from the Software Installation Tool main menu and follow the on-screen directions.
 - Select option <f> for the IOP ROM.

Note: Do not install software or the customer database on Core 0 at this time.

- 13 Power cycle the CP card in Core 0 as follows: Press the MAN RST button and then immediately disengage the lock latches and unseat the card from the backplane. Wait 5 seconds, reinsert the CP card, and secure the lock latches.

The system will automatically perform a sysload during which several messages will appear on the system terminal.

- Verify that the message “SYS702 48” appears on the terminal during the sysload. (The “48” portion of the message indicates that 48MB of memory has been located.)

- 14 In the option 81, set the ENB/DIS switch on the clock controller card in Core 0 to ENB.

- 15 Set the ENB/DIS switch on all CNI cards in Core 0 to ENB.

- 16 On the CP card in Core 0, press and release the MAN RST button. When SYS700 messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the LCD will display the following messages, confirming the process:

RUNNING ROM OS
ENTERING CP VOTE

Within 10 minutes, an HWI533 message from the CPSI (Core 1) or SDI port indicates the Core 1 memory is shadowed to the Core 0 memory. Wait until the memory synchronization is complete before continuing.

Completing the Upgrade

These steps describe how to perform tests on the CPUs and how to synchronize the hard disk drives:

- 1 Synchronize the hard disk drives. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137	to load the program
STAT	get the status of IOPs, CMDUs, and redundancy
SYNC	synchronize the hard disk drives

Note: Synchronization may take up to 50 minutes.

- 2 Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs if necessary:

STAT	to get the status of IOPs, CMDUs, and redundancy
SWAP	to switch CMDUs (if necessary)
****	to exit LD 137
- 3 Set the NORM/MAINT switch to NORM on the CP card in Core 1 and perform a redundancy sanity test:

LD 135	to load the program
STAT CNI	to get the status of all configured CNIs
STAT CPU	to get the status of both Cores
TEST CPU	to test the inactive CP card and CP-to-CP cable
TEST CNI c s	to test each configured CNI on the inactive side

Note: Testing the CNI cards can take up to 90 seconds each. Testing the CPU card can take up to 20 minutes.
- 4 Switch Cores and test the other CPU:

SCPU	to switch to Core 0
TEST CPU	to test the inactive CP card and CP-to-CP cable
- 5 Insert the database diskette into CMDU 0.

- 6 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

******** to exit the program

- 7 Test the IOP to IOP SCSI connection and test the CMDUs:
- LD 137** to load the program
- TEST SCSI** to check the IOP to IOP connection and access to the CMDUs
- TEST CMDU** to test the hard and floppy disk drives (a floppy diskette must be installed)
- ****** to exit the program

- 8 Clear displays, major alarms, and minor alarms:

CDSP to clear the display

CMAJ to clear all major alarms

CMIN ALL to clear all minor alarms

SCPU to switch to the other Core

CDSP to clear the display

******** to exit LD 135

- 9 Load overlay 60 and software enable clock controller cards and any PRI/DTI cards in the Core Modules:

LD 60	to load the program
ENL CC x	to load the program
TRCK aaa	if necessary, to set tracking
ENLL loop	to enable the specified network loop and associated PRI/DTI card
****	to exit the program
- 10 Reinstall the system monitor in column 1. Reconnect the cables.
- 11 Reinstall the system monitor in column 1. Reconnect the cables.
- 12 On the master system monitor (column 0), reconnect the RJ11 cable to J6, then the cable to J3. Reinstall the system monitor.
- 13 Load overlay 37 and software enable the associated SDI port:

LD 37	to load the program
ENL terminal x	to enable the device associated with the port
STAT XSM	to check the status of the system monitor
****	to exit the program
- 14 For both Core Modules, install the appropriate trim panels from the upgrade package.
- 15 Perform all applicable acceptance test procedures in *Meridian 1 system installation procedures* (553-3001-210).
- 16 Remove the card cages from the option 61C Core/Network Modules 0 and 1, if desired. Additional intelligent peripheral equipment may be installed in these modules, if desired.

Option 71 card cage upgrade to option 81

To upgrade an option 71 to an option 81 (see Figure 12-7), you must do the following:

- Remove the card cage in each NT8D34 CPU Module.
- Install card cages to create NT6D60 Core Modules.

This upgrade procedure describes the installation of hardware and software included in software upgrade package 298. Be sure that you have this upgrade package on hand before beginning the upgrade.

The hardware required for this upgrade is provided in the Core Card Cage Upgrade Package. All existing equipment that will be retained must be compatible with X11 release 21. Order replacements for all equipment that does not comply.

Verify that any existing QPC441 3-Port Extender cards in the system are of one of the vintages required for release 21. These vintages are: B1, D, E (series B), E1 (series B), or F. If any 3PE card in the system is not one of these vintages, replace it with a card of acceptable vintage. All 3PE cards in the system must be of the same vintage.

If QPC471 Clock controller cards in the Option 71 are not minimum vintage H, or if QPC775 Clock controller cards are not minimum vintage E, replace them with minimum vintage cards before beginning the upgrade.

Additional equipment may also be needed to meet site requirements. Verify that all equipment needed for the upgrade has been identified.

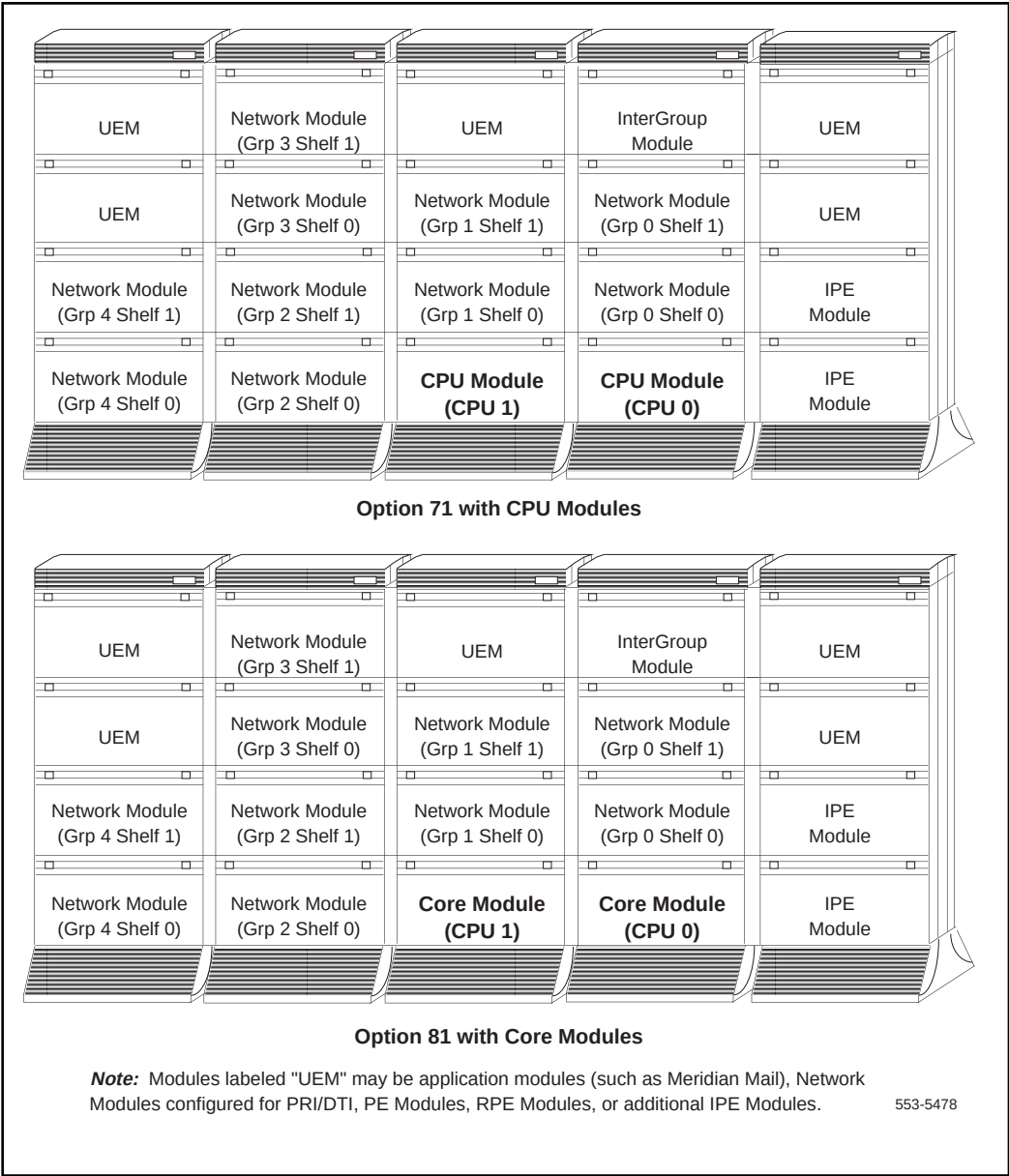
Note: Check the length of the cables between the clock controller cards and the InterGroup Module. In option 81, the card is located to the left of its position in option 71. If there are not at least 10 inches of extra length on the existing cables, they must be rerouted or replaced by longer cables.

During the upgrade procedures, the following service interruptions may occur:

- For AC-powered systems, power to the entire column being upgraded must be turned off for safety reasons. This causes loss of service to any network, I/O, or service cards located in that column.
- Transient calls, CDR information, PRI service, and traffic report information may be lost.

When the peripheral software download feature is activated, calls over superloops are dropped during initialization.

Figure 12-7
Core card cage upgrade



Upgrade preparation

CAUTION

Read through the entire procedure before you begin this upgrade. Perform a thorough audit on the existing system to verify the suitability of the upgrade package and to resolve any existing operational problems, error messages, or other problems.

Cable routing access in the system becomes extremely limited when new network group cables are added during the card cage upgrade. Before you begin the upgrade, consider the following options and plan the network cabling process:

- The procedures in this document provide a back-out contingency as a safety factor; you disconnect the network cables to CPU 1 but leave them in place until the upgrade is complete. To do this, however, you may have to temporarily route the new network cables externally or along the front cable trays. The temporary routing requires you to disconnect and reroute the cables at the end of the upgrade.
- Alternative methods, such as immediately cutting and removing the existing network cables (no back-out capability) can be used, but the advantages and disadvantages should be carefully evaluated beforehand.

Labeling cables

Before beginning the upgrade, it is important to label all cables in the upgrade kit so you can have the correct cable available when you need it.

To label the cables:

- 1 Remove the NTND14 cables from the upgrade package and sort them into separate piles according to part number and vintage (e.g. NTND14BA cables in one pile, NTND14BC cables in another, etc.).
- 2 Remove each label from the sheet of adhesive cable labels provided in the upgrade kit and attach a pair of identical labels to the appropriate cable (one label at each end of the cable). Refer to Tables 12-4 and 12-5 for correct label assignments when labeling NTND14 cables.

Note: You may have unneeded labels left over when you finish labeling the cables.

Table 12-4
NTND14 Core/Net 1-to-CNI cable label assignments

Cable number	Label both ends
NTND14BC	CPU1-CNI-8D to 3PE-GRP0/1-J3
NTND14BC	CPU1-CNI-8F to 3PE-GRP0/1-J4
NTND14BD	CPU1-CNI-9A to 3PE-GRP1/1-J3
NTND14BD	CPU1-CNI-9C to 3PE-GRP1/1-J4
NTND14BA	CPU1-CNI-9F to 3PE-GRP2/1-J3
NTND14BA	CPU1-CNI-9D to 3PE-GRP2/1-J4
NTND14BB	CPU1-CNI-10A to 3PE-GRP3/1-J3
NTND14BB	CPU1-CNI-10Cto 3PE-GRP3/1-J4
NTND14BB	CPU1-CNI-10D to 3PE-GRP4/1-J3
NTND14BB	CPU1-CNI-10F to 3PE-GRP4/1-J4
Note: The upgrade package provides cables for only two network groups. Additional NTND14 cables of appropriate length must be ordered separately for any additional groups.	

Table 12-5
NTND14 Core/Net 0-to-CNI cable label assignments

Cable number	Label both ends
NTND14BA	CPU0-CNI-8D to 3PE-GRP0/0-J3
NTND14BA	CPU0-CNI-8F to 3PE-GRP0/0-J4
NTND14BA	CPU0-CNI-9A to 3PE-GRP1/0-J3
NTND14BA	CPU0-CNI-9C to 3PE-GRP1/0-J4
NTND14BB	CPU0-CNI-9D to 3PE-GRP2/0-J3
NTND14BB	CPU0-CNI-9F to 3PE-GRP2/0-J4
NTND14BC	CPU0-CNI-10A to 3PE-GRP3/0-J3
NTND14BC	CPU0-CNI-10C to 3PE-GRP3/0-J4
NTND14BD	CPU0-CNI-10D to 3PE-GRP4/0-J3
NTND14BD	CPU0-CNI-10F to 3PE-GRP4/0-J4
Note: The upgrade package provides cables for only two network groups. Additional NTND14 cables of appropriate length must be ordered separately for any additional groups.	

Preliminary tasks

Before you replace the option 71 CPU card cages with option 81 Core card cages, perform the following steps.

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media.
- 3 When “EDD000” appears on the terminal, enter **EDD** to begin the data dump

- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter

**** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 5 Check the contents of the upgrade package, including all circuit cards and cables. Make sure all of the items on the order form are on the packing slip that comes with the equipment.
- 6 Check the tool list in “Tools” on page 1-2. Make sure all the equipment is on hand.
- 7 Check the length of the cables between the clock controller cards and the InterGroup Module. In option 81, the card is located to the left of its position in option 71. If there are not at least 10 inches of extra length on the existing cables, they must be rerouted or replaced by longer cables.

A P0738866 Label Kit is included in all upgrade packages for option 81. Some, but not necessarily all, of the labels in the kit are required for a Core Module upgrade. The kit is included in all packages because the preprinted labels may be useful (such as for labeling CNI to 3PE cables) even when they are not required.

- 8 Separate the cables in the upgrade package. Label both ends of all cables. It is especially helpful to pre-label the network group connections for the NTND14 CNI to 3PE Cables. (Preprinted labels are available in the P0738866 Label Kit provided in the upgrade package.)
- 9 If they are not already labeled, label both ends of the cables to the clock controller cards in both CPU 1 and CPU 0.

Note: If QPC471 Clock controller cards in the Option 71 are not minimum vintage H, or if QPC775 Clock controller cards are not minimum vintage E, replace them with minimum vintage cards (as directed in step 10 through step •) before beginning the upgrade. If both clock controller cards are already minimum vintage, proceed to step 12 on page 12-44.

- 10** If the clock controller card in CPU 1 is not of the minimum vintage or later, install a new one:

Note: Use the clock controller cards provided for the Core Modules.

- Load overlay 35 and, if CPU 1 is active, switch to CPU 0:

LD 35	to load the program
TCPU	to test the CPUs
SCPU	to switch to CPU 0
****	to exit the program
- Load overlay 60 and, if clock controller 1 is active, switch to clock controller 0:

LD 60	to load the program
SSCK 1	to get the status of clock controller 1
SWCK	to switch to clock controller 0
- Make sure clock controller 0 is active, and if it is, disable clock controller 1:

SSCK 0	to get the status of clock controller 0
DIS CC 1	to disable clock controller 1
SSCK 1	to verify clock controller 1 is disabled
- Set the ENB/DIS switch on clock controller 1 to DIS. Label and disconnect cables to the card, then remove the card. Note which slot you removed the card from; you will install the new card in this same slot.
- Set the ENB/DIS switch on the replacement clock controller card to DIS, and set the option switches on the replacement card (see Table 12-6).

Note: When configuring clock controller cards, be sure to set the switches correctly and install the card back into the slot from which you previously removed the clock controller card. Incorrect settings or location of the card will allow the system to operate, but may result in unreliable or unpredictable system function. Disregard silkscreened text (“21,51,61,71”) next to the switches.

Table 12-6
Clock controller card switch settings for option 71

Combined Length of NT8D74 Clock Controller to Junctor Cables (see note)	SW1 position				SW2 position				SW4 position			
	1	2	3	4	1	2	3	4	1	2	3	4
0–4.3 m (0–14 ft)	off	off	off	off	off	off	off	off	off	on	off	off
4.6–6.1 m (15–20 ft)	off	off	off	off	off	off	off	off	off	on	off	on
6.4–10.1 m (21–33 ft)	off	off	off	off	off	off	off	off	off	on	on	off
10.4–15.2 m (34–50 ft)	off	off	off	off	off	off	off	off	off	on	on	on
Note: Add the length of both clock controller cables (no single cable can exceed 25 ft). All switches must be set the same on both clock controller cards.												

- Install the replacement card and reconnect the cables. Set the ENB/DIS switch to ENB.
- Software enable the card:
ENL CC 1 to enable clock controller 1
******** to exit LD 60

Note: Do not issue the tracking (TRCK) or status (SSCK) commands at this time. If you do issue these commands, the system may respond with an inaccurate error condition.

11 If necessary, install a new clock controller card in CPU 0:

- Load overlay 35 and, if CPU 0 is active, switch to CPU 1:

LD 35	to load the program
TCPU	to test the CPUs
SCPU	to switch to CPU 1
****	to exit the program

- Load overlay 60 and, if clock controller 0 is active, switch to clock controller 1:

LD 60	to load the program
SSCK 0	to get the status of clock controller 0
SWCK	to switch to clock controller 1

- Make sure clock controller 1 is active, and if it is, disable clock controller 0:

SSCK 1	to get the status of clock controller 1
DIS CC 0	to disable clock controller 0
SSCK 1	to verify clock controller 1 is disabled

- Set the ENB/DIS switch on clock controller 0 to DIS. Label and disconnect cables to the card, then remove the card. Note which slot you removed the card from; you will install the new card in this same slot.
- Set the ENB/DIS switch on the replacement clock controller card to DIS and set the option switches on the replacement card (see Table 12-6).

Note: When configuring clock controller cards, be sure to set the switches correctly and install the card back into the slot from which you previously removed the clock controller card. Incorrect settings or location of the card will allow the system to operate, but may result in unreliable or unpredictable system function. Disregard silkscreened text (“21,51,61,71”) next to the switches.

- Install the replacement card and reconnect the cables. Set the ENB/DIS switch to ENB.

- Software enable the card:

ENL CC 0 to enable clock controller 0
******** to exit LD 60

- Issue the tracking command to enable clock controller tracking to the primary reference loop (as defined in overlay 73):

TRCK PCK to enable tracking
******** to exit the program

12 Verify clock switchover and tracking for each CPU (issue tracking commands if required):

- Check the status of clock controller 1:

SSCK 1 to get the status of clock controller 1
******** to exit LD 60

- Switch CPUs:

LD 35 to load the program
TCPU to test CPU 0
SCPU to switch to CPU 0
******** to exit the program

- Check the status of clock controller 0:

LD 60 to load the program
SWCK to switch to clock controller 0
SSCK 0 to get the status of clock controller 0
******** to exit the program

13 Follow Procedure 1: “Pre-conversion procedure,” *Software conversion procedures* (553-2001-320) and print configuration records. Check the configuration record printouts to identify all configured I/O ports.

Note: When transferring call processing to a Core module during an upgrade, one I/O address is required for a CPSI port. If there is no address available, an SYS 4532 error is displayed. You must make available one port assignment for a CPSI port.

- 14** If the database is release 16 or lower, you must first convert the database to release 17 or higher before continuing with the upgrade. Use the database conversion instructions in Procedure 3: “Convert From One X11 Release To a Later Release,” *Software conversion procedures* (553-2001-320). When you have converted the database to release 17, proceed with the steps below.

Note: If the database is on a 3.5-in., HD or ED floppy diskette, and if the customer database is X11 release 17 or 18, you will convert it to release 21 later in this upgrade.

- 15** If the multi disk unit (MDU) or floppy diskette unit (FDU) is located in CPU 1, move the unit to CPU 0 or a network shelf.
- Set the QPC584 or QPC742 ENB/DIS faceplate switch to DIS in CPU 0. Remove the floppy diskettes from the diskette drives.
 - Disconnect cables to the faceplate of the MDU or FDU.
 - Unhook the locking devices on the MDU or FDU and gently pull the unit forward two or three inches. For an MDU, wait at least 10 seconds before you pull the unit out of the card cage.
 - Move the MDU or FDU to the new slot.
 - Connect cables to the faceplate of the MDU or FDU.
 - Reinstall the floppy disks.

Note: Your system will have either a QPC584 MSI card or an NT9D34 EMSI card.

- Set the ENB/DIS switch to ENB on the MSI or EMSI Card in CPU 0.
- 16** If PRI or DTI cards, or both, that cannot be out of service are located in CPU 1, label and disconnect the cables and then move the cards to a different module.

- 17 Load overlay 35 and get the status of the CPU, CMA, extenders, and memory. Verify that all common equipment is enabled:
 - LD 35** to load the program
 - STAT CPU** to get the status of both CPUs
 - STAT CMA** to get CMA status
 - STAT EXT** to get the extender status
 - STAT MEM** to get the memory status
- 18 Test and switch CPUs:
 - TCPU** to test the CPUs
 - SCPU** to switch the CPUs
- 19 Get the status of the other CPU, CMA, extenders, and memory. Verify that all common equipment is enabled:
 - STAT CPU** to get the status of both CPUs
 - STAT CMA** to get CMA status
 - STAT EXT** to get the extender status
 - STAT MEM** to get the memory status
- 20 If CPU 1 is active, switch CPUs:
 - STAT CPU** to get the status of the CPUs
 - SCPU** to switch to CPU 0 (if necessary)
- 21 Place CPU 0 into maintenance by setting the NORM/MAINT faceplate switch to MAINT.
- 22 List the enabled memories. Then disable the memories and CMA in CPU 1:
 - LENL** to list enabled memories
 - DIS 10** to disable CPU 1 memory (10, 11, 12, if equipped)
 - DIS CMA 1** to disable CMA 1
 - ******* to exit LD 35

- 23** Set the QPC215 Segmented Bus Extenders (SBE) ENB/DIS switch to DIS in CPU 1.

Note: The following task does not apply to QPC471 Clock Controller Cards. They can remain enabled.

- 24** If QPC775 Clock Controller Cards are equipped, load overlay 60 and software disable clock controller 1:

LD 60	to load the program
SSCK 0	to get the status of clock 0
SSCK 1	to get the status of clock 1
SWCK	if necessary, to switch to clock controller 0
DIS CC 1	to disable clock controller 1
****	to exit the program

- 25** Set the ENB/DIS switch to DIS on the clock controller card in CPU 1. Disconnect the cable from the NT8D36 InterGroup Module at the junctor board. Then disconnect the cable at the faceplate of the QPC775 card. If primary or secondary reference cables are equipped, disconnect them last.
- 26** On the master system monitor (column 0), disconnect the RJ11 cable to J3, then the cable to J6, then pull the system monitor out of the slot. Do not turn off the blower unit in the front of the pedestal.
- 27** In column 1, disconnect the cables, then pull the system monitor out of the slot. Do not turn off the blower unit in the front of the pedestal.

CAUTION

If the system monitors are not removed, the system may shut down.

The upgrade preparation is complete. The system is operating in split-mode with call processing on CPU 0.

Upgrading CPU 1

- 1 If QPC775 Clock Controller Cards are equipped, perform these steps to disable the card:

Note: If the system is equipped with QPC471 Clock Controller Cards, skip this step and proceed with step 2.

LD 60	to load the program
SSCK 1	to get the status of clock 1
SSCK 0	to get the status of clock 0
SWCK	if necessary, to switch to clock controller 0
DIS CC 1	to disable clock controller 1
****	to exit the program

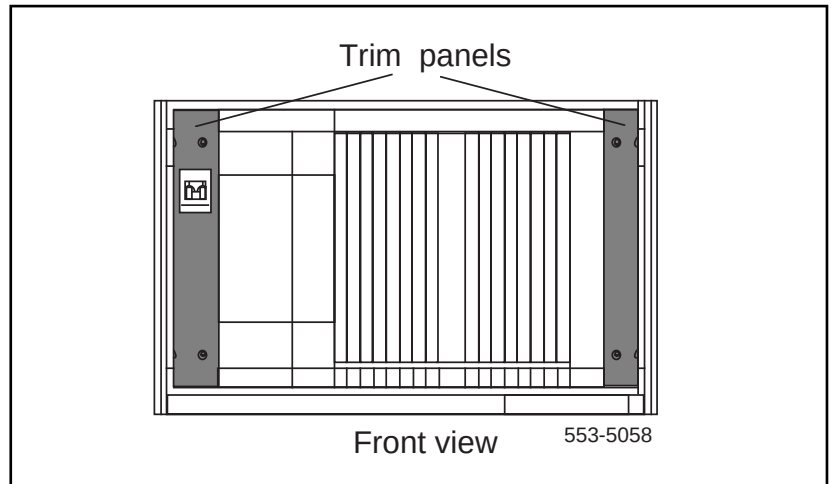
- Set the ENB/DIS switch on the clock controller card in CPU 1 to DIS.
 - Disconnect the cable from the NT8D36 InterGroup Module at the junctor board.
 - Disconnect the cable at the faceplate of the QPC775 card.
 - If primary or secondary reference cables are equipped, disconnect them last.
- 2 Follow the appropriate step below to turn off power to CPU 1:
 - For AC-powered systems, set the main circuit breaker for the column (located at the rear of the pedestal) to OFF (down position).

WARNING

Because of hazardous voltage in AC-powered systems, power to the entire column must be shut down. This shuts down all functions in the column including the network group in that column. Relocate essential services from this group before proceeding.

- For DC-powered systems, set the switch on the NT6D41 CE Power Supply to OFF (down position). Set the circuit breaker for this module only (located at the rear of the pedestal) to OFF (down position). Power to all other modules in the column can safely remain on.
- 3 Remove the trim panels on both sides of the module (see Figure 12-8). Keep the screws for reuse.

Figure 12-8
Location of the trim panels



- 4 Label and disconnect all cables to the front of the module. Tape over the contacts to avoid grounding. Tape or tie all cables to the sides so the working area in front of the card cage is totally clear.
- 5 On all cards with an ENB/DIS switch on the faceplate, set the switch to DIS.
- 6 Remove the cards, including the power supply, from the front of the module. Keep the clock controller card and the power supply on hand. They will be reused in the Core card cage.

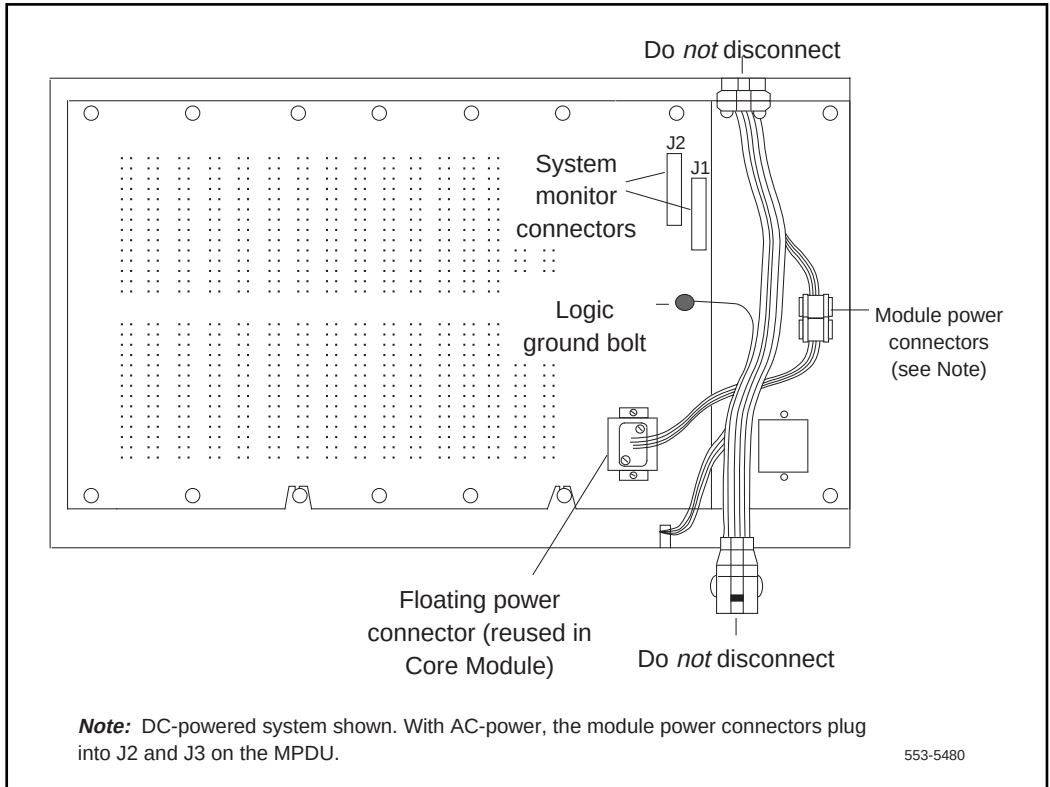
Note: QPC471H (or later vintage) or QPC775C (or later vintage) Clock Controller Cards must be used with option 81.

- 7 Remove the I/O safety panel that covers the rear of the backplane.
Note: Perform the next step only if the module is not already equipped with universal I/O panels (P0745716). Otherwise, skip the step.
- 8 Label and disconnect cables from the I/O panels. Remove both I/O panels. Keep the screws for reuse. Remove the I/O safety panel that covers the rear of the backplane.
- 9 Remove the two mounting screws that secure the rear of the card cage to the module. Keep the screws for reuse. (A 1/4" socket wrench is needed for this operation.)
- 10 Remove the three mounting screws that secure the front of the card cage to the bottom of the module. Keep the screws for reuse. Pull the card cage forward until it is half-way out of the module.
- 11 Remove the logic ground (orange) wire from the backplane bolt. Be careful; do not drop the nut or lockwasher into the pedestal (see Figure 12-9).

WARNING

Do not disconnect the main power connectors (large orange connectors) at the top and bottom of the module.

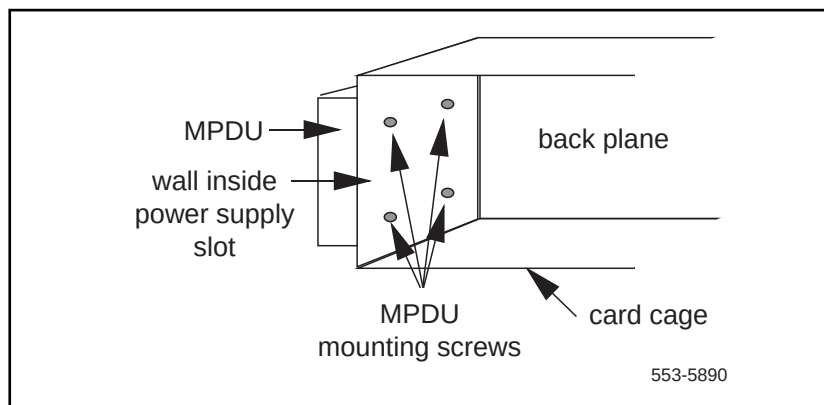
Figure 12-9
Power connectors on the rear of the CPU Module backplane



- 12 Label and disconnect the module power connectors. These are small orange connectors plugged into the module power distribution unit (MPDU) with AC power or connected to each other with DC power.
- 13 Label and disconnect the system monitor ribbon cables to J1 and J2.
- 14 Remove the CPU card cage from the module.

Note: For AC-powered systems, after the card cage is out of the module you must remove the MPDU and reinstall it on the Core card cage. The screw-heads for the MPDU are in the wall of the power supply slot (see Figure 12-10).

Figure 12-10
Location of the screws for the MPDU



- 15 Remove the floating power connector (the black connector) and its mounting bracket from the rear of the CPU card cage by removing the two screws that secure it to the backplane. Do not remove the connector from its bracket. Using the same mounting screws and nuts, attach the connector and bracket to the Core/Net card cage.

Note: Check the orientation of the connector. Looking at it from the rear of the card cage, the upper left corner pin should be empty (no wire) and the lower right corner pin should have a wire installed. The green wire should be up.

- 16** Check the backplane jumpers in the Core card cage to identify Core 1 (see Table 12-7). The jumpers are located on the backplane, along the bottom of the front side (the side facing into the card cage assembly) (see Figure 12-11).

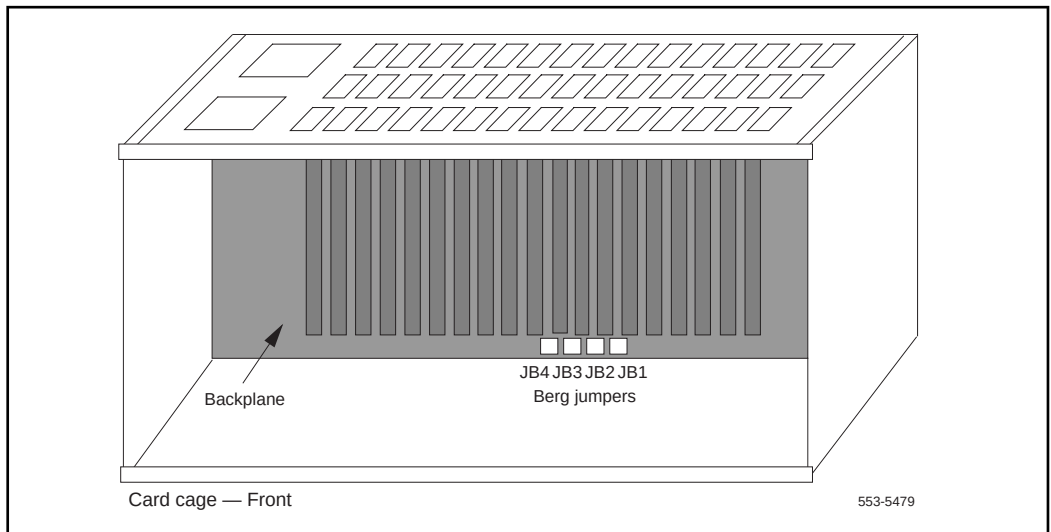
CAUTION

If the Core Module jumpers are set incorrectly, the system will not load and operate correctly.

Table 12-7
Backplane jumper settings for Core Modules

Jumper	Location (between slots)	Core 1	Core 0
JB4	9 / 10	Jumper plug not installed	Plug installed
JB3	10 / 11	Plug installed	Plug installed
JB2	11 / 12	Plug installed	Plug installed
JB1	12 / 13	Plug installed	Plug installed

Figure 12-11
Location of the jumpers on the backplane

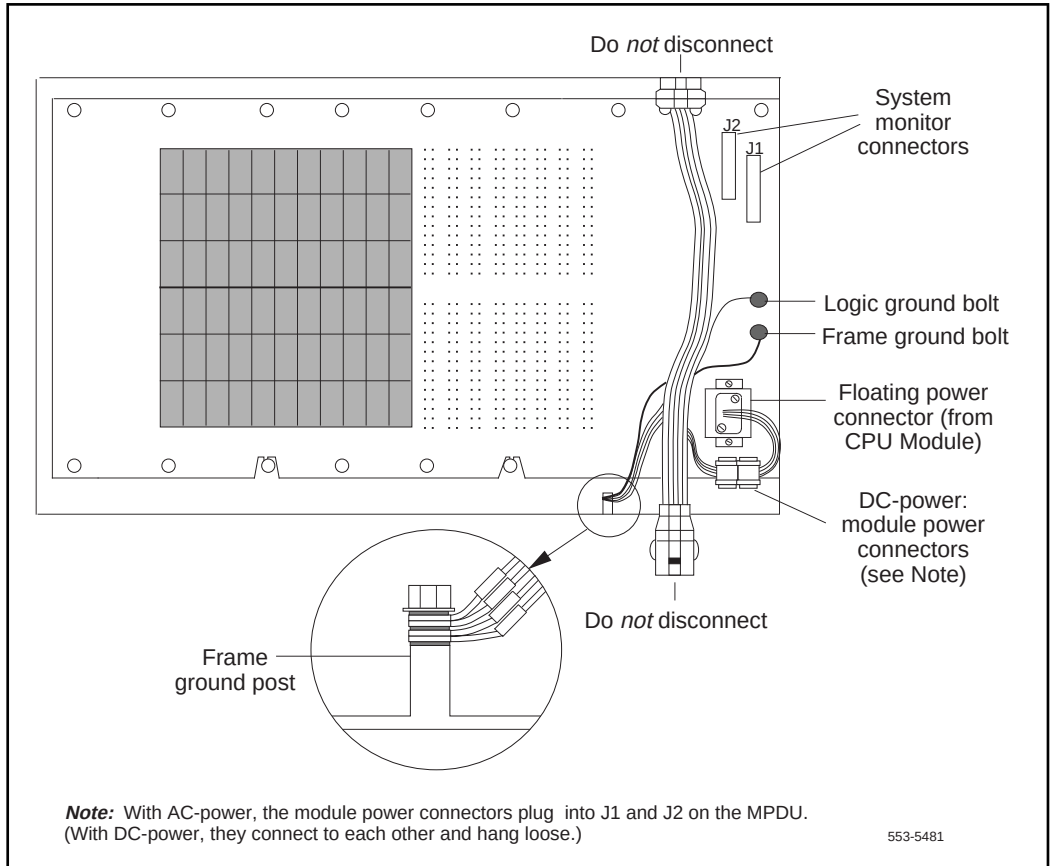


- 17 Reposition the EMI shield (it looks like a brass grill) in the base of the module. Tape over the front mounting tabs to hold the shield in position. The tape will be removed later.
- 18 In AC-powered systems only, plug the module power cable (the short harness attached to the module power connector) into connector J3 on the MPDU (attached to the side of the card cage).
- 19 Slide the Core card cage about half-way into the module. Hold the card cage firmly while making the following connections at the rear of the module (see Figure 12-12):
 - Attach the system monitor ribbon cables. (J1 goes down to the pedestal; J2 goes up the column.)
 - Attach the frame ground (green) wire to the frame ground bolt on the module. (A 5/16" socket wrench is needed for this operation.) Remove the nut and the lockwasher at the top of the bolt. Put the frame ground connector over the bolt. Reinstall the top lockwasher and the nut, then tighten down the nut.

Note: For all of the wire terminals to fit on the bolt, remove one of the lock washers. Leave a lock washer at the bottom of the bolt and at the top of the bolt. Leave a third lock washer between the second and third, or the third and fourth, wire terminals.

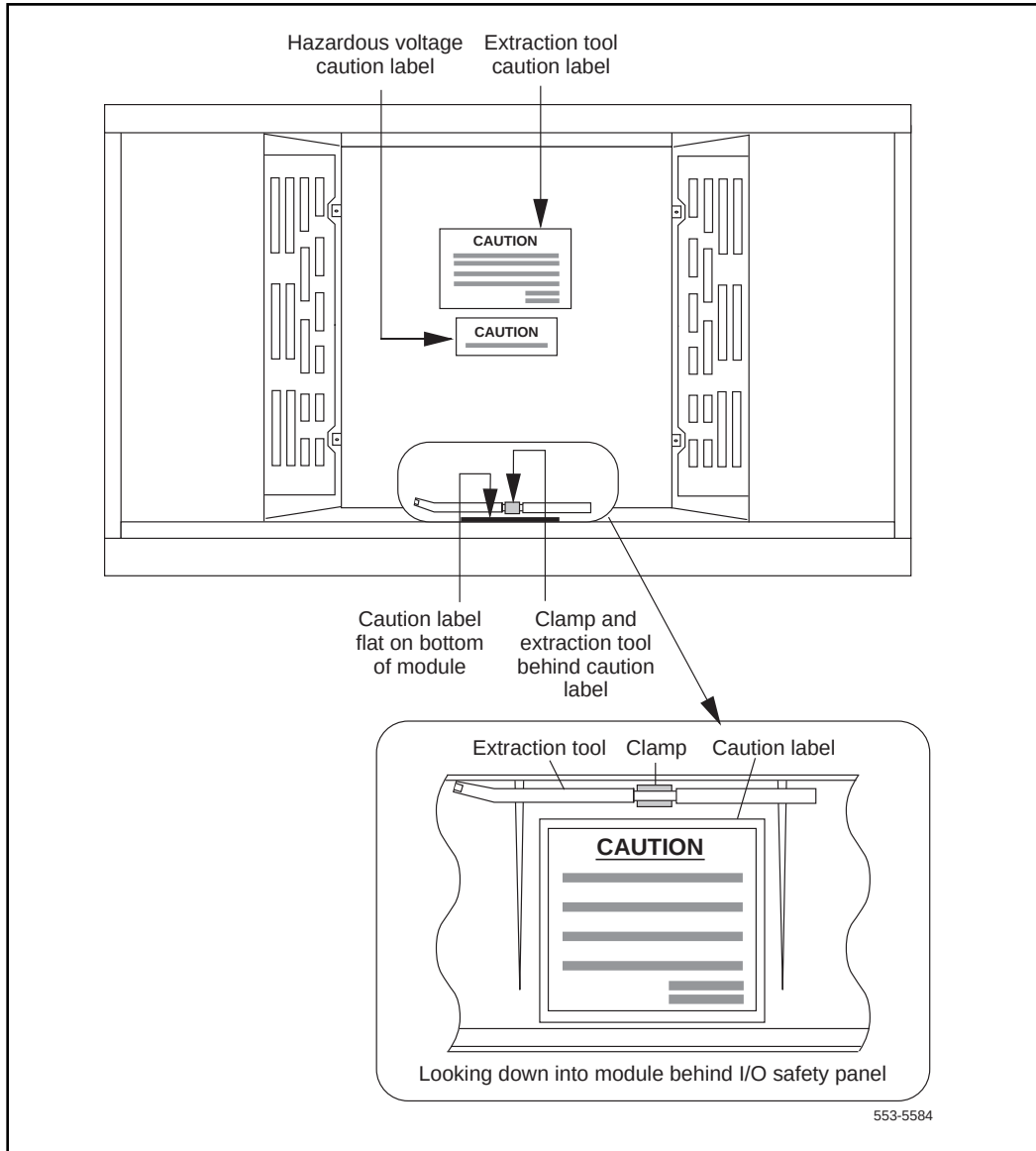
- Attach the logic ground (orange) wire. Remove one nut and the lockwasher. Put the connector over the post, reinstall the lockwasher and nut, then tighten the nut down. (A 3/8" socket wrench is needed for this operation.)
 - Connect the module power connectors to the MPDU for AC power or to each other for DC power.
- 20 Slide the card cage all the way into the module.
 - 21 Check the position of the EMI shield. If it has shifted, reposition it. Remove the tape holding the EMI shield.
 - 22 Secure the card cage to the module with the three screws in the front and the two screws in the rear.
 - 23 On the outside of the I/O safety panel, attach one extraction tool caution label above the "CAUTION hazardous voltage" label (see Figure 12-13).

Figure 12-12
Power connections on the rear of the Core Module backplane



- 24 In the bottom of the module, attach the other extraction tool caution label directly behind the position of the I/O safety panel.
- 25 In the bottom of the module, attach the clamp that holds the extraction tool directly behind the extraction tool caution label you just installed.
- 26 Snap the extraction tool into the clamp.
- 27 Attach the Core Module designation labels, provided in the upgrade package, at the front and rear of the module. These labels can go on top of the existing labels. The smaller label goes on the rear of the module.

Figure 12-13
Positioning the extraction tool and caution labels



- 28 Install the NT6D6003 CBT Card in slot 13.

Note: All jumpers on the CBT card are preset to open (the two pins are not connected together by a jumper plug) and must be left open. The card may, however, have jumper plugs installed over one pin on the jumpers. The plugs are provided as extra plugs that may be required on some other card or for future requirements.

- 29 Install the module power supply (reused from the CPU card cage) in the slot labeled “CE pwr sup” in the Core card cage.
- 30 Turn on power to the module. For AC-powered systems, set the main circuit breaker to ON (up position) in the rear of the pedestal, then set the MPDU circuit breaker located at the left end of the module to ON (up position). For DC-powered systems, set the breaker to ON (up position) in the pedestal, then set the switch to ON (up position) on the power supply in the module.
- 31 Enable all network cards located in the network modules located in the column containing CPU 1. You can do this in either of two ways:
- Press the MAN INT button on the QPC580 Omega interface card in CPU 0. Initializing the system in this manner will result in temporary interruption of call processing.
 - Enable each card located in the network modules located in the column containing CPU 1 using software overlays. Enabling the cards in this manner avoids interruption of call processing.
- 32 Check the LEDs on the hybrid terminators. The pattern of the LEDs must be ON-OFF-OFF-OFF, from the top down, for Core 1. The LED pattern matches the jumper settings on the backplane. If the pattern is incorrect, check the jumpers on the backplane (refer to Table 12-7).
- 33 Shut down power to the module again. For AC-powered systems, set the power supply breaker for the module to OFF (down position). For DC-powered systems, set the switch on the power supply breaker for the module to OFF (down position).

- 34 Attach the QMM42 Security Data Cartridge (provided with the software upgrade package) to the IOP/CMDU Card.
- Note:** If you have more than one cartridge in the software upgrade package and they are different releases, use either cartridge at this time.
- Plug the cartridge into the connectors on the card and install the screw that secures the cartridge.
- 35 Place the IOP/CMDU card in slot 16 (the card occupies two slots), but leave the card unseated.
- 36 Set the NORM/MAINT switch on a new CP Card (one from the upgrade package) to MAINT. Place the CP Card in slot 15 (the card occupies two slots), but leave the card unseated.
- 37 Place an NT6D65 CNI Card in slot 8, but leave the card unseated.
- 38 Place other CNI cards in slots 9 through 12 (starting with slot 9) as required for the network group configuration, but leave the cards unseated.
- 39 Check the vintage of the QPC441 3PE Card—it must be minimum vintage F. Set the option switches and jumper on the card (see Table 12-8). Place the card in slot 7, but leave the card unseated.
- 40 Place the clock controller card in slot 6, but leave the card unseated.

Table 12-8
QPC441F 3PE Card—Option settings

D20 switch: Core 1								Core 0							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
off	on	on	off	off	on	off	off	off	on	on	off	off	on	off	on
RN27 jumper at E35:															
NT6D60 Core Module								set to A							
All other modules								set to B							

CAUTION

Leave the ENB/DIS switch on the 3PE cards set to ENB. If the cards are disabled, the system will initialize.

- 41 On the QPC441 3PE cards in network shelf 1 of all groups, label and disconnect the cables that were connected to the QPC215 SBE Cards in CPU 1.

Note: Disconnect the cables, but do not remove them yet (as a back-out contingency).
- 42 Install NTND14 cable pairs to connect the NT6D65 CNI cards to the QPC441 3PE cards in the Network Modules (see Table 12-9 and Figure 12-14). The cables connect to backplane connectors (secondary shroud connectors) in the Core Module and to faceplate connectors on the 3PE cards.

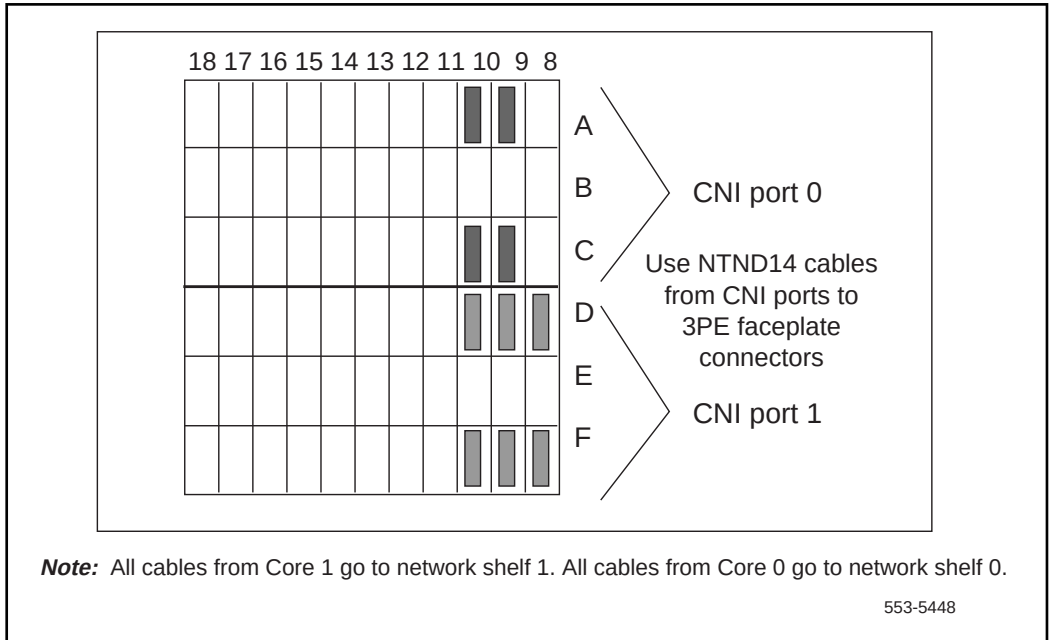
Note 1: This step does not apply to the QPC441 3PE card in the Core Module.

Note 2: If the cables do not fit in the module cable troughs, temporarily route them externally or along the front cable trays.

Table 12-9
CNI to 3PE connections—NTND14 cables

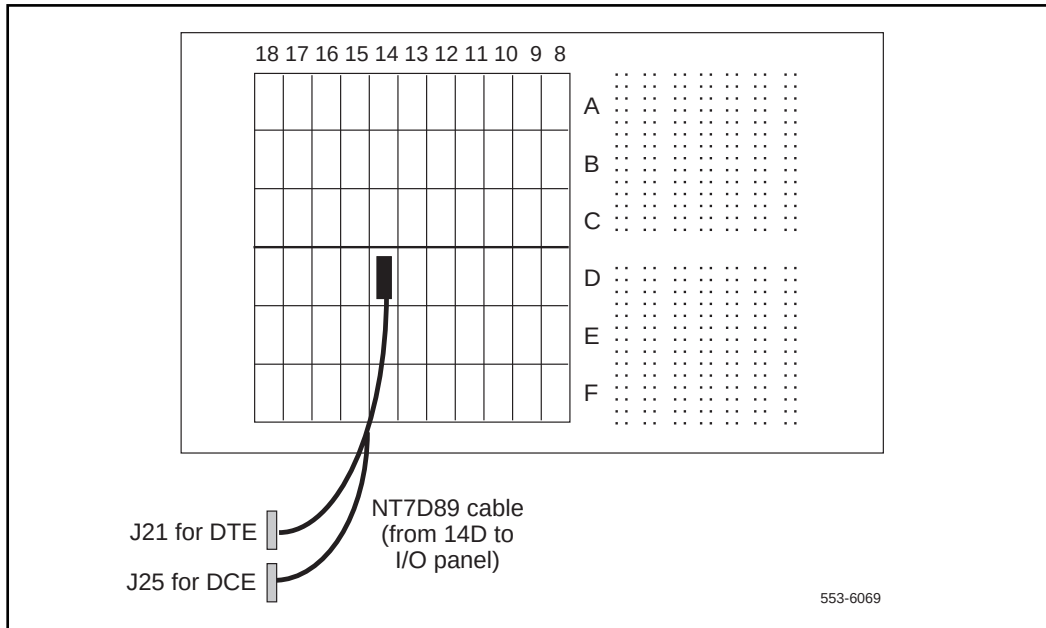
Backplane connection	Group	3PE shelf from Core 1 / from Core 0		3PE connection
8D	0	1	0	J3
8F	0	1	0	J4
9A	1	1	0	J3
9C	1	1	0	J4
9D	2	1	0	J3
9F	2	1	0	J4
10A	3	1	0	J3
10C	3	1	0	J4
10D	4	1	0	J3
10F	4	1	0	J4
Note: Backplane shroud designations are 18 through 8 from left to right and A through F from top to bottom.				

Figure 12-14
NT6D60 Core Module (rear)—backplane connections for CNI slots



- 43 Connect the single connector end of the NT7D89 RS-232 cable to backplane connector position 14D (see Figure 12-15).

Figure 12-15
NT6D60 Core Module (rear)—RS-232 cable connections for CPSI ports



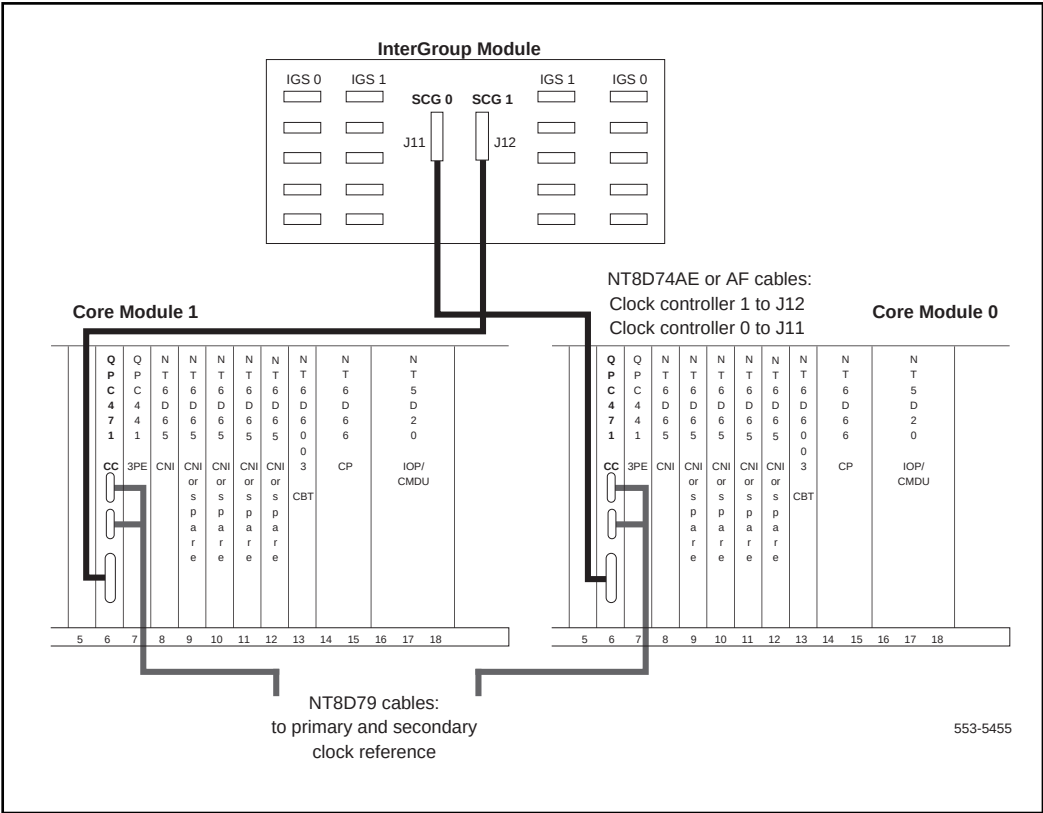
- 44 On the inside of the I/O panel, connect port A (DTE) to J21.
- 45 On the inside of the I/O panel, connect port B (DCE) to J25.

Note: The inside of the I/O panel faces the backplane. The word LEFT faces the outside of the module. The slot numbers listed below match the designations on the outside of the panel.

- 46 Loosely attach the I/O panel to the module (later in the upgrade you will need to remove the panel to install core to core cables), using the screws from the former panel.
- 47 Seat the 3PE card. Set the ENB/DIS switch to ENB.

- 48 Set the ENB/DIS switch on the clock controller card to DIS. Seat the clock controller card; leave the ENB/DIS switch set to DIS and do not connect the faceplate cables.
- 49 Follow the appropriate step below to turn on power to the module:
- For AC-powered systems, set the main circuit breaker to ON (up position) in the rear of the pedestal.
 - For DC-powered systems, set the breaker in the pedestal to ON (up position), then set the switch on the power supply in the module to ON (up position).
- 50 Connect the clock controller cables:
- For a QPC471 card, connect the NT8D79 cables from the primary or secondary reference to the faceplate of the clock controller card (see Figure 12-16). Then connect the NT8D74 cable from the NT8D36 InterGroup Module to the clock controller card.
 - For QPC775 Clock Controller Cards, connect the NT8D74 cable from the junctor board to the faceplate of the clock controller card. Then connect the NT8D79 cables from the primary or secondary reference to the faceplate of the clock controller card.
- 51 Leave the ENB/DIS switch set to DIS on QPC471 or QPC775 cards.
- 52 If you removed the I/O panels previously, install a new universal right I/O panel (P0745716) so the side with the two indents fits into the module casting. Secure the I/O panel with the screws from the former panel.
- Note:** The word RIGHT on the I/O panel faces the outside of the module. The J10 slot matches the designation on the outside of the panel.
- 53 Seat the IOP/CMDU Card, then, and set the ENB/DIS switch to ENB.
- As the card performs card level power-up tests, watch the faceplate HEX display for flashing error codes. See *X11 input/output guide* (553-3001-400) for an explanation of the codes.
- If the IOP/CMDU card fails the self-test, refer to “Troubleshooting” on page C-1.

Figure 12-16
NT6D60 Core Module (front)—clock controller card connections



- 54 Connect a terminal to the J25 port on the I/O panel in Core 1. You must use the following settings on the terminal:
9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol
- 55 Verify that the NORM/MAINT switch on the CP card in Core/Net 1 is set to MAINT.
- 56 Seat the CP Card. As the card performs card level power-up tests, watch the LCD display and output from the CPSI port for error messages:
If the CP card fails the self-test, refer to “Troubleshooting” on page C-1.

- 57** Following the “Self-test Complete” message, watch the LCD on the CP card for the message “IOP in Slot xx.” If the message does not appear, refer to “Troubleshooting” on page C-1.

Watch the LCD for the message “Running Disk OS.” (The IOP/CMDU hard disk is shipped pre-loaded with the necessary software.) As the system attempts to access the hard disk, watch the LCD for error messages. If the system points to file corruption (such as “Error in file diskos” type messages), go to “Troubleshooting” on page C-1.

Watch the terminal for system reload (SYS) and initialization (INI) messages. Following this, Core 1 is operational. If the sysload or initialization fails, go to “Troubleshooting” on page C-1.

Converting the customer database

The customer database is now at release 17 or later. In this procedure you will convert it to release 19 (if it is lower than release 19), and then to release 21. The customer database can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 12-10 to determine the appropriate conversion procedure to use.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the “Pre-conversion procedure” in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the pre-conversion procedure, always enter LD 43 using the source (Option 71) media.

CAUTION

Performing this database conversion procedure will result in disruption of call processing. Plan to perform the conversion when impact on your customers will be minimal.

Table 12-10**Database conversion requirements, Option 71 upgrade to release 21 Option 81**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 17 or 18 customer database (Use conversion procedures beginning on page 12-68).			
17,18	19	none	Release 19.xx Option 81 software disk and data cartridge
19	21	none	Release 21.xx Option 81 software disk and data cartridge
For converting a release 19, 20, or 21 customer database (Use conversion procedure beginning on page 12-70)			
19,20 or 21	21	none	Software Installation Tool
Note: Use the latest software release (e.g., 20.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 20.15 or 20.17), it must be used.			

Converting a database from release 17 or 18

Follow the steps below to convert the release 17 or 18 database to release 19 and then to release 21, and install the customer database on the option 81 Core 1. You will need the B1 diskette previously removed from the option 71.

Note: Refer to Software Installation Tool reference, *Software conversion procedures* (553-2001-320) if you need more complete details on converting the database conversion.

- 1 Set the ENB/DIS switch on the IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 19 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- 2 To activate the Software Installation Tool, insert diskette A1 (from the release 19 diskette set) from the software upgrade package into the IOP/CMDU in Core 1.
- 3 Press the MAN RST button on the CP card in Core 1.
- 4 Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - <c> to install software
 - <a> yes, start installation
 - <a> continue with upgrade
- 5 Follow all on-screen directions until software installation is complete.
- 6 When the main menu appears, select the following option:
 - <d> to install the database on the IOP/CMDU in Core 1
- 7 When the next screen appears, select the following option:
 - <c> to transfer the previous system database
- 8 Follow the instructions which appear on the screen using the B1 diskette from the previous system:

- 9 When the main menu appears, select the following options:

<q> to quit
<yes> to confirm quit

- 10 Remove any diskettes from the floppy drive, and type

<a> to reboot the system

- 11 While the system is rebooting, database conversion occurs.

- 12 Verify that the following message appears on the system terminal:

DATA CONVERSION
X11 RELEASE <old rls #> **TO RELEASE** <new rls #>

- 13 Log into the system.

- 14 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

- 15 Insert a B1 diskette (from the release 19 diskette set) titled “DATABASE BACKUP DISK” into the floppy drive in the IOP/CMDU in Core 1.

- 16 Perform a data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

When you have successfully completed the data dump, continue with the next section.

Converting a database from release 19, 20, or 21

- 1 Follow the steps below to convert the release 19, 20, or 21 database to release 21, and install the customer database on option 81 Core 1.

Note: The Software Installation Tool provides complete on-screen directions for updating software, database, and ROMs. Further detailed instructions are given in “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- To activate the Software Installation Tool, insert diskette 1 (from the release 21 diskette set) from the software upgrade package into the IOP/CMDU in Core 1.
- Press the MAN RST button on the CP card in Core 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all on-screen directions until the software, CP-ROM and IOP-ROM installations are complete.
- When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit
- Remove the diskette from the floppy drive.

- 2 Verify that the message “SYS702 48” appears on the terminal during the sysload. (The “48” portion of the message indicates that 48MB of memory has been located.) While the sysload is being performed, database conversion occurs.

Verify that the following message appears on the system terminal:

DATA CONVERSION
X11 RELEASE 19.xx TO RELEASE 21.xx

- 3 Configure networks as CNI groups, based on the number of CNI cards in the system. In a typical configuration, there are three CNI cards for five network groups (see Tables 12-11 and 12-12). See *X11 input/output guide* (553-3001-400) for a complete description of the Configuration Record (LD 17).

Note: If the number of network groups configured in the system does not match the number of network groups equipped, you must add or remove groups. See the *X11 input/output guide* (553-3001-400) for procedures describing adding and removing groups.

Table 12-11
Typical CNI configurations

CNI card slot	Port	Network group
8	0	pre-configured as “group 5”
8	1	Group 0
9	0	Group 1
9	1	Group 2
10	0	Group 3
10	1	Group 4
Note: Each port on the CNI card provides functions similar to one QPC215 SBE Card in option 71. You do not have to configure both ports on the CNI card.		

- 4 Re-map all I/O ports (except CPSI ports) to the proper groups (see Table 12-13). The group number of these ports is determined by the physical location of the card. The configuration information must match the CNI configuration.

Note: The History File requires a dedicated I/O port.

- 5 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 5000 and 1000, respectively). Refer to *Meridian 1 capacity engineering* (553-3001-149). If changes are required, reconfigure the values in LD 17.
- 6 Load overlay 22 and print the Configuration Record to verify the above changes:

LD 22	to load the program
REQ PRT	to set the print option
TYPE CFN	to print the configuration
****	to exit the program
- 7 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43	to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Table 12-12
LD 17: Configuring CNI groups

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
•		
CEQU	YES	
•		
EXT0	3PE	Core 0 extended to 3PE
_CNI	s p g	s = card slot (8-12) p = port (0 or 1) g = network group (0-4)
•		
EXT1	3PE	Core 1 extended to 3PE
_CNI	s p g	s = card slot (8-12) p = port (0 or 1) g = network group (0-4)
•		

Table 12-13
LD 17: Configuring I/O ports

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
•		
ADAN	CHG terminal x	x = terminal number (0-15)
•		
GRP	g	g = network group (0-4)
•		

- 8 Seat all CNI cards, but leave the ENB/DIS switches set to DIS.
- 9 Set the ENB/DIS switch to ENB on the clock controller card in Core 1.
- 10 Set the ENB/DIS switch to ENB on all CNI cards in Core 1.
- 11 Enable each CNI card in Core 1:

LD 135 to load the program

ENL CNI 1 s to enable the CNI card (repeat for each CNI card)

******** to exit the program

CAUTION

Call processing will be interrupted. Perform the next steps carefully. This is the point at which your service will be interrupted. Calls in process will be interrupted.

Note: Perform the next 3 steps in rapid succession to avoid prolonged interruption of call processing. Call processing will switch from CPU 0 to Core 1.

- 12 Set the ENB/DIS switch to DIS on all SBE cards in CPU 0.
- 13 Verify that the NORM/MAINT switch on the CP card in Core 1 is set to MAINT.
- 14 Press the MAN INT button on the CP card in Core 1. Watch the initialization process. Make sure the CNI, 3PE, and IGS cards are auto-enabled (the faceplate LEDs should go out).

Note: If the network loop corresponding to a CNI port is not enabled, the LED for that port may not go out.

15 Check for dial tone. If there is no dial tone (the system is inoperable) and you cannot afford downtime, switch the loops back to CPU 0 (which still has the CPU card cage):

- Set the ENB/DIS switch on each CNI card on Core 1 to DIS.
- Set the ENB/DIS switch on each SBE card on CPU 0 to ENB.
- Initialize CPU 0 by pressing the MAN INT button.
- Troubleshoot the Core side off-line.

If you can afford downtime, troubleshoot the Core side on-line:

- Perform a visual check of the Core Module. Verify that each card is in the correct slot. Verify that all cards are seated, all ENB/DIS switches are set to ENB, and all red LEDs are off.
- Verify that all cables are properly and securely connected in the front and rear of the module.
- Check the status of the CNI cards with LD 135 "STAT CNI" and ensure all configured CNIs are software enabled.
- If any CNI cards are disabled, enable them in LD 135, perform a data dump with LD 43, and initialize the system by pressing the MAN INT button. Otherwise, proceed directly to step 16.
- Again, check the status of the CNI cards with LD 135 "STAT CNI" and ensure all configured CNIs are software enabled.
- Check for dial tone again.

16 Following a successful dial tone test, perform the following basic sanity tests:

- Make sure intra-group and inter-group calls can be placed.
- Check for error messages, line noise, chatter, or other problems. Track sources and resolve problems as necessary.

The upgrade of CPU 1 is complete. The system is operating in split-mode with call processing on Core 1.

Upgrading CPU 0

Before you upgrade CPU 0 to the option 81 Core card cage, check the remaining equipment from the upgrade package. Make sure you have enough equipment to complete the upgrade, and for troubleshooting.

- 1 Disable the clock controller card:

LD 60	to load the program
SSCK1	to get the status of clock 1. Verify it is active.
SSCK0	to get the status of clock 0
SWCK	if necessary, to switch to clock 1
DIS CC 0	to disable clock 0
****	to exit the program
- 2 Set the ENB/DIS switch on the clock controller card in CPU 0 to DIS.
- 3 At the NT8D36 InterGroup Module, disconnect the cable that is routed from the clock controller card in CPU 0.
- 4 Disconnect the cable at the faceplate of the clock controller card in CPU 0.
- 5 If primary or secondary reference cables are equipped, disconnect them at this time.
- 6 Perform the appropriate step to turn off power to CPU 0:
 - For AC-powered systems, set the main circuit breaker for the column to OFF (down position) in the rear of the pedestal.

WARNING

Because of hazardous voltage in AC-powered systems, power to the entire column must be shut down. This shuts down all functions in the column including the network group in that column. Relocate essential services from this group before proceeding.

- For DC-powered systems, set the switch on the NT6D41 CE Power Supply to OFF (down position). Set the circuit breaker for just this module (located at the rear of the pedestal) to OFF (down position). All other modules in the column can safely remain on.

- 7 Remove the trim panels on both sides of the module (refer to Figure 12-8 on page 12-49). Keep the screws for reuse.
- 8 Label and disconnect all cables to the front of the module. Tape over the contacts to avoid grounding. Tape or tie all cables to the sides so the working area in front of the card cage is totally clear.
- 9 On all cards with an ENB/DIS switch on the faceplate, set the switch to DIS.
- 10 Remove the cards, including the power supply, from the front of the module. Keep the clock controller card and the power supply on hand. They will be reused in the Core card cage.

Note: QPC471H (or later vintage) or QPC775E (or later vintage) Clock Controller Cards must be used with option 81.
- 11 Label and disconnect cables from the I/O panels. Remove both I/O panels. Keep the screws for reuse. Remove the I/O safety panel that covers the rear of the backplane.
- 12 Remove the two mounting screws that secure the rear of the card cage to the module. Keep the screws for reuse. (A 1/4" socket wrench is needed for this operation.)
- 13 Remove the three mounting screws that secure the front of the card cage to the bottom of the module. Keep the screws for reuse. Pull the card cage forward until it is half-way out of the module.
- 14 Remove the logic ground (orange) wire from the backplane bolt (refer to Figure 12-9 on page 12-51). Be careful; do not drop the nut or lockwasher into the pedestal.

WARNING

Do *not* disconnect the main power connectors (large orange connectors) at the top and bottom of the module.

- 15 Label and disconnect the module power connectors. These are small orange connectors plugged into the module power distribution unit (MPDU) with AC power or connected to each other with DC power.

- 16 Label and disconnect the system monitor ribbon cables to J1 and J2.
- 17 Remove the CPU card cage from the module.

Note: For AC-powered systems, after the card cage is out of the module you must remove the MPDU and reinstall it on the Core card cage. The screw-heads for the MPDU are in the wall of the power supply slot (refer to Figure 12-10 on page 12-52).

- 18 Remove the floating power connector (the black connector) on the rear of the CPU card cage. Using the same mounting screws and nuts, attach the connector to the Core card cage.

Note: Check the orientation of the connector. Looking at it from the rear of the card cage, the upper left corner pin should be empty (no wire) and the lower right corner pin should have a wire installed. The green wire should be up.

- 19 Check the backplane jumpers in the Core card cage to identify Core 0 (see Table 12-14). The jumpers are located on the backplane, along the bottom of the front side, which faces into the card cage assembly (refer to Figure 12-11 on page 12-53).

CAUTION

If the Core Module jumpers are set incorrectly, the system will not load and operate correctly.

Table 12-14
Backplane jumper settings for Core Modules

Jumper	Location (between slots)	Core 1	Core 0
JB4	9 / 10	Jumper plug not installed	Plug installed
JB3	10 / 11	Plug installed	Plug installed
JB2	11 / 12	Plug installed	Plug installed
JB1	12 / 13	Plug installed	Plug installed

- 20 Install the BTUs, provided in the upgrade package, in the Core card cage. The components must be on the right (looking at the front of the card cage):
 - Install QPC477A9 between slots 4 and 5.
 - Install QPC477B10 between slots 5 and 6.
- 21 Reposition the EMI shield (it looks like a brass grill) in the base of the module. Tape over the front mounting tabs to hold the shield in position. You will remove the tape later.
- 22 Slide the Core card cage about half-way into the module. Hold the card cage firmly while you attach the power system connectors at the rear of the module (refer to Figure 12-12 on page 12-55).
- 23 Attach the system monitor ribbon cables. (J1 goes down to the pedestal, J2 goes up the column.)
- 24 Attach the frame ground (green) wire to the frame ground post on the module. (A 5/16" socket wrench is needed for this operation.) Remove the nut and the lockwasher at the top of the post. Put the frame ground connector over the post. Reinstall the top lockwasher and the nut, then tighten the nut down.

Note: For all of the connectors to fit on the post, you need to remove one of the lockwashers. You must leave a lockwasher at the bottom of the post and at the top of the post. Leave a third lockwasher between the second and third, or the third and fourth, connectors.
- 25 Attach the logic ground (orange) wire. Remove one nut and the lockwasher. Put the connector over the post, reinstall the lockwasher and nut, then tighten the nut down. (A 3/8" socket wrench is needed for this operation.)
- 26 Connect the module power connectors to the MPDU for AC power, or to each other for DC power.
- 27 Slide the card cage the remainder of the way into the module.
- 28 Check the position of the EMI shield. If it has shifted, reposition it. Remove the tape holding the EMI shield.
- 29 Secure the card cage to the module with the three screws in the front and the two screws in the rear.

- 30 Position the I/O panel so the side with the two indents fits into the module. Secure the I/O panel with the screws from the former panel.
- 31 On the outside of the I/O safety panel, attach one extraction tool caution label above the “CAUTION hazardous voltage” label.
- 32 In the bottom of the module, attach the other extraction tool caution label directly behind the position of the I/O safety panel.
- 33 In the bottom of the module, attach the clamp that holds the extraction tool directly behind the extraction tool caution label you just installed.
- 34 Snap the extraction tool into the clamp.
- 35 Attach the Core Module designation labels, provided in the upgrade package, at the front and rear of the module. These labels can go on top of the existing labels. The smaller label goes on the rear of the module.
- 36 Install the NT6D6003 CBT Card in slot 13.

Note: All jumpers on the CBT card are preset to open (the two pins are not connected together by a jumper plug) and must be left open. The card may, however, have jumper plugs installed over one pin on the jumpers. The plugs are provided as extra plugs that may be required on some other card or for future requirements.
- 37 Install the module power supply (reused from the CPU card cage) in the slot labeled “CE Pwr Sup” in the Core card cage.
- 38 Turn on power to the Core 0 module. For AC-powered systems, set the main circuit breaker to ON (up position) in the rear of the pedestal. For DC-powered systems, set the breaker to ON (up position) in the pedestal; then, set the switch to ON (up position) on the power supply in the module.
- 39 Check the LEDs on the NT6D003 CBT Card. (The LEDs are on the component side of the card, not on the faceplate.) The pattern of the LEDs must be OFF-OFF-OFF-OFF, from the top down, for Core 0. The LED pattern matches the jumper settings on the backplane. If the pattern is incorrect, check the jumpers on the backplane (refer to Table 12-14 on page 12-78).

- 40** Shut down power to the Core 0 module again. For AC-powered systems, set the main breaker for the column to OFF (down position). For DC-powered systems, set the switch on the power supply and the pedestal breaker for the module to OFF (down position).
- 41** Attach the QMM42 Security Data Cartridge (provided with the software upgrade package) to the IOP/CMDU card. Plug the cartridge into the connectors on the card and install the screw that secures the cartridge.
- 42** Place the IOP/CMDU card in slot 16 (the card occupies two slots), but leave the card unseated.
- 43** Set the NORM/MAINT switch on the CP Card to MAINT. Place the CP Card in slots 14 and 15 (the card occupies two slots), but leave the card unseated.
- 44** Place an NT6D65 CNI Card in slot 8, but leave the card unseated.
- 45** Place other CNI cards in slots 9 through 12 (starting with slot 9) as required for the network group configuration, but leave the cards unseated.
- 46** Check the vintage of the QPC441 3PE Card—it must be minimum vintage F. Set the option switches and jumper on the card (see Table 12-15). Place the card in slot 7, but leave the card unseated.
- 47** Place the clock controller card in slot 6, but leave the card unseated.

Table 12-15
QPC441F 3PE Card—Option settings

D20 switch: Core 1								Core 0							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
off	on	on	off	off	on	off	off	off	on	on	off	off	on	off	on
RN27 jumper at E35:															
NT6D60 Core Module								set to A							
All other modules								set to B							

CAUTION

Leave the ENB/DIS switch on the 3PE cards set to ENB. If the cards are disabled, the system will initialize.

- 48** On the QPC441 3PE cards in network shelf 0 of all groups, disconnect and remove the cables that were connected to the QPC215 SBE Cards in CPU 0.
- 49** Install NTND14 cable pairs to connect the NT6D65 CNI cards to the QPC441 3PE cards in the Network Modules (see Table 12-16 and refer to Figure 12-14 on page 12-61). The cables connect to backplane connectors in the Core Module and to faceplate connectors on the 3PE cards.

Note: The previous step does not apply to the QPC441 3PE card in the Core Module. .

Table 12-16
CNI to 3PE connections—NTND14 cables

Backplane connection	Group	3PE shelf from Core 1 / from Core 0		3PE connection
8D	0	1	0	J3
8F	0	1	0	J4
9A	1	1	0	J3
9C	1	1	0	J4
9D	2	1	0	J3
9F	2	1	0	J4
10A	3	1	0	J3
10C	3	1	0	J4
10D	4	1	0	J3
10F	4	1	0	J4

Note: Backplane shroud designations are 18 through 8 from left to right and A through F from top to bottom.

- 50 Connect the single connector end of the NT7D89 RS-232 cable to backplane connector position 14D (refer to Figure 12-15 on page 12-62).
- 51 Connect port A (DTE) to J21 of the left I/O panel.
- 52 Connect port B (DCE) to J25 of the left I/O panel.
- 53 At the rear of each Core/Net module, connect an NT7D90 Ethernet Cable from backplane connector position 17F to J28 on the I/O panel.
- 54 Loosely attach the I/O panel to the module (later in the upgrade you will need to remove the panel to install core to core cables), using the screws from the former panel.
- 55 Seat the 3PE card. Set the ENB/DIS switch to ENB.
- 56 Set the ENB/DIS switch on the clock controller card to DIS. Seat the clock controller card; leave the ENB/DIS switch set to DIS and do not connect the faceplate cables.
- 57 Turn on power to the Core 0 module. For AC-powered systems, set the main circuit breaker to ON (up position) in the rear of the pedestal. For DC-powered systems, set the breaker to ON (up position) in the pedestal; then, set the switch to ON (up position) on the power supply in the module.
- 58 Perform the appropriate steps to connect the clock controller cables (refer to Figure 12-16 on page 12-64):
 - For a QPC471 card, connect the NT8D79 cables from the primary and secondary references to the faceplate of the clock controller card. Then connect the NT8D74 cable from the NT8D36 InterGroup Module to the clock controller card.
 - For QPC775 Clock Controller Cards, connect the NT8D74 cable from the junctor board to the faceplate of the clock controller card. Then connect the NT8D79 cables from the primary and secondary references to the faceplate of the clock controller card.
 - Leave the ENB/DIS switch set to DIS on QPC471 and QPC775 cards.

- 59** Seat the IOP/CMDU card and set the ENB/DIS switch to ENB.

As the card performs card level power-up tests, watch the faceplate HEX display for flashing error codes. See *X11 input/output guide* (553-3001-400) for an explanation of the codes.

If the IOP/CMDU card fails the self-test, refer to “Troubleshooting” on page C-1.

- 60** Connect a terminal to the J25 port on the I/O panel in Core 0. You must use the following settings on the terminal:

9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol

- 61** On the CP Card, set the NORM/MAINT switch to MAINT and then seat the card into the backplane and secure the lock latches. As the card performs card level power-up tests, watch the LCD display and output from the CPSI port for error messages:

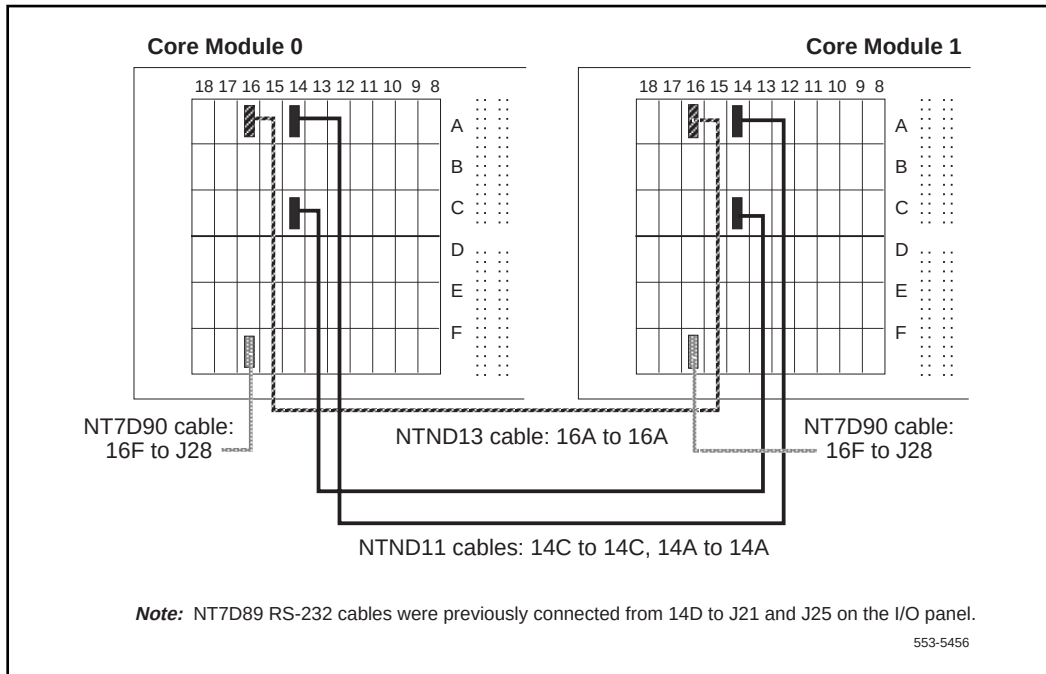
- If the CP card fails the self-test, go to “Troubleshooting” on page C-1.
- Following the “Self-test Complete” message, watch the LCD on the CP card for the message “IOP in Slot xx.” If the message does not appear, refer to “Troubleshooting” on page C-1.
- Watch the LCD for the message “Loading Disk OS.” (The IOP/CMDU hard disk is shipped pre-loaded with the necessary software.) As the system attempts to access the hard disk, watch the LCD for error messages. If the system points to file corruption (such as “Error in file diskos” type messages), refer to “Troubleshooting” on page C-1.
- Watch the LCD for system reload (SYS) and initialization (INI) messages. Following this, Core 0 is operational. If the sysload or initialization fails, refer to “Troubleshooting” on page C-1.

- 62** If you upgraded the CP and IOP ROMs on Core 1, do the same for Core 0:
- Insert diskette 1 from the software upgrade package into IOP/CMDU 0.
 - Press the MAN RST button on the CP card in Core 0.
 - At the main menu, select option <e> for the CP ROM and follow the on-screen directions.
 - select option <f> for the IOP ROM and follow the on-screen directions.
 - Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320). Do not install software or the customer database on Core 0.
- 63** Seat all CNI cards, but leave their ENB/DIS switches set to DIS.
- 64** Connect an NT8D80AZ cable from J4 on each 3PE card in Core 0 to J4 in Core 1.
- 65** Connect an NT8D80AZ cable from J3 on each 3PE card in Core 0 to J3 in Core 1.
- 66** Verify the NORM/MAINT switch on both CP cards is still set to MAINT.
- 67** In Core 0 (the inactive side), set the ENB/DIS switch on the IOP/CMDU card to DIS, and then unseat the card.
- 68** In Core 0, unseat the CP card.

- 69 At the rear of each Core Module, connect an NT7D90 Ethernet Cable from backplane connector position 16F to J28 on the I/O panel (see Figure 12-17).

Figure 12-17

NT6D60 Core Module (rear)—NT7D90, NTND13, and NTND11 cables



Note: The Ethernet port is equipped for future use; it cannot currently be used. Attaching an external device to this port may cause service interruptions.

- 70 Temporarily remove the left I/O panels.
- 71 Connect the NTND13 IOP to IOP SCSI Cable from backplane connector position 16A in Core 0 to 16A in Core 1.
- 72 Connect one NTND11 CP-to-CP Cable from backplane connector position 14C in Core 0 to 14C in Core 1.

- 73 Connect another NTND11 cable from backplane connector position 14A in Core 0 to 14A in Core 1.
- 74 Reinstall the I/O panels in both Core Modules. Use and tighten all eight screws.
- 75 In Core 0, verify that the NORM/MAINT switch on the CP card is set to MAINT and then reseal the card.
- 76 In Core 0, reseal the IOP/CMDU card, and then set the ENB/DIS switch to ENB.

Note: Leave the CP card set to MAINT in both Cores.

- 77 Set the ENB/DIS switch on the clock controller card in Core 0 to ENB.
- 78 Set the ENB/DIS switch on all CNI cards in Core 0 to ENB.
- 79 On the CP card in Core 0, press and release the MAN RST button. When SYS700 messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the LCD will display the following messages, confirming the process:

RUNNING ROM OS

ENTERING CP VOTE

Within 10 minutes, an HWI533 message from the CPSI (Core 1) or SDI port indicates the Core 1 memory is shadowed to the Core 0 memory. Wait until the memory synchronization is complete before continuing.

- 80 Synchronize the hard disks. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137	to load the program
STAT	get the status of IOPs, CMDUs, and redundancy.
SYNC	synchronize the hard disks

Note: Synchronization may take up to 50 minutes.

- 81 Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs, if necessary:

STAT	to get the status of CMDUs, IOPs, and redundancy

SWAP to switch CMDUs (if necessary)
******** to exit the program

- 82** Set the NORM/MAINT switch to NORM on the CP card in Core 1 and perform a redundancy sanity test:

LD 135 to load the program
STAT CNI to get the status of all configured CNIs
STAT CPU to get the status of both Cores
TEST CPU to test the inactive CP card and CP-to-CP cable
TEST CNI c s to test each configured CNI on the inactive side

Note: Testing the CNI cards can take up to 90 seconds each. Testing the CPU card can take up to 20 minutes.

- 83** Switch Cores and test the other side:

SCPU to switch to Core 0
TEST CPU to test the inactive CP card and CP-to-CP cable

- 84** Get the status of the CP cards and memories and of the CNIs:

STAT CPU to get the status of both Cores
STAT CNI to get the status of all configured CNIs
******** to exit LD 135

- 85** Check the status of the clocks, swap clocks, and verify status:

LD 60 to load the program
SSCK 0 to get the status of clock 0
SSCK 1 to get the status of clock 1
SWCK to swap active clocks
SSCK 0 to verify that clock 0 is enabled
SSCK 1 to verify that clock 1 is disabled
******** to exit the program

- 86** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.

- 87** Insert a B1 backup database diskette into each IOP/CMDU for backup. Load overlay 43 and perform a data dump to the backup disks. This command creates backups on both hard drives when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active CMDU if a diskette is installed.
- 88** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

The system is operating in dual CPU mode with redundant disk drives.

Completing the upgrade

- 1 Test the IOP to IOP SCSI connection and test the CMDUs:
LD 137 to load the program
TEST SCSI to check the IOP to IOP connection and access to the CMDUs
TEST CMDU to test the hard and floppy disk drives (a floppy diskette must be installed)
******** to exit the program

- 2 Test Core functions:
LD 135 to load the program
TEST CPU to test the inactive CP card and CP-to-CP cable
TEST IPB to test the backplane protocol on the inactive side
TEST CNI c s to test each configured CNI on the inactive side

If all the tests pass, switch Cores and test the side that is now inactive:

- SCPU** to switch to the other Core
TEST CPU to test the inactive CP card and CP-to-CP cable
TEST IPB to test the backplane protocol on the inactive side
TEST CNI c s to test each configured CNI on the inactive side

- 3 Clear displays, major alarms, and minor alarms:
CDSP to clear the display
CMAJ to clear all major alarms
CMIN ALL to clear all minor alarms
SCPU to switch to the other Core
CDSP to clear the display
******** to exit LD 135

- 4 Load overlay 60 and software enable clock controller cards and any PRI/DTI cards in the Core Modules:

LD 60	to load the program
ENL CC x	to load the program
TRCK aaa	if necessary, to set tracking
ENLL loop	to enable the specified network loop and associated PRI/DTI card
****	to exit the program
- 5 Reinstall the system monitor in column 1. Reconnect the cables.
- 6 On the master system monitor (column 0), reconnect the RJ11 cable to J6, then the cable to J3. Reinstall the system monitor.
- 7 Load overlay 37 and software enable the associated SDI port:

LD 37	to load the program
ENL terminal x	to enable the device associated with the port
STAT XSM	to check the status of the system monitor
****	to exit the program
- 8 Remove any remaining NT8D80 cables that connected the 3PE cards to SBE cards. If cables were routed externally or along the front cable trays, reroute them to their permanent positions.
- 9 For both Core Modules, install the appropriate trim panels from the upgrade package.
- 10 Perform all applicable acceptance test procedures in *Meridian 1 system installation procedures* (553-3001-210).

The upgrade is complete.

XT and option 71 Core module upgrade to option 81

This section describes how to upgrade an XT system, housed in QCA55 and QCA108 cabinets, to an option 81. This procedure also applies to option 71 systems housed in QCA55 and QCA108 cabinets. For option 71 systems housed in modules, use the upgrade procedures “XT Core and Network Module upgrade to option 81” on page 12-163.

This upgrade procedure describes the installation of hardware and software included in software upgrade package 298. Be sure that you have this upgrade package on hand before beginning the upgrade.

The Core Module upgrade is a “CPU only” upgrade. The network equipment and junctor remain in the cabinets, and existing peripheral equipment cabinets remain cabled to the network shelves in QCA55 and QCA108 common equipment cabinets. The Core Modules, which are installed in the Meridian 1 column(s) next to the QCA55 cabinet, functionally replace the CPU shelves in the QCA55.

Note: These procedures include instructions for installing the NTND33Cx cable kits. If you are upgrading your installation using the NTND33Bx upgrade cable kits, you will be instructed later in this section to refer to Appendix C for instructions on installing the NTND33Bx kits.

The upgrade can take the form of one of two basic configurations. Each Core Module may be installed in its own column (see Figure 12-18), or for customers with limited space, both Core Modules may be installed in one column (see Figure 12-19). This single-column configuration still provides the redundancy of two CPUs, but not the redundancy of two power distribution units; failure of the PDU will bring down the entire system.

For this upgrade, you must do the following:

- 1 Install two NT6D60 Core Modules in one or two columns.
 - Additional columns may be installed optionally.
 - One or more columns may contain NT8D37 Intelligent Peripheral Equipment (IPE) Modules.
- 2 Install core to network cabling.

Note: During the upgrade procedures, transient calls, CDR information, PRI service, and traffic report information may be lost.

The hardware required for this upgrade is provided in the Core Module Upgrade Package. All existing equipment that will be retained must be compatible with X11 release 21. Order replacements for all equipment that does not comply.

Verify that any existing QPC441 3-Port Extender cards in the system are of one of the vintages required for release 21. These vintages are: B1, D, E (series B), E1 (series B), or F. If any existing 3PE card in the system is not one of these vintages, replace it with a card of acceptable vintage. All 3PE cards in the system must be of the same vintage.

Note: Refer to *Product compatibility* (553-3001-156) for vintage requirements.

Before you begin the upgrade, perform an inventory to ensure that all required equipment is available on site.

Figure 12-18
Core Module upgrade, multi-column installation

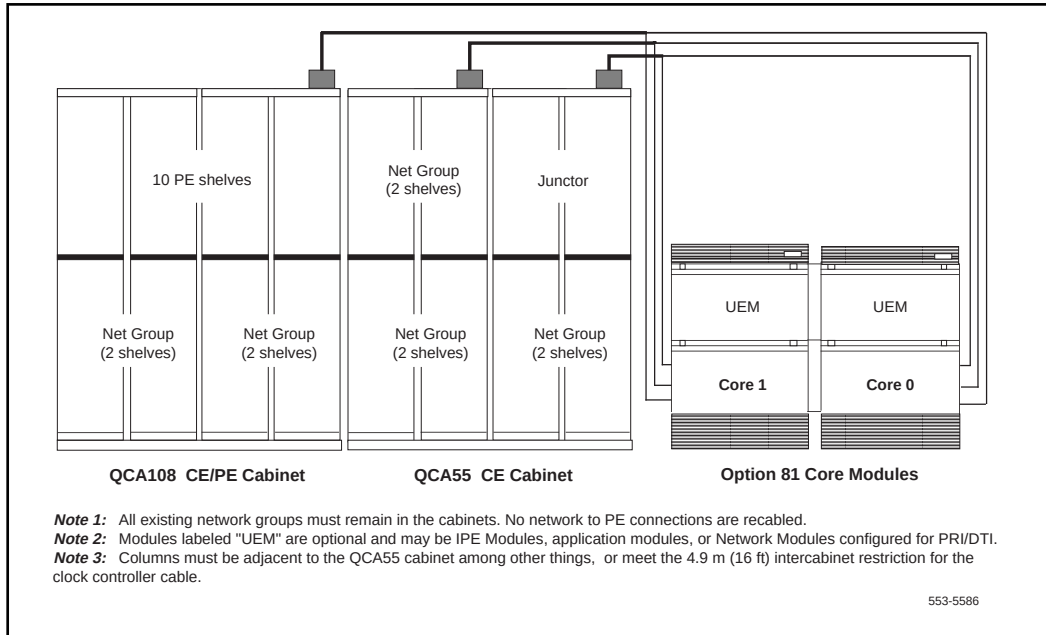
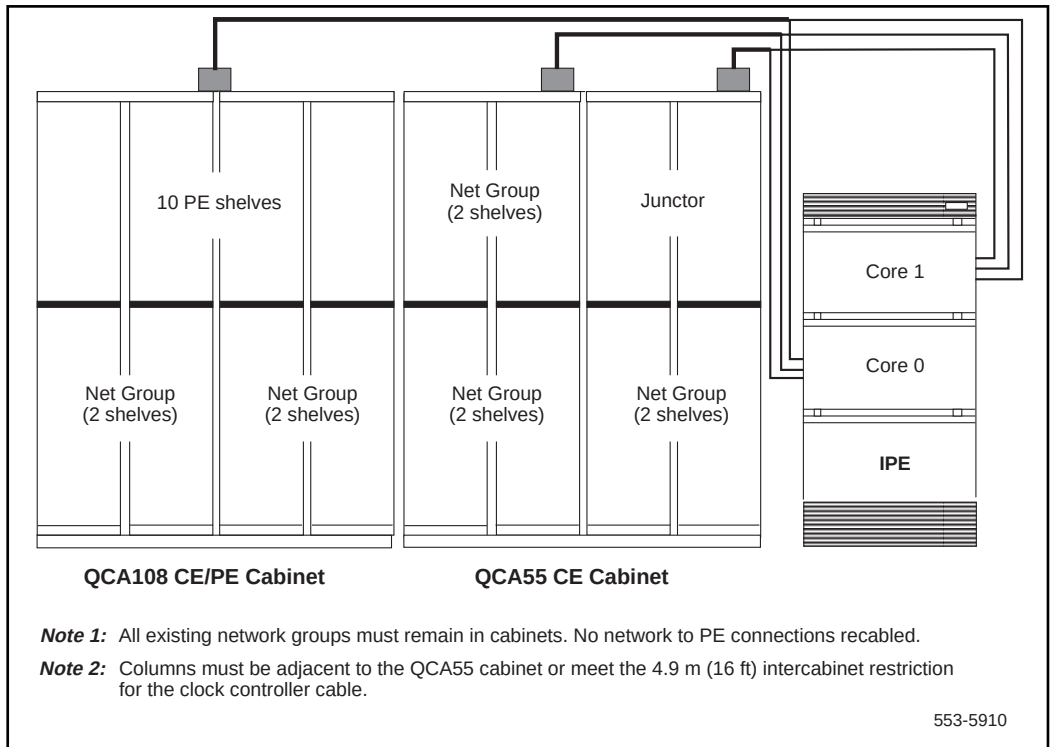


Figure 12-19
Core Module upgrade, single-column installation



Upgrade planning

Before beginning an upgrade, make sure there is sufficient room to position the new Meridian 1 column(s). Make sure the floor can handle the additional weight of the new column(s), and make sure a sufficient power source is available and can be accessed by the new column(s).

Note: Specifications for Meridian 1 column(s) are provided in *Meridian 1 installation planning* (553-3001-120). Specifications for Meridian 1 power requirements are provided in *Meridian 1 power engineering* (553-3001-152).

Check the contents of the upgrade package, including all circuit cards and cables. Make sure all of the items on the order form are on the packing slip that comes with the equipment. Check the tool list in this document. Check that all the tools you will need are on hand.

- 1 The Core Module upgrade is physically compatible with QCA55 and QCA108 cabinets only. Systems with other cabinet types must install Meridian 1 Core and Network Module columns to upgrade to option 81.
- 2 There must be one or more mounting locations available on the top of the QCA55 and QCA108 cabinets for the connector housings used for core to network cabling:
 - For a one-group system, one mounting location is required on top of the QCA55.
 - For a two or three group system, two mounting locations are required on top of the QCA55.
 - For a four or five group system, one more mounting location is required on top of the QCA108, for a total of three connector housings (two on the QCA55 and one on the QCA108).

- 3 The following distance limitations must be observed for intercabinet cables:
- The distance from the I/O panel at the rear of each Core Module to the first connector housing on the QCA55 cabinet must be no more than 4.9 m (16 ft). This generally means that the two Core Modules must be located side-by-side (in the dual-column configuration) and immediately next to the QCA55 cabinet.
 - The distance from the I/O panel at the rear of each Core Module to the second connector housing on the QCA55 cabinet must be no more than 6.7 m (22 ft).
 - The distance from the I/O panel at the rear of each Core Module to the connector housing on the QCA108 cabinet must be no more than 6.7 m (22 ft).

Installing NTND33Cx cable kits

Note: If you are using NTND33Cx cable kits to upgrade your installation, follow the procedures in this section. If you are using NTND33Bx cable kits to upgrade your installation, skip this section and, instead, begin with “Installing NTND33Bx cable kits” on page A-1. When you are finished with that section, return to this chapter and resume with “Upgrade preparation” on page 12-100

The NTND33Cx cable kits supersede the NTND33Bx cable kits. There are two cable kits in the NTND33Cx series:

- NTND33CB Cable Kit (Group 0): this cable kit is provided in the Core Module Upgrade package and is required for all option 81 core module upgrades. It is the only cable kit needed for single group systems.
- NTND33CC Cable Kit (Groups 1-4): this cable kit is ordered separately and is used with the NTND33CB kit. One NTND33CC kit is required for groups one and two; an additional NTND33CC kit is required for groups three and four.

The equipment in the cable kits provides the intercabinet cabling between the Core Modules and the existing common equipment cabinets. The intercabinet cabling provides clock controller to junctor connections, CNI to 3PE connections, and PRI to clock controller reference connections (when present).

A P0738866 Label Kit is provided in the upgrade package. The packet contains a pair of preprinted labels for each cable in the three kits.

Note: There are also labels that do not apply to this upgrade. You will not use all of the labels that are provided.

During preparation for the upgrade, there are detailed instructions for labeling the cables as you separate them by kit and by function. (For example, as you label them, keep cables in the NTND33CB kit separate from cables in the NTND33CC kit, and the cables for Core 0 separate from the intercabinet cables.) Using the P0738866 Label Kit, label and install cables for only the groups equipped.

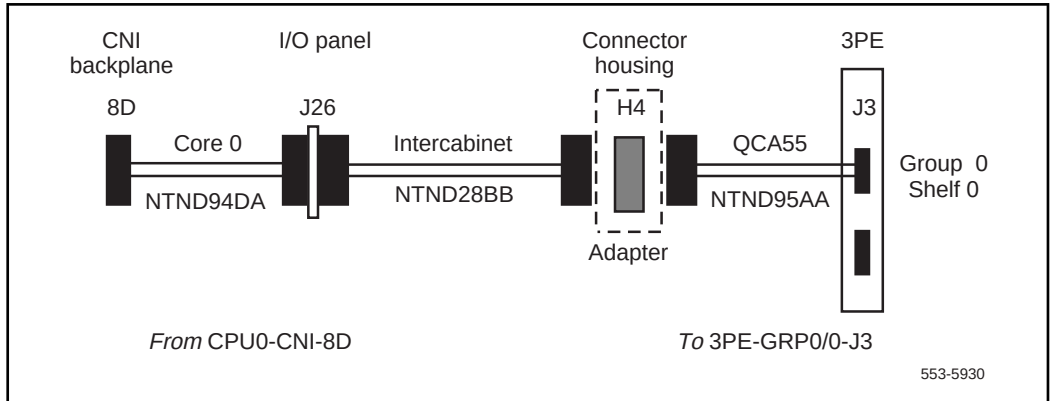
The cable labels indicate the “from” and “to” ends of the cabling path, not the ends of the individual cables. For example, the three following cables will each be labeled CPU0-CNI-8D to 3PE-GRP0/0-J3 (see the example in Figure 12-20):

- 1 An NTND94DA cable (from CPU0-CNI-8D) in Core 0 connects to the following:
 - a CNI port at backplane position 8D
 - the inside of the I/O panel at connector J26
- 2 An NTND28BB cable connects to the following:
 - the outside of the I/O panel at connector J26
 - position H4 on the connector housing on the QCA55 cabinet
- 3 An NTND95AA cable (to 3PE-GRP0/0-J3) connects to the following:
 - position H4 on the connector housing
 - faceplate connector J3 on the 3PE card for network group 0, shelf 0

CAUTION

Read through all of the procedures for this upgrade before you begin. Also, before your begin, perform a thorough audit on the existing system to verify the suitability of the upgrade package and to resolve any existing operational problems, error messages, or other problems.

Figure 12-20
Cabling path for cables labeled CPU0-CNI-8D to 3PE-GRP0/0-J3



Upgrade preparation

Before proceeding with the upgrade procedure, make a backup copy of the customer database using the data dump routine:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter **EDD** to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter ******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Note: If QPC471 Clock Controller Cards in the XT system are not minimum vintage H, you must replace them before the upgrade. (This requirement does not apply to QPC775 Clock Controller Cards.)

- 5 In the tape shelf of the XT system CE cabinet, set the ENB/DIS switch on the QPC173 Power Monitor card to DIS.
- 6 Unplug the Power Monitor card but do not remove it from the slot.
- 7 If necessary, install a new QPC471 Clock Controller Card in CPU 1:

Note: Use the clock controller cards provided with the Core Modules.

- Load overlay 35 and, if CPU 1 is active, switch to CPU 0:
LD 35 to load the program
TCPU to test the CPUs
SCPU to switch to CPU 0
******** to exit the program
- Load overlay 60 and, if clock controller 1 is active, switch to clock controller 0:
LD 60 to load the program
SSCK 1 to get the status of clock controller 1
SWCK to switch to clock controller 0
- Make sure clock controller 0 is active, and if it is, disable clock controller 1:
SSCK 0 to get the status of clock controller 0
DIS CC 1 to disable clock controller 1
- Set the ENB/DIS switch on clock controller 1 to DIS.
- Disconnect the NT8D74 clock controller cable from the QPC471 clock controller card.
- Set the ENB/DIS switch to DIS on the replacement QPC471 Clock Controller card. Set the option switches on the replacement card (see Table 12-17).
- Add together the lengths of the two clock controller to junctor cables. Set SW4 on the replacement card according to this total length (see Table 12-17).

Note: When configuring clock controller cards, be sure to set the switches correctly and install the card in the slot and module indicated. Incorrect settings or location of the card will allow the system to operate, but may result in unreliable or unpredictable system function. Disregard silkscreened text (“21,51,61,71”) next to the switches.

- Install the replacement QPC471 Clock Controller card and reconnect the cables to the card.

- Set the ENB/DIS switch on the Clock Controller Card to ENB.
- Software enable the card.

ENL CC 1 to enable clock controller 1
******* to exit LD 60

Note: Do not issue the tracking (TRCK) or status (SSCK) commands at this time. If you do issue these commands, the system may respond with an inaccurate error condition.

Table 12-17
QPC471H Clock Controller Card—Option switch settings for XT/71

Length of NT8D74 Clock Controller to Junctor Cables (see note)	SW1				SW2				SW4			
	position				position				position			
	1	2	3	4	1	2	3	4	1	2	3	4
0–4.3 m (0–14 ft)	off	off	off	off	off	off	off	off	off	on	off	off
4.6–6.1 m (15–20 ft)	off	off	off	off	off	off	off	off	off	on	off	on
6.4–10.1 m (21–33 ft)	off	off	off	off	off	off	off	off	off	on	on	off
10.4–15.2 m (34–50 ft)	off	off	off	off	off	off	off	off	off	on	on	on
Note: Add the length of the two cables (no cable can exceed 25 ft). Both clock controller cards must have the same setting.												

8 If necessary, install a new QPC471 Clock Controller Card in CPU 0:

- Load overlay 35 and, if CPU 0 is active, switch to CPU 1:
LD 35 to load the program
TCPU to test the CPUs
SCPU to switch to CPU 1 (if necessary)
******** to exit the program
- Load overlay 60 and make sure clock controller 1 is active:
LD 60 to load the program
SSCK 1 to get the status of clock controller 1

- If clock controller 0 is active, switch clocks:
SWCK to switch to clock controller 1
- Make sure clock controller 1 is active:
SSCK 1 to get the status of clock controller 1
- Disable clock controller 0:
DIS CC 0 to disable clock controller 0
- Set the ENB/DIS switch on clock controller 0 to DIS.
- Disconnect the NT8D74 clock controller cable.
- Label all the cables to the clock controller card, disconnect them, and remove the card.
- Set the ENB/DIS switch to DIS on the replacement QPC471 Clock Controller card. Set the option switches on the replacement card (see Table 12-17).
- Connect the NT8D74 clock controller cable to the clock controller card.
- Add together the lengths of the two clock controller to junctor cables. Set SW4 on the replacement card according to this total length (see Table 12-17).

Note: When configuring clock controller cards, be sure to set the switches correctly and install the card in the slot and module indicated. Incorrect settings or location of the card will allow the system to operate, but may result in unreliable or unpredictable system function. Disregard silkscreened text (“21,51,61,71”) next to the switches.

- Install the replacement QPC471 Clock Controller Card, and reconnect the cables to the card.
- Connect the NT1R04AA clock controller to junctor cable to connector J11 on the junctor panel.

- Set the ENB/DIS switch on the Clock Controller Card to ENB.
- Software enable the card.

ENL CC 1 to enable clock controller 1
******* to exit LD 60

9 Verify clock switchover and tracking for each CPU (issue tracking commands if required):

- Check the status of clock controller 1:

SSCK 1 to get the status of clock controller 1
********* to exit LD 60

- Switch CPUs:

LD 35 to load the program
TCPU to test CPU 0
SCPU to switch to CPU 0
********* to exit LD 35

- Check the status of clock controller 0:

LD 60 to load the program
SWCK to switch to clock controller 0
SSCK 0 to get the status of clock controller 0
********* to exit the program

10 Follow Procedure 1: “Pre-conversion procedure,” *Software conversion procedures* (553-2001-320) and print configuration records. Check the configuration record printouts to identify all configured I/O ports.

Note: When transferring call processing to a Core module during an upgrade, one I/O address is required for a CPSI port. If there is no address available, an SYS 4532 error is displayed. You must make available one port assignment for a CPSI port.

- 11 If the database is release 16 or lower, you must first convert the database to release 17 or higher before continuing with the upgrade. Use the database conversion instructions in Procedure 3: “Convert From One X11 Release To a Later Release,” *Software conversion procedures* (553-2001-320). When you have converted the database to release 17, proceed with the steps below.

Note 1: If the database is on a 3.5-in., HD or ED floppy diskette, and if the customer database is X11 release 17 or 18, you will convert it to release 19, then to release 21 later in this upgrade.

Note 2: If you are using NTND33Cx cable kits in this upgrade, continue following the procedures in this section. If you are using NTND33Bx cable kits to upgrade your installation, skip the next section and, instead, follow the procedures in Appendix C beginning with “Labelling cables” on page A-3. When you complete the procedures through the end of the appendix, return to this chapter and resume with “Transferring call processing to CPU 0” on page 12-136.

Installing cables and connector housings

- 1 For Group 0, label cables in the NTND33CB kit (see Figure 12-21 for cable paths):
 - Separate the Core 0, Core 1, intercabinet, and QCA55 cabinet cables (see Table 12-18).
 - Label each cable as listed in Table 12-18. For each cable, label both ends the same.
- 2 For Group 1 and Group 2 (if equipped), label cables in the NTND33CC kit (see Figure 12-22 for cable paths):
 - Separate the Core 0, Core 1, intercabinet, and QCA55 cabinet cables (see Table 12-19).
 - Label each cable as listed in Table 12-19. For each cable, label both ends the same.

Table 12-18
NTND33CB Group 0 cable labels (Part 1 of 2)

Core 0 cables	Label both ends
NT1R04AA	CPU0-CC-J3 to JCTR-J11
NT8D79AD	CPU0-CC-J2 to PRIM PRI-J1
NT8D79AD	CPU0-CC-J1 to SEC PRI-J1
NTND94DA	CPU0-CNI-8D to 3PE-GRP0/0-J3
NTND94DA	CPU0-CNI-8F to 3PE-GRP0/0-J4
Core 1 cables	Label both ends
NT1R04AA	CPU1-CC-J3 to JCTR-J12
NT8D79AD	CPU1-CC-J2 to PRIM PRI-J2
NT8D79AD	CPU1-CC-J1 to SEC PRI-J2
NTND94DA	CPU1-CNI-8D to 3PE-GRP0/1-J3
NTND94DA	CPU1-CNI-8F to 3PE-GRP0/1-J4
Intercabinet cables	Label both ends
NTND28BB	CPU0-CC-J3 to JCTR-J11
NTND28BB	CPU1-CC-J3 to JCTR-J12
NTND28BB	CPU0-CNI-8D to 3PE-GRP0/0-J3
NTND28BB	CPU0-CNI-8F to 3PE-GRP0/0-J4
NTND28BB	CPU1-CNI-8D to 3PE-GRP0/1-J3
NTND28BB	CPU1-CNI-8F to 3PE-GRP0/1-J4
NT1R05AA	CPU0-CC-J2 to PRIM PRI-J1
NT1R05AA	CPU0-CC-J1 to SEC PRI-J1
NT1R05AA	CPU1-CC-J2 to PRIM PRI-J2
NT1R05AA	CPU1-CC-J1 to SEC PRI-J2

Table 12-18
NTND33CB Group 0 cable labels (Part 2 of 2)

QCA55 cabinet cables	Label both ends
NT1R04AA	CPU0-CC-J3 to JCTR-J11
NT1R04AA	CPU1-CC-J3 to JCTR-J12
NTND95AA	CPU0-CNI-8D to 3PE-GRP0/0-J3
NTND95AA	CPU0-CNI-8F to 3PE-GRP0/0-J4
NTND95AA	CPU1-CNI-8D to 3PE-GRP0/1-J3
NTND95AA	CPU1-CNI-8F to 3PE-GRP0/1-J4
NT8D79AE	CPU0-CC-J2 to PRIM PRI-J1
NT8D79AE	CPU0-CC-J1 to SEC PRI-J1
NT8D79AE	CPU1-CC-J2 to PRIM PRI-J2
NT8D79AE	CPU1-CC-J1 to SEC PRI-J2

- 3** For Group 3 and Group 4 (if equipped), label cables in the NTND33CC kit (see Figure 12-23 for cable paths):
- Separate the Core 0, Core 1, intercabinet, and QCA108 cabinet cables (see Table 12-20).
 - Label each cable as listed in Table 12-20. For each cable, label both ends the same.

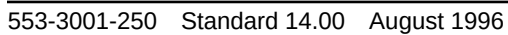


Table 12-19
NTND33CC Group 1 and Group 2 cable labels (Part 1 of 2)

Core 0 cables		Label both ends
NTND94DA	CPU0-CNI-9A to 3PE-GRP1/0-J3	
NTND94DA	CPU0-CNI-9C to 3PE-GRP1/0-J4	
NTND94DA	CPU0-CNI-9D to 3PE-GRP2/0-J3	
NTND94DA	CPU0-CNI-9F to 3PE-GRP2/0-J4	
Core 1 cables		Label both ends
NTND94DA	CPU1-CNI-9A to 3PE-GRP1/1-J3	
NTND94DA	CPU1-CNI-9C to 3PE-GRP1/1-J4	
NTND94DA	CPU1-CNI-9D to 3PE-GRP2/1-J3	
NTND94DA	CPU1-CNI-9F to 3PE-GRP2/1-J4	
Intercabinet cables		Label both ends
NTND28BC	CPU0-CNI-9A to 3PE-GRP1/0-J3	
NTND28BC	CPU0-CNI-9C to 3PE-GRP1/0-J4	
NTND28BC	CPU0-CNI-9D to 3PE-GRP2/0-J3	
NTND28BC	CPU0-CNI-9F to 3PE-GRP2/0-J4	
NTND28BC	CPU1-CNI-9A to 3PE-GRP1/1-J3	
NTND28BC	CPU1-CNI-9C to 3PE-GRP1/1-J4	
NTND28BC	CPU1-CNI-9D to 3PE-GRP2/1-J3	
NTND28BC	CPU1-CNI-9F to 3PE-GRP2/1-J4	

Table 12-19
NTND33CC Group 1 and Group 2 cable labels (Part 2 of 2)

QCA55 cabinet cables	Label both ends
NTND95AA	CPU0-CNI-9A to 3PE-GRP1/0-J3
NTND95AA	CPU0-CNI-9C to 3PE-GRP1/0-J4
NTND95AA	CPU0-CNI-9D to 3PE-GRP2/0-J3
NTND95AA	CPU0-CNI-9F to 3PE-GRP2/0-J4
NTND95AA	CPU1-CNI-9A to 3PE-GRP1/1-J3
NTND95AA	CPU1-CNI-9C to 3PE-GRP1/1-J4
NTND95AA	CPU1-CNI-9D to 3PE-GRP2/1-J3
NTND95AA	CPU1-CNI-9F to 3PE-GRP2/1-J4

Figure 12-22
NTND33CC Group 1 and Group 2 cable paths

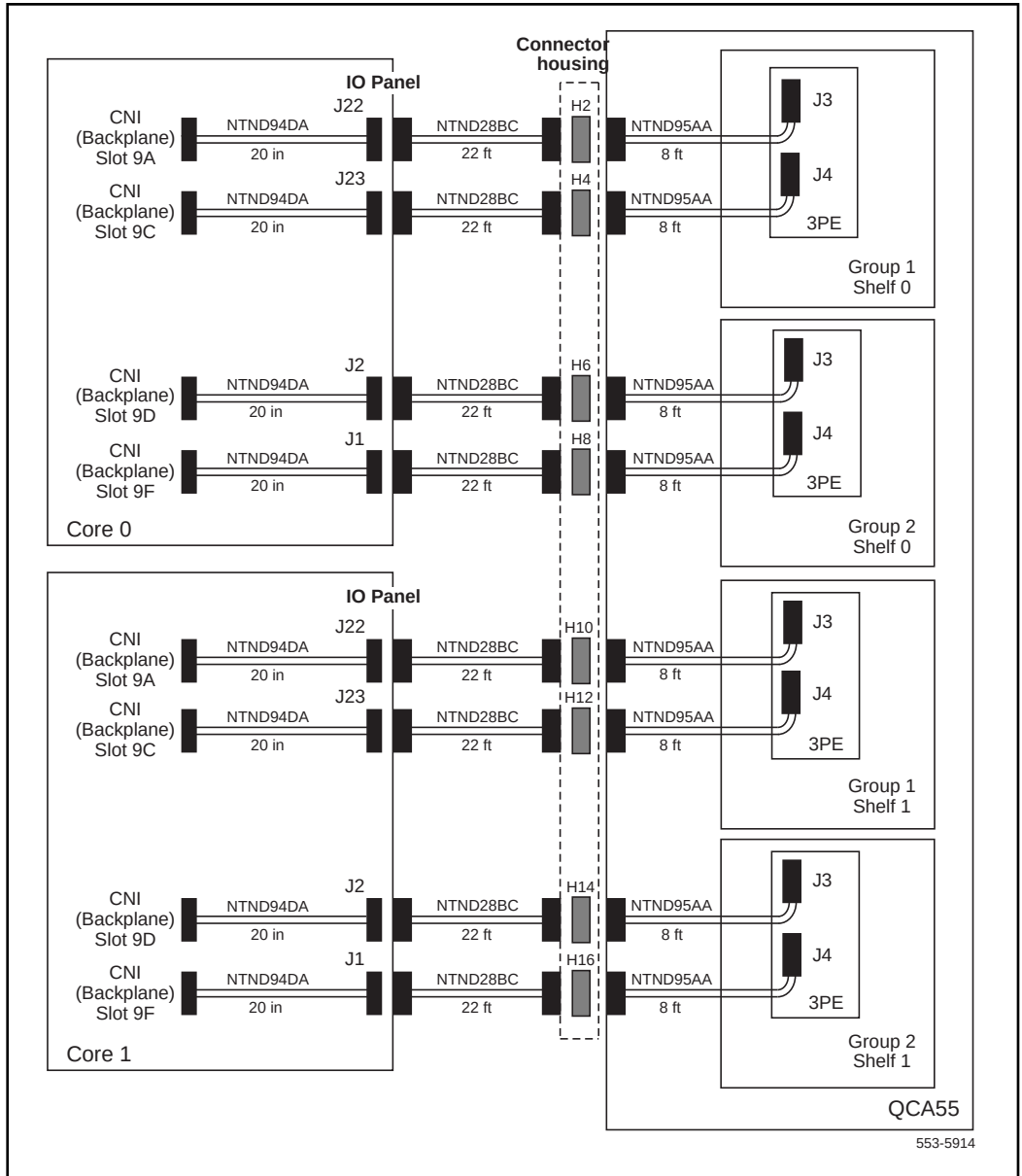


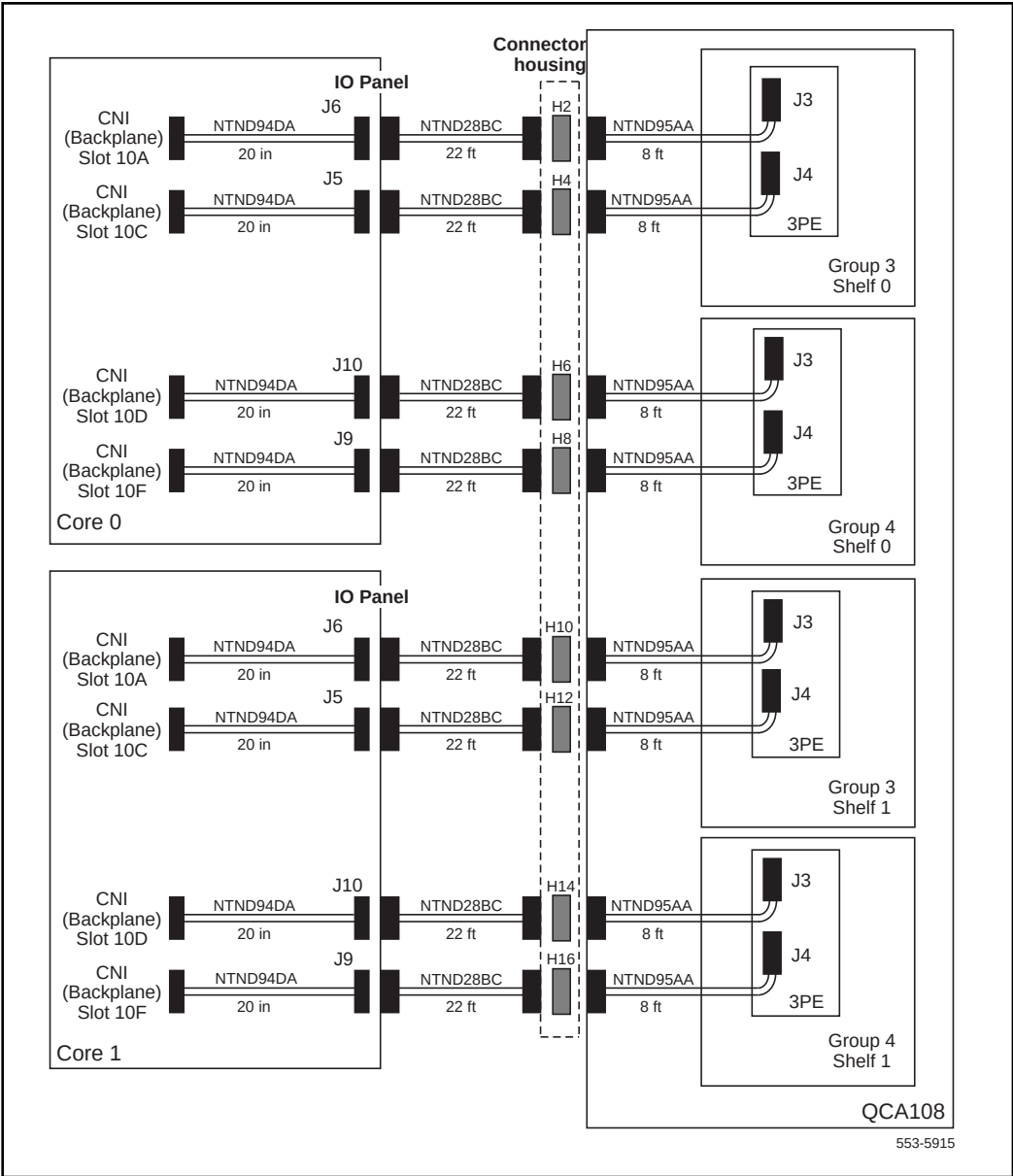
Table 12-20
NTND33CC Group 3 and Group 4 cable labels (Part 1 of 2)

Core 0 cables	Label both ends
NTND94DA	CPU0-CNI-10A to 3PE-GRP3/0-J3
NTND94DA	CPU0-CNI-10C to 3PE-GRP3/0-J4
NTND94DA	CPU0-CNI-10D to 3PE-GRP4/0-J3
NTND94DA	CPU0-CNI-10F to 3PE-GRP4/0-J4
Core 1 cables	Label both ends
NTND94DA	CPU1-CNI-10A to 3PE-GRP3/1-J3
NTND94DA	CPU1-CNI-10C to 3PE-GRP3/1-J4
NTND94DA	CPU1-CNI-10D to 3PE-GRP4/1-J3
NTND94DA	CPU1-CNI-10F to 3PE-GRP4/1-J4
Intercabinet cables	Label both ends
NTND28BC	CPU0-CNI-10A to 3PE-GRP3/0-J3
NTND28BC	CPU0-CNI-10C to 3PE-GRP3/0-J4
NTND28BC	CPU0-CNI-10D to 3PE-GRP4/0-J3
NTND28BC	CPU0-CNI-10F to 3PE-GRP4/0-J4
NTND28BC	CPU1-CNI-10A to 3PE-GRP3/1-J3
NTND28BC	CPU1-CNI-10C to 3PE-GRP3/1-J4
NTND28BC	CPU1-CNI-10D to 3PE-GRP4/1-J3
NTND28BC	CPU1-CNI-10F to 3PE-GRP4/1-J4

Table 12-20
NTND33CC Group 3 and Group 4 cable labels (Part 2 of 2)

QCA108 cabinet cables	Label both ends
NTND95AA	CPU0-CNI-10A to 3PE-GRP3/0-J3
NTND95AA	CPU0-CNI-10C to 3PE-GRP3/0-J4
NTND95AA	CPU0-CNI-10D to 3PE-GRP4/0-J3
NTND95AA	CPU0-CNI-10F to 3PE-GRP4/0-J4
NTND95AA	CPU1-CNI-10A to 3PE-GRP3/1-J3
NTND95AA	CPU1-CNI-10C to 3PE-GRP3/1-J4
NTND95AA	CPU1-CNI-10D to 3PE-GRP4/1-J3
NTND95AA	CPU1-CNI-10F to 3PE-GRP4/1-J4

Figure 12-23
NTND33CC Group 3 and Group 4 cable paths



Installing the connector housing

In this step, you will choose a mounting location for the connector housing on the QCA108 and QCA55 cabinets, install the connector housing and bracket, and route cables from within the cabinets to the connector housing.

There are several possible mounting locations (see Figure 12-24) for the housings. The housing may be mounted at one of nine locations on the top of the cabinet:

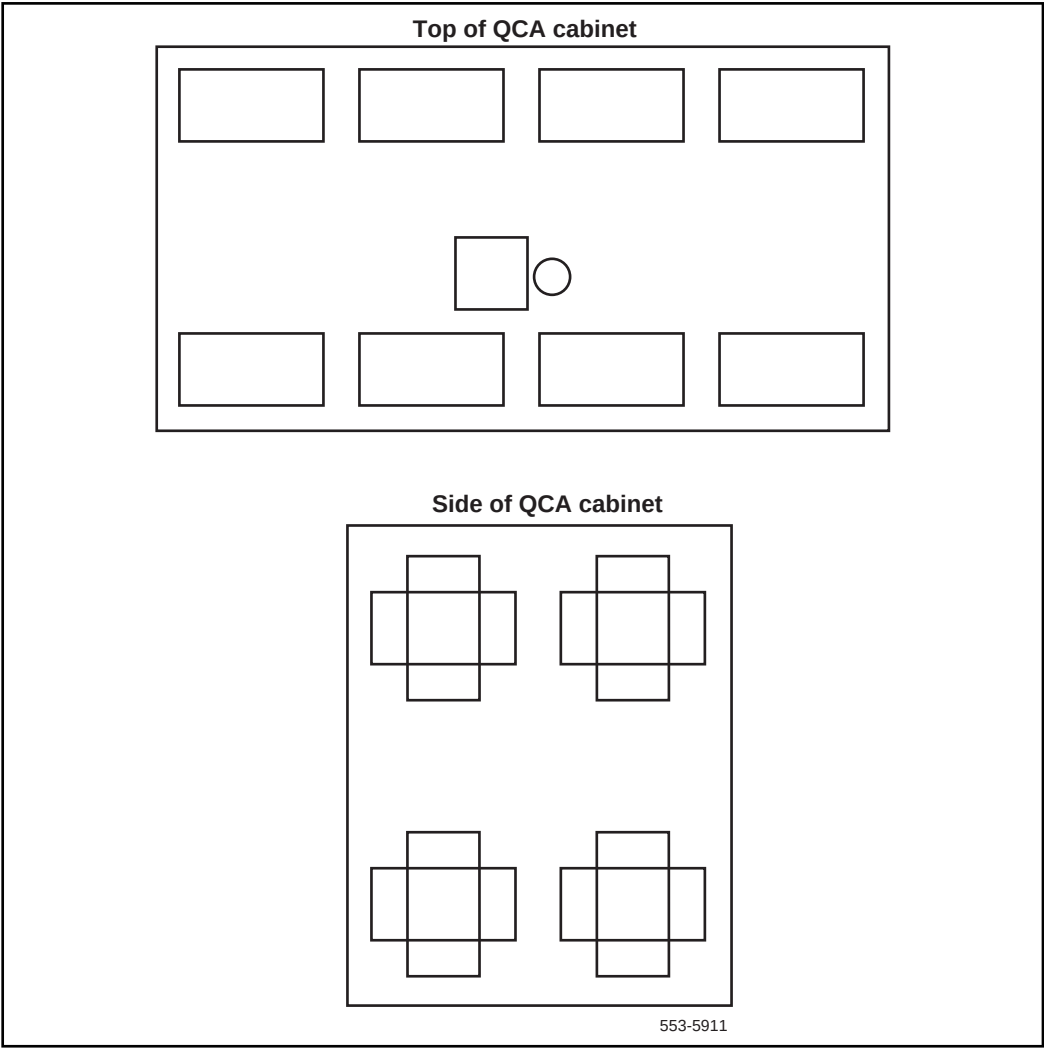
- horizontally, with the bracket mounted on either the top or front of the housing
- vertically (on its end), with the bracket mounted on one side of the housing

The housing may also be mounted at one of four locations on either side of the cabinet:

- parallel to the floor, with the bracket mounted on one of the sides of the housing
- perpendicular to the floor, with the bracket mounted on one of the sides of the housing

Note: When choosing a location for the connector housing on the QCA55 cabinet, select a location close to the junctor panel so that the 4-foot clock to I/O cable will reach from the junctor panel to the connector housing.

Figure 12-24
Possible mounting locations for connector housing



- 4 For Group 0, assemble the connector bracket and the connector housing from the NTND33CB kit, mount the connector housing to the cabinet, and route the cables from within the cabinet to the connector housing.

For Group 1 and Group 2 (if equipped) and Group 3 and Group 4 (if equipped), assemble the connector bracket and connector housing from the NTND33CC kit, mount the connector housing to the cabinet, and route the cables from within the cabinet to the connector housing.

- Locate and remove an available access cover from the cabinet.

If you are installing the connector housing horizontally on the top of the cabinet, remove the four screws and the access cover from the cabinet.

If you are installing the connector housing vertically on the top of the cabinet, remove the eight nuts and the small access cover from the cabinet, and remove the four screws and the cover plate from the end of the housing.

If you are installing the connector housing on the side of the cabinet, remove the two screws and the access cover from the cabinet.

- Mount the connector housing to the cabinet.

If you are installing the connector housing horizontally on the top of the cabinet, reuse the four screws to secure the housing to the cabinet.

If you are installing the connector housing vertically on the top of the cabinet, reuse six of the eight nuts to secure the housing to the cabinet—there is insufficient room to use two of the nuts. If there is another housing already installed adjacent to this position, first install the cover plate with the connector designations label on the front of the housing—there will be insufficient room to do this after the housing is mounted to the cabinet.

If you are installing the connector housing on the side of the cabinet, center the housing over the opening, and mark and drill four holes in the cabinet corresponding to four holes in the housing. You may either use four machine screws from the inside of the cabinet mating with the four pem nuts on the housing, or use four self-tapping screws securing to the cabinet from the inside of the housing.

CAUTION

Use caution when drilling holes in the cabinet. Do not drill into cables or equipment located directly inside the cabinet.

- Mount the connector bracket to the connector housing using the screws provided.

If you are installing the connector housing horizontally on the top of the cabinet, mount the bracket to either the top (connector designation label facing up) or the front of the housing (label facing away from the center of the cabinet), whichever is appropriate for your installation.

If you are installing the connector housing vertically on the top of the cabinet, mount the bracket on the side of the housing that will be opposite the conduit access hole in the top of the cabinet.

If you are installing the connector housing on the side of the cabinet, mount the bracket on whichever side of the housing that is appropriate for your installation.

- Route the cables listed in Table 12-21 from within the QCA55 cabinet to the connector housing as shown in Figure 12-25. Secure all NT1R04 and NTND95 cables with bail locks. Secure NT8D79 cables with screw locks. If screw lock kits (A4314862) are not present on the inside of 9-pin filter adapters, install these before connecting cables to both sides of the adapters.

- Route the cables listed in Table 12-22 (for Group 1 and Group 2) or Table 12-23 (for Group 3 and Group 4) from within the QCA55 cabinet to the connector housing as shown in Figure 12-26. Secure all cables with bail locks.
- Mount the remaining cover plates to the connector housing.

If you are installing the bracket on the top of the connector housing (cables entering from above), mount the cover plate with the connector designations label on the side of the housing nearest the edge of the cabinet so that it is visible from the floor.

If you are installing the bracket on the front of the connector housing (cables entering from the front), mount the cover plate with the connector designations label to the top of the housing.

Note: Mount the connector housing and bracket so that only one of the connector designation labels is visible.

Table 12-21
Group 0 internal cabinet cables

Cable	Cable label	Connector housing position
NT1R04AA	CPU0-CC-J3 to JCTR-J11	H2
NTND95AA	CPU0-CNI-8D to 3PE-GRP0/0-J3	H4
NTND95AA	CPU0-CNI-8F to 3PE-GRP0/0-J4	H6
NT1R04AA	CPU1-CC-J3 to JCTR-J12	H10
NTND95AA	CPU1-CNI-8D to 3PE-GRP0/1-J3	H12
NTND95AA	CPU1-CNI-8F to 3PE-GRP0/1-J4	H14
NT8D79AE	CPU0-CC-J1 to SEC PRI-J1	H8R
NT8D79AE	CPU0-CC-J2 to PRIM PRI-J1	H8F
NT8D79AE	CPU1-CC-J1 to SEC PRI-J2	H16R
NT8D79AE	CPU1-CC-J2 to PRIM PRI-J2	H16F

Figure 12-25
Group 0 connector positions on the connector bracket

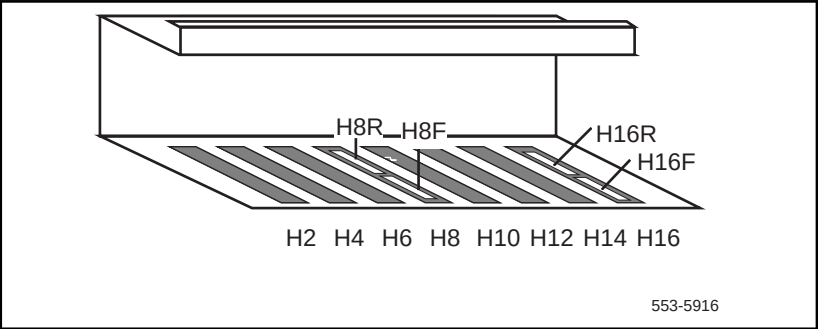


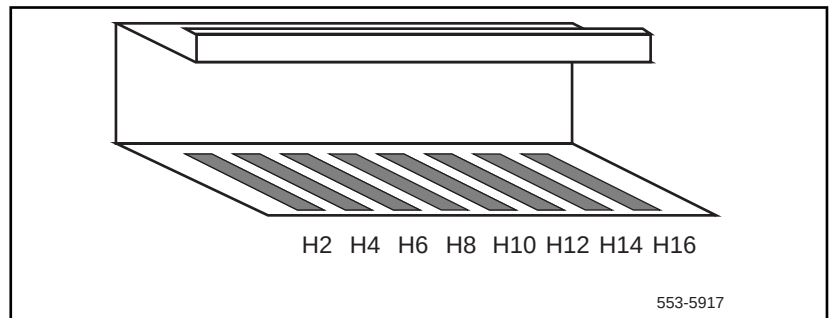
Table 12-22
Group 1 and Group 2 internal cabinet cables

Cable	Cable label	Connector housing position
NTND95AA	CPU0-CNI-9A to 3PE-GRP1/0-J3	H2
NTND95AA	CPU0-CNI-9C to 3PE-GRP1/0-J4	H4
NTND95AA	CPU0-CNI-9D to 3PE-GRP2/0-J3	H6
NTND95AA	CPU0-CNI-9F to 3PE-GRP2/0-J4	H8
NTND95AA	CPU1-CNI-9A to 3PE-GRP1/1-J3	H10
NTND95AA	CPU1-CNI-9C to 3PE-GRP1/1-J4	H12
NTND95AA	CPU1-CNI-9D to 3PE-GRP2/1-J3	H14
NTND95AA	CPU1-CNI-9F to 3PE-GRP2/1-J4	H16

Table 12-23
Group 3 and Group 4 internal cabinet cables

Cable	Cable label	Connector housing position
NTND95AA	CPU0-CNI-10A to 3PE-GRP3/0-J3	H2
NTND95AA	CPU0-CNI-10C to 3PE-GRP3/0-J4	H4
NTND95AA	CPU0-CNI-10D to 3PE-GRP4/0-J3	H6
NTND95AA	CPU0-CNI-10F to 3PE-GRP4/0-J4	H8
NTND95AA	CPU1-CNI-10A to 3PE-GRP3/1-J3	H10
NTND95AA	CPU1-CNI-10C to 3PE-GRP3/1-J4	H12
NTND95AA	CPU1-CNI-10D to 3PE-GRP4/1-J3	H14
NTND95AA	CPU1-CNI-10F to 3PE-GRP4/1-J4	H16

Figure 12-26
Group 1 and Group 2 (and Group 3 and Group 4) connector positions on the connector bracket



Preparing the Core Module column(s)

This section contains instructions for connecting the XT/71 cabinets to the system monitor and for cabling the Core Modules. Network loops are already cabled in the XT/71 cabinets and are not covered here. Procedures for powering up the system are provided later in the chapter, after the Core Module cables are installed.

Note: Leave one SDI port and system terminal configured on a network shelf in the XT/71.

- 1 Install the Core Module column(s). Refer to *Meridian 1 system installation procedures* (553-3001-210) as needed for procedures covering installation of column equipment.
 - Prepare equipment for installation.
 - Place a fourth module on a column (if needed).
 - Position and level equipment.
 - Install overhead cable tray kits (if needed).
- 2 Install the module power supply in each module:
 - Make sure the system is disconnected from any power source.
 - Set the switch and breakers on all module power supplies or module power distribution units (MPDUs) to OFF.
 - Insert the power supply and hook the locking devices.
- 3 Install an IOP/CMDU in each Core Module, but do not seat the card.
- 4 Install AC or DC power equipment. Refer to *Upgrade engineering* (553-3001-150) for ground wiring.
- 5 Make changes at the MDF to accommodate equipment in the new column(s) and system monitor connections.
- 6 Install PFTUs (if needed).

- 7 Configure the system monitor. Set the switches according to the tables in *Meridian 1 system installation procedures* (553-3001-210) with these exceptions:
 - For the master, set SW1 positions 1, 2, and 8 to ON.
 - For slaves, set SW1 positions 1 and 8 to ON.
- 8 Connect system monitor cables with the following exception in Core 0:
 - Attach a P0369107 Filter Adapter to the inside of slot J11 on the right I/O panel.
 - Connect the narrow ribbon on the NT8D46AD cable from connector J2 to slot J11 on the right I/O panel.
- 9 Connect a terminal to the J25 port on the I/O panel in Core 1. Use the following settings on the terminal:

9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol
- 10 If IPE cards are added in the column(s), cable the lines and trunks.
- 11 Connect an NT8D80AZ cable from J4 of the 3PE card in Core 0 to J4 of the 3PE card in Core 1.
- 12 Connect another NT8D80AZ cable from J3 of the 3PE card in Core 0 to J3 of the 3PE card in Core 1.
- 13 In the rear of the Core Modules, remove the I/O panels.

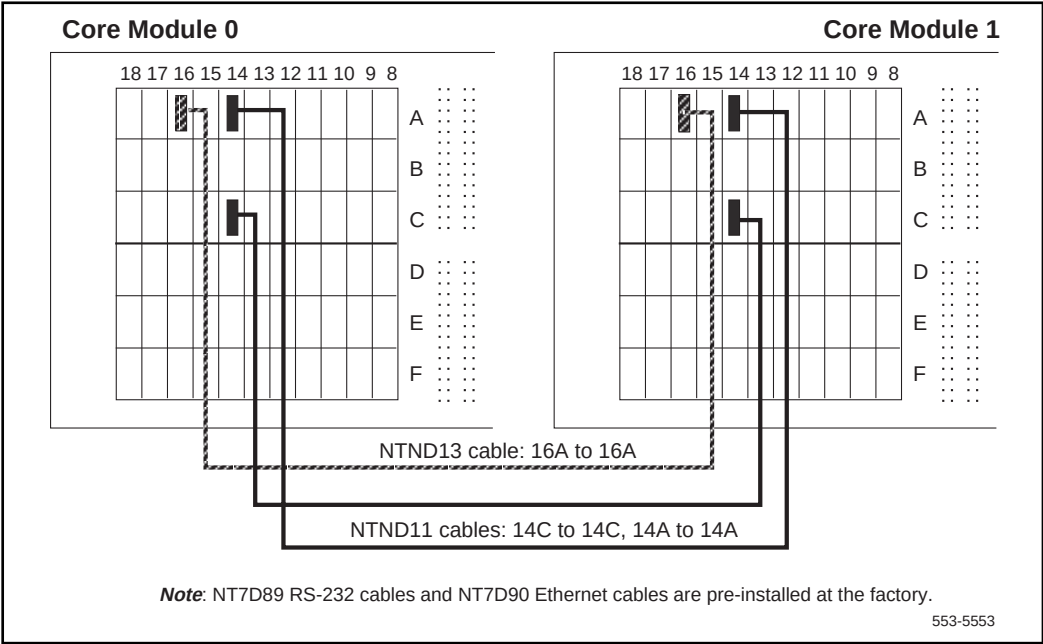
Note: If only Group 0 and Group 1 are equipped, you do not need to remove the right I/O panel.
- 14 Remove the eight screws that secure the I/O panels. Keep the screws for reuse.

Note: You must use the extraction tool to disconnect cables from the connectors on the rear of the backplane.
- 15 Using the extraction tool, temporarily disconnect the NT7D90 Ethernet and NT7D89 RS-232 cables from backplane connector positions 16F and 14D, respectively.
- 16 Remove the I/O panels but keep them on hand for immediate reuse.
- 17 In the rear of the Core Modules, install the following cables between Core 0 and Core 1 (see Figure 12-27).

Note: The following cables may already be connected in one of the modules. If so, leave them connected and attach the loose end.

- 18 Connect the NTND13 IOP to IOP SCSI Cable from backplane connector position 16A in Core 0 to backplane connector position 16A in Core 1.
- 19 Connect one NTND11 CP-to-CP Cable from backplane connector position 14C in Core 0 to backplane connector position 14C in Core 1.
- 20 Connect another NTND11 cable from backplane connector position 14A in Core 0 to backplane connector position 14A in Core 1.

Figure 12-27
NT6D60 Core module (rear)—connections for NTND13 and NTND11 cables



- 21 For Group 0, attach adapters and cables from the NTND33CB kit to the inside of the left I/O panel for each Core Module.

Note: For the left I/O panel, the inside of the I/O panel faces the backplane, and the word LEFT faces the outside of the module. The slot numbers listed below match the designations on the *outside* of the panel.

- 22 Mount an A0360683 50-pin adapter at slot J32, pin 1 to the top.
- 23 Mount an A0369106 9-pin filter adapter at slot J29, pin 1 to the bottom, using the A0314862 screw lock kit.
- 24 Mount an A0369106 9-pin filter adapter at slot J33, pin 1 to the bottom, using the A0314862 screw lock kit.
- 25 Connect the NTND94DA CNI cables to the inside of the I/O panels as listed in Table 12-24.
- 26 Plug an NT1R04AA cable into the adapter on slot J32 and lock the cable in position using the bail locks:
 - In Core 0 the cable is labeled CPU0-CC-J3 to JCTR-J11.
 - In Core 1 the cable is labeled CPU1-CC-J3 to JCTR-J12.
- 27 Attach an A0314862 screw lock kit to the filter adapter in slot J33. Plug an NT8D79AD cable into the adapter, and secure it with the screws on the connector:
 - In Core 0 the cable is labeled CPU0-CC-J1 to SEC PRI-J1.
 - In Core 1 the cable is labeled CPU1-CC-J1 to SEC PRI-J2.
- 28 Attach an A0314862 screw lock kit to the filter adapter in slot J29. Plug an NT8D79AD cable into the adapter, and secure it with the screws on the connector:
 - In Core 0 the cable is labeled CPU0-CC-J2 to PRIM PRI-J1.
 - In Core 1 the cable is labeled CPU1-CC-J2 to PRIM PRI-J2.

Table 12-24**Group 0 connections on the left I/O panel: NTND94DA cables**

Core 0 cable label	Core 1 cable label	I/O slot	Backplane connector
CPU0-CNI-8F to 3PE-GRP0/0-J4	CPU1-CNI-8F to 3PE-GRP0/1-J4	J27	8F
CPU0-CNI-8D to 3PE-GRP0/0-J3	CPU1-CNI-8D to 3PE-GRP0/1-J3	J26	8D

- 29 For Group 1 (if equipped), connect the NTND94DA cables from the NTND33CC kit to the inside of the left I/O panel for each Core Module as listed in Table 12-25.

Table 12-25
Group 1 connections on the left I/O panel: NTND94DA cables

Core 0 cable label	Core 1 cable label	I/O slot	Backplane connector
CPU0-CNI-9C to 3PE-GRP1/0-J4	CPU1-CNI-9C to 3PE-GRP1/1-J4	J23	9C
CPU0-CNI-9A to 3PE-GRP1/0-J3	CPU1-CNI-9A to 3PE-GRP1/1-J3	J22	9A

- 30 Install the left I/O panels in each Core Module and route the cables:
- Feed the cables from the I/O panel through the panel opening. Route the NT1R04AA and NT8D79AD cables to the left of the module. Route other cables to the right.
 - With the panel partly in place, reconnect the NT7D90 and NT7D89 cables to backplane connectors 16F and 14D, respectively.

Note: The Ethernet port is equipped for future use; it cannot currently be used. Attaching an external device to this port may cause service interruptions.

- 31 Install the I/O panel with the eight screws removed earlier.
- 32 Route the following clock controller cables to the front of slot 6 (the cables will be connected to the clock controller cards in later steps):
- In both Core Modules: NT1R04AA cable.
 - In Core 0: NT8D79AD cable labeled CPU0-CC-J2 to PRIM PRI-J1 and NT8D79AD cable labeled CPU0-CC-J1 to SEC PRI-J1
 - In Core 1: NT8D79AD cable labeled CPU1-CC-J2 to PRIM PRI-J2 and NT8D79AD cable labeled CPU1-CC-J1 to SEC PRI-J2
- 33 Connect the cables to the backplane connector positions indicated on the cable label (refer to Tables 12-24 and 12-25).

- 34** For Group 2, Group 3, and Group 4 (if equipped), attach adapters and cables from the NTND33CC kits to the *inside* of the right I/O panel for each Core Module.
- Note:** On the right I/O panel, the inside of the panel faces the backplane, and the word RIGHT faces the outside of the module. The slot numbers listed below match the designations on the *outside* of the panel.
- 35** Permanently remove the cable restraint bracket on the inside of the I/O panel. Remove the pan-head screw and lift the bracket away from the lower edge of the J10 opening.
- 36** Attach a filter adapter (P0369107) at slot J11.
- 37** For all groups, connect the NTND94DA cables to the I/O panel as listed in Table 12-26.
- 38** Feed the cables from the I/O panel through the panel opening and secure the panel with the eight mounting screws.
- 39** Connect the cables to the backplane connector positions indicated on the cable label and listed in Table 12-26.

Table 12-26
Group 2, 3, and 4 connections on the right I/O panel: NTND94DA cables

Core 0 cable labels	Core 1 cable labels	I/O slot	Backplane connector
CPU0-CNI-9F to 3PE-GRP2/0-J4	CPU1-CNI-9F to 3PE-GRP2/1-J4	J1 (group 2)	9F (group 2)
CPU0-CNI-9D to 3PE-GRP2/0-J3	CPU1-CNI-9D to 3PE-GRP2/1-J3	J2 (group 2)	9D (group 2)
CPU0-CNI-10C to 3PE-GRP3/0-J4	CPU1-CNI-10C to 3PE-GRP3/1-J4	J5 (group 3)	10C (group 3)
CPU0-CNI-10A to 3PE-GRP3/0-J3	CPU1-CNI-10A to 3PE-GRP3/1-J3	J6 (group 3)	10A (group 3)
CPU0-CNI-10F to 3PE-GRP4/0-J4	CPU1-CNI-10F to 3PE-GRP4/1-J4	J9 (group 4)	10F (group 4)
CPU0-CNI-10D to 3PE-GRP4/0-J3	CPU1-CNI-10D to 3PE-GRP4/1-J3	J10 (group 4)	10D (group 4)

- 40** Connect a terminal to the J25 port on the I/O panel in Core/Net 1. Use the following settings on the terminal:
- 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol
- 41** To power up the Core Module column(s), go to page 16-1 in *Meridian 1 system installation procedures* (553-3001-210). See the notes below for exceptions to the standard power-up procedure.
- Note 1:** If the clock controller cards were moved to the CPU shelves in the XT/71, they will be moved to the Core Modules later in the upgrade.
- Note 2:** Set all faceplate switches to ENB except on the CNI cards. Make sure the CNI cards are set to DIS.
- Note 3:** After power-up, set the NORM/MAINT switch on the CP card in Core 1 to MAINT and then set the NORM/MAINT switch on the CP card in Core 0 to MAINT.
- 42** Seat the IOP/CMDU card and set the ENB/DIS switch to ENB.
- As the card performs card level power-up tests, watch the faceplate HEX display for error codes. See *X11 input/output guide* (553-3001-400) for an explanation of the codes.
- If the IOP/CMDU card fails the self-test, refer to Appendix C: “Troubleshooting” on page C-1.

- 43** Push the MAN RST button on the CP card in both Core/Net modules. As the cards perform card-level power-up tests, watch the LCD displays and output from the CPSI port for error messages.

If the CP card fails the self-test, refer to Appendix C: “Troubleshooting” on page C-1.

Following the “Self-test Complete” message, watch the LCD on the CP card for the message “IOP in Slot xx.” If the message does not appear, refer to Appendix C: “Troubleshooting” on page C-1.

Watch the LCD for the message “Loading Disk OS.” (The IOP/CMDU hard disk is shipped pre-loaded with the necessary software.) As the system attempts to access the hard disk, watch the LCD for error messages. If the system points to file corruption (such as “Error in file diskos” type messages), go to Appendix C: “Troubleshooting” on page C-1.

Watch the terminal for system reload (SYS) and initialization (INI) messages. If the sysload or initialization fails, go to Appendix C: “Troubleshooting” on page C-1.

Note: It will take at least 70 seconds between the “DONE” and “INI” messages.

Core/Net 1 is operational.

44 For Group 0, connect the intercabinet cables from the NTND33CB kit:

- Mount and screw-lock the intercabinet cables listed in Table 12-27 to the Group 0 connector housing on the top of the QCA55 cabinet (see Figure 12-28). Using a screwdriver, you can access the rear screw locks through the access hole in the strain relief bracket.

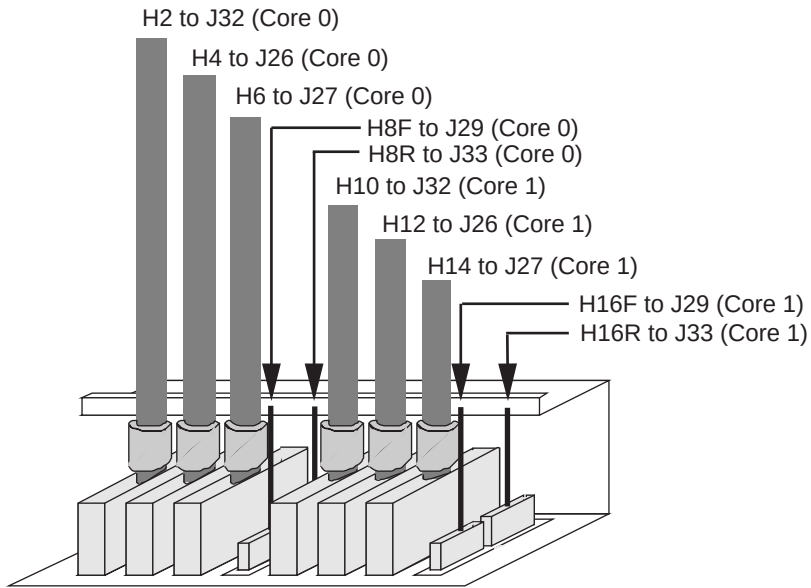
With one cable tie, secure the two cables from position H8 to the strain relief bracket. With another cable tie, secure the two cables from position H16 to the bracket. Secure the remaining cables to the bracket using one cable tie per cable.

- Route the cables along the overhead cable racks to the Core Modules. Connect the cables to the outside of the left I/O panels as listed in Table 12-27, and secure the cables with the screw-locks.

Table 12-27
Group 0 intercabinet cables

Cable	Cable label	Connector housing position	I/O panel connector
NTND28BB	CPU0-CC-J3 to JCTR-J11	H2	Core 0—J32
NTND28BB	CPU0-CNI-8D to 3PE-GRP0/0-J3	H4	Core 0—J26
NTND28BB	CPU0-CNI-8F to 3PE-GRP0/0-J4	H6	Core 0—J27
NT1R05AA	CPU0-CC-J1 to SEC PRI-J1	H8R	Core 0—J33
NT1R05AA	CPU0-CC-J2 to PRIM PRI-J1	H8F	Core 0—J29
NTND28BB	CPU1-CC-J3 to JCTR-J12	H10	Core 1—J32
NTND28BB	CPU1-CNI-8D to 3PE-GRP0/1-J3	H12	Core 1—J26
NTND28BB	CPU1-CNI-8F to 3PE-GRP0/1-J4	H14	Core 1—J27
NT1R05AA	CPU1-CC-J1 to SEC PRI-J2	H16R	Core 1—J33
NT1R05AA	CPU1-CC-J2 to PRIM PRI-J2	H16F	Core 1—J29

Figure 12-28
Group 0 cables connecting to the connector bracket



Note: For clarity, the connector housing is not shown in the illustration.

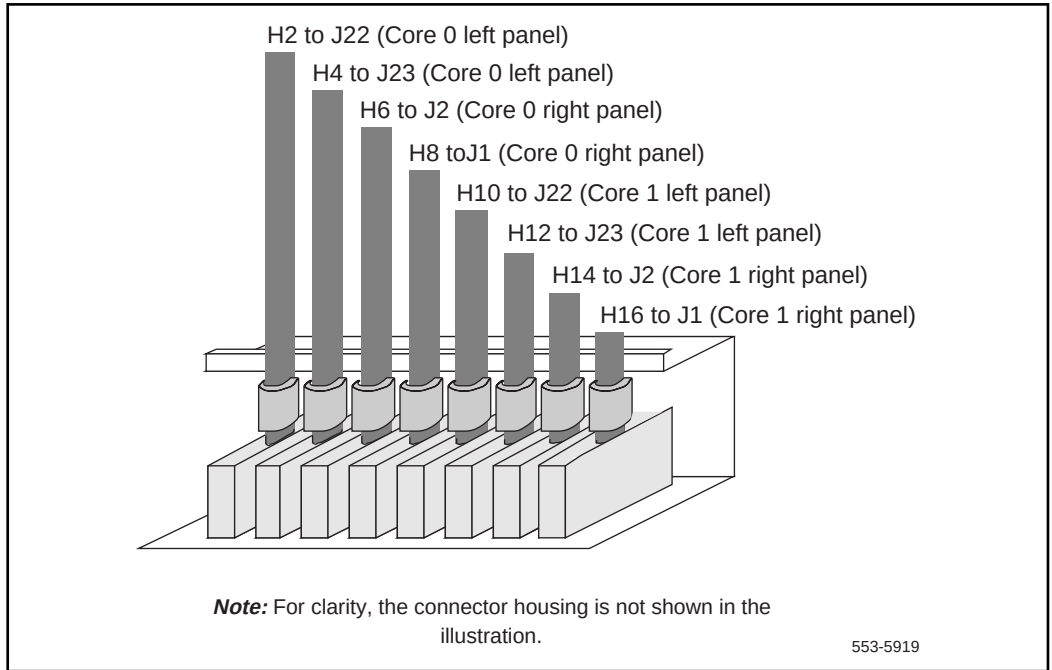
553-5918

- 45** For Group 1 and Group 2 (if equipped), connect the intercabinet cables from the NTND33CC kit:
- Mount and screw-lock the intercabinet cables listed in Table 12-28 to the connector housing on the top of the QCA55 cabinet (see Figure 12-29).
 - Route the cables along the overhead cable racks to the Core Modules. Connect the cables to the outside of the I/O panels as listed in Table 12-28, and secure the cables with the screw-locks.

Table 12-28
Groups 1 and 2 intercabinet cables

Cable	Cable label	Connector housing position	I/O panel connector
NTND28BC	CPU0-CNI-9A to 3PE-GRP1/0-J3	H2	Core 0—J22 (left panel)
NTND28BC	CPU0-CNI-9C to 3PE-GRP1/0-J4	H4	Core 0—J23 (left panel)
NTND28BC	CPU0-CNI-9D to 3PE-GRP2/0-J3	H6	Core 0—J2 (right panel)
NTND28BC	CPU0-CNI-9F to 3PE-GRP2/0-J4	H8	Core 0—J1 (right panel)
NTND28BC	CPU1-CNI-9A to 3PE-GRP1/1-J3	H10	Core 1—J22 (left panel)
NTND28BC	CPU1-CNI-9C to 3PE-GRP1/1-J4	H12	Core 1—J23 (left panel)
NTND28BC	CPU1-CNI-9D to 3PE-GRP2/1-J3	H14	Core 1—J2 (right panel)
NTND28BC	CPU1-CNI-9F to 3PE-GRP2/1-J4	H16	Core 1—J1 (right panel)

Figure 12-29
Group 1 and 2 cables connecting to the connector bracket

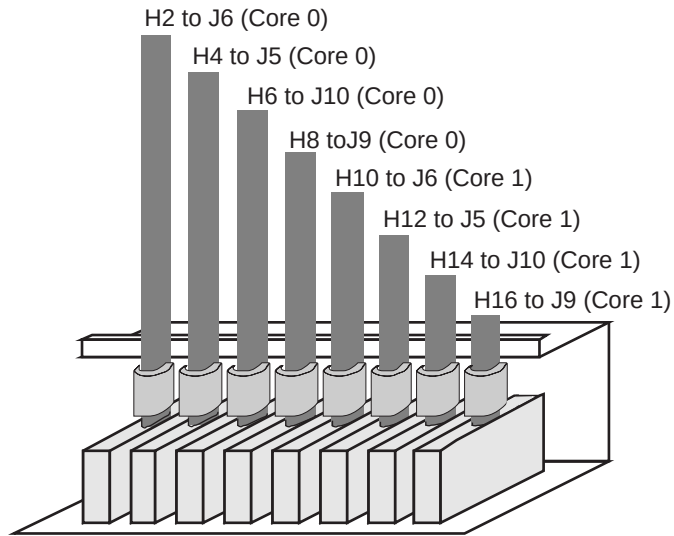


- 46** For Group 3 and Group 4 (if equipped), connect the intercabinet cables from the NTND33CC kit:
- Mount and screw-lock the intercabinet cables listed in Table 12-29 to the connector housing on the top of the QCA108 cabinet (see Figure 12-30).
 - Route the cables along the overhead cable racks to the Core Modules. Connect the cables to the outside of the right I/O panels as listed in Table 12-29, and secure the cables with the screw-locks.

Table 12-29
Group 3 and Group 4 intercabinet cables

Cable	Cable label	Connector housing position	I/O panel connector
NTND28BC	CPU0-CNI-10A to 3PE-GRP3/0-J3	H2	Core 0—J6
NTND28BC	CPU0-CNI-10C to 3PE-GRP3/0-J4	H4	Core 0—J5
NTND28BC	CPU0-CNI-10D to 3PE-GRP4/0-J3	H6	Core 0—J10
NTND28BC	CPU0-CNI-10F to 3PE-GRP4/0-J4	H8	Core 0—J9
NTND28BC	CPU1-CNI-10A to 3PE-GRP3/1-J3	H10	Core 1—J6
NTND28BC	CPU1-CNI-10C to 3PE-GRP3/1-J4	H12	Core 1—J5
NTND28BC	CPU1-CNI-10D to 3PE-GRP4/1-J3	H14	Core 1—J10
NTND28BC	CPU1-CNI-10F to 3PE-GRP4/1-J4	H16	Core 1—J9

Figure 12-30
Groups 3 and 4 cables connecting to the connector bracket



Note: For clarity, the connector housing is not shown in the illustration.
All connections are to the right I/O panel.

553-5929

Transferring call processing to CPU 0

Before proceeding with the upgrade procedure, make a backup copy of the customer database using the data dump routine:

- 1 On the XT/71 system, log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media.

- 3 When “EDD000” appears on the terminal, enter
EDD to begin the data dump
- 4 When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter
******** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Verify system operation in the XT/71, then split the system so CPU 1 is inactive and all call processing is handled by CPU 0:

- 5 Load overlay 35 and get the status of the CPU, CMA, extenders, and memory. Verify that all common equipment is enabled.
LD 35 to load the program
STAT CPU to get the status of both CPUs
STAT CMA to get CMA status
STAT EXT to get the extender status
STAT MEM to get the memory status

- 6** Test and switch CPUs:
- | | |
|-------------|--------------------|
| TCPU | to test the CPUs |
| SCPU | to switch the CPUs |
- 7** Get the status of the other CPU, CMA, extenders, and memory. Verify that all common equipment is enabled.
- | | |
|-----------------|--------------------------------|
| STAT CPU | to get the status of both CPUs |
| STAT CMA | to get CMA status |
| STAT EXT | to get the extender status |
| STAT MEM | to get the memory status |
- 8** Verify that CPU 0 is enabled (CPU 1 is idle).
- 9** Set the NORM/MAINT switch on the CPU 0 card to MAINT.
- 10** List the enabled memories. Then disable the memories and CMA in CPU 1:
- | | |
|------------------|--|
| LENL | to list enabled memories |
| DIS xx | to disable CPU 1 memory (i.e. 10, 11, or 12) |
| DIS CMA 1 | to disable CMA 1 |
| **** | to exit LD 35 |
- 11** Set the QPC215 Segmented Bus Extenders (SBE) ENB/DIS switch to DIS in CPU 1.
- 12** Load overlay 60 and disable clock controller 1:
- | | |
|-----------------|---|
| LD 60 | to load the program |
| SSCK 0 | to get the status of clock 0 |
| SSCK 1 | to get the status of clock 1 |
| SWCK | if necessary, to switch to clock controller 0 |
| DIS CC 1 | to disable clock controller 1 |
| **** | to exit the program |

Set the ENB/DIS switch to DIS on the clock controller card in CPU 1. Disconnect the cable at the junctor board. Then disconnect the cable at the faceplate of the clock controller card. If primary or secondary reference cables are equipped, disconnect them last.

- 13 Type DIST. This software disables the QPC584 or QPC742 in CPU 0.
- 14 Set the QPC584 or QPC742 ENB/DIS faceplate switch to DIS in CPU 0.
- 15 Get a temporary SDI card (use a spare). Check the baud rate. The baud rate must be set to match the associated terminal device, or output characters may be garbled.
- 16 Place the temporary SDI card in any vacant non-memory slot in CPU 1.
- 17 Set the temporary SDI card ENB/DIS faceplate switch to ENB. Connect a local terminal, or a modem for remote access, to the temporary SDI card. Verify that the baud rate for the device and the SDI card match.
- 18 Set the NORM/MAINT switch to MAINT in CPU 1. This will cause a sysload. If the sysload does not begin, press the RLD button on CMA 1 only. Wait for the sysload to complete to verify the sanity of CPU 1 before proceeding with the upgrade.

The CMA and SDI lights will go out and the disk drives will run. The following messages will print out (they may differ slightly depending on the X11 release). Check for dial tone following the DONE and INI000 messages:

```
SYS000
SYS092
SYS093
SYS511
SYS091
SYS090
SYSLOAD RLS: xx
ISSUE: x
DONE

INI000
```

Note 1: When the sysload is complete, midnight routines will begin. You can log into the system, which will interrupt the midnight routines, and continue with the upgrade.

Note 2: If the system fails to load or messages indicate data corruption, do not proceed with the upgrade until all problems have been cleared.

The Core column(s) are installed and powered. The XT/71 system is operating in split-mode with call processing on CPU 0. You may now transfer functionality from CPU 0 to Core 1.

Upgrading CPU 1

Note 1: Make sure a terminal is connected to J25 on the I/O panel in Core 1. If you are using only one terminal, connect it to Core 0; if you are using a switch box for the CPSI ports, set the switch to Core 0. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.

Note 2: Begin with step 1 only if you are converting your database on-site from release 17 or 18; begin with step 6 if you are converting your database on-site from release 19.

- 1 Follow the steps below to convert the release 17 or 18 database to release 19 and then to release 21, and install the customer database on the option 81 Core 1. You will need the B1 diskette previously removed from the XT system.

Note: Refer to Software Installation Tool reference, *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 19 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- To activate the Software Installation Tool, insert diskette 1 (from the release 19 diskette set) from the software upgrade package into the IOP/CMDU in Core 1.
- Press the MAN RST button on the CP card in Core 1.
- Select the following options in sequence, and insert diskettes when you are prompted to do so:
 - <c> to install software
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow all on-screen directions until software installation is complete.
- When the main menu appears, select the following option:
 - <d> to install the database on the CMDU in Core 1

- When the next screen appears, select the following option:
 <c> to transfer the previous system database
- Follow the instructions which appear on the screen using the B1 diskette from the previous system:
- When the main menu appears, select the following options:
 <q> to quit
 <yes> to confirm quit
- Remove any diskettes from the floppy drive, and type
 <a> to reboot the system

While the system is rebooting, database conversion occurs.

- Verify that the following message appears on the system terminal:

DATA CONVERSION
X11 RELEASE <old rls #> TO RELEASE <new rls #>

- 2 Log into the system.
- 3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
 LD 43 to load the program
- 4 Insert a B1 diskette (from the release 19 diskette set) titled “DATABASE BACKUP DISK” into the floppy drive in the IOP/CMDU in Core 1.
- 5 Perform a data dump. At the prompt, enter
 EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 6 Follow the steps below to convert the release 19 database to release 21, and install the customer database on option 81 Core 1.

Note: Refer to Software Installation Tool reference, *Software conversion procedures* (553-2001-320).

- Set the ENB/DIS switch on the IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- To activate the Software Installation Tool, insert diskette 1 (from the release 21 diskette set) from the software upgrade package into the IOP/CMDU in Core 1.
- Press the MAN RST button on the CP card in Core 1.
- Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:
 - to install software, database, CP-ROM, and IOP-ROM
 - <a> yes, start installation
 - <a> continue with upgrade
- Follow the on-screen directions until the software, database, CP-ROM and IOP-ROM installations are complete.
- When the main menu appears, select the following options:
 - <q> to quit
 - <yes> to confirm quit
- Remove the diskette from the floppy drive..
 - <a> to reboot the system

The system will automatically perform a sysload during which several messages will appear on the system terminal.

- Verify that the message “SYS702 48” appears on the terminal during the sysload. (The “48” portion of the message indicates that the new 48 MB of memory has been located.)

While the sysload is being performed, database conversion occurs.

- Verify that the following message appears on the system terminal:

DATA CONVERSION
X11 RELEASE 19.xx TO RELEASE 21.xx

- 7 Configure networks as CNI groups, based on the number of CNI cards in the system. In a typical configuration, there are three CNI cards for five network groups (see Tables 12-30 and 12-31). See *X11 input/output guide* (553-3001-400) for a complete description of the Configuration Record (LD 17).

Note: If the number of network groups configured in the system does not match the number of network groups equipped, you must add or remove groups. See the *X11 input/output guide* (553-3001-400) for procedures describing adding and removing groups.

Table 12-30
Typical CNI configurations

CNI card slot	Port	Network group
8	0	pre-configured as "group 5"
8	1	
9	0	Group 0
9	1	Group 1
10	0	Group 2
10	1	Group 3
		Group 4

Note: Each port on the CNI card provides functions similar to one QPC215 SBE Card in an XT system. You do not have to configure both ports on the CNI card.

- 8 Re-map all I/O ports (except CPSI ports) to the proper groups (see Table 12-32). The group number of these ports is determined by the physical location of the card. The configuration information must match the CNI configuration.

Note: The History File requires a dedicated I/O port.

9 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 5000 and 1000, respectively). Refer to *Meridian 1 capacity engineering* (553-3001-149). If changes are required, reconfigure the values in LD 17.

10 Load overlay 22 and print the Configuration Record to verify the above changes:

LD 22	to load the program
REQ PRT	to select the print option
TYPE CFN	to print the configuration
****	to exit the program

11 Verify the changes, and then load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Table 12-31
LD 17: Configuring CNI groups

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
•		
CEQU	YES	
•		
EXT0	3PE	Core 0 extended to 3PE
_CNI	s p g	s = card slot (8-12) p = port (0 or 1) g = network group (0-4)
•		
EXT1	3PE	Core 1 extended to 3PE
_CNI	s p g	s = card slot (8-12) p = port (0 or 1) g = network group (0-4)
•		

Table 12-32
LD 17: Configuring I/O ports

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
•		
ADAN	CHG terminal x	x = terminal number (0-15)
•		
GRP	g	g = network group (0-4)
•		

- 12 If the clock controller card for the Core Module was previously installed in the XT/71, remove the card from CPU 1.
- 13 For QPC471 Clock Controller Cards only, set SW1, SW2, and SW4 as shown (see Table 12-33).
- 14 Set the ENB/DIS switch set to DIS. Install the card in slot 6. Leave the switch set to DIS.

Table 12-33
QPC471H Clock Controller Card option switch settings

SW1				SW2				SW4			
1	2	3	4	1	2	3	4	1	2	3	4
off	off	off	off	off	off	off	off	off	on	on	off

- 15 Connect the NT8D79AD cables from the primary and secondary references to the faceplate of the clock controller card.
- 16 Route the NT1R04AA cable from the junctor board to the clock controller card.
- 17 Connect the NT1R04AA cable first to the controller card, then to the connector on the junctor panel.
- 18 Set the ENB/DIS switch to DIS on QPC471 or QPC775 cards.

CAUTION

Leave the ENB/DIS switch on the 3PE cards set to ENB. If the cards are disabled, the system will initialize.

- 19 On the QPC441 3PE cards in network shelf 1 of all groups, label and disconnect the cables connected to QPC215 SBE Cards.
- 20 As listed in Table 12-34, connect NTND95AA cables to the 3PE faceplates in network shelf 1 of all equipped network groups.

- 21 Set the ENB/DIS switch to ENB on the clock controller card in Core 1.

Table 12-34

Network shelf 1: NTND95AA cable connections to 3PE cards

Network group	Cable label	Connector housing	Connector position	3PE connector
0	CPU1-CNI-8D to 3PE-GRP0/1-J3	Group 0	H12	J3
0	CPU1-CNI-8F to 3PE-GRP0/1-J4	Group 0	H14	J4
1	CPU1-CNI-9A to 3PE-GRP1/1-J3	Groups 1 & 2	H10	J3
1	CPU1-CNI-9C to 3PE-GRP1/1-J4	Groups 1 & 2	H12	J4
2	CPU1-CNI-9D to 3PE-GRP2/1-J3	Groups 1 & 2	H14	J3
2	CPU1-CNI-9F to 3PE-GRP2/1-J4	Groups 1 & 2	H16	J4
3	CPU1-CNI-10A to 3PE-GRP3/1-J3	Groups 3 & 4	H10	J3
3	CPU1-CNI-10C to 3PE-GRP3/1-J4	Groups 3 & 4	H12	J4
4	CPU1-CNI-10D to 3PE-GRP4/1-J3	Groups 3 & 4	H14	J3
4	CPU1-CNI-10F to 3PE-GRP4/1-J4	Groups 3 & 4	H16	J4

Transferring call processing to Core 1

- 1 Set the ENB/DIS switch to ENB on all CNI cards in Core 1.

CAUTION

Call processing will be interrupted. Perform the next steps carefully. This is the point at which your service will be interrupted. Calls in process will be interrupted.

- 2 Perform the next 3 steps in rapid succession to avoid prolonged interruption of call processing. Call processing will switch from CPU 0 to Core 1:
 - Set the ENB/DIS switch to DIS on all SBE cards in CPU 0.
 - Verify that the NORM/MAINT switch on the CP card in Core 1 is set to MAINT.
 - Press the MAN INT button on the CP card in Core 1. Watch the initialization process. Make sure the CNI, 3PE, and IGS cards are auto-enabled (the faceplate LEDs should go out).

Note: If the network loop corresponding to a CNI port is not enabled, the LED for that port may not go out.

- 3 Check for dial tone. If there is no dial tone (the system is inoperable) and you cannot afford downtime, switch the loops back to CPU 0 in the XT/71:
 - Set the ENB/DIS switch on each CNI card on Core 1 to DIS.
 - Set the ENB/DIS switch on the QPC471 or QPC775 card to ENB.
 - Set the ENB/DIS switch on each SBE card on CPU 0 to ENB.
 - Initialize CPU 0 by pressing the MAN INT button.

If you can't afford the downtime, troubleshoot the new modules off-line.

If you can afford downtime, troubleshoot the new modules on-line:

- Perform a visual check of the Core Module. Verify that each card is in the correct slot. Verify that all cards are seated, all ENB/DIS switches are set to ENB, and all red LEDs are off.
- Verify that all cables are properly and securely connected in the front and rear of the module.
- Check the status of the CNI cards with LD 135 “STAT CNI” and ensure all configured CNIs are software enabled.
- If any CNI cards are disabled, enable them in LD 135, perform a data dump with LD 43, and initialize the system by pressing the MAN INT button. Otherwise, proceed directly to step 5.
- Again, check the status of the CNI cards with LD 135 “STAT CNI” and ensure all configured CNIs are software enabled.
- Check for dial tone again.

4 Enable clock controller 1:

LD 135	to load the program
SSCK 1	verify that response is UNEQ
ENL CC 1	to enable clock 1
SSCK 1	verify that clock 1 is active
****	to exit the program

- Check for dial tone.

5 Following a successful dial tone test, perform the following basic sanity tests:

- Make sure intra-group and inter-group calls can be placed.
- Check for error messages, line noise, chatter, or other problems. Track sources and resolve problems as necessary.

The upgrade of CPU 1 is complete. The system is operating in split-mode with call processing on Core 1.

Check the remaining equipment from the upgrade package. Make sure you have enough equipment for the upgrade and for fault isolation, if needed.

Upgrading CPU 0

Note 1: Make sure a terminal is connected to J25 on the I/O panel in Core 0. If you are using only one terminal, connect it to Core 0; if you are using a switch box for the CPSI ports, set the switch to Core 0. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.

Note 2: If you upgraded the CP and IOP ROMs on Core 1, do the same for Core 0. Insert diskette 1 from the software upgrade package into IOP/CMDU 0. Press the MAN RST button on the CP card in Core 0. At the main menu, select option <e> for the CP ROM, follow the on-screen directions, and then select option <f> for the IOP ROM. Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320). Do not install software or the customer database on Core 0.

- 1 If the Clock Controller Card for the Core Module was previously installed in the XT/71, move the card from CPU 0 to Core 0:
- 2 For QPC471 cards only, set SW1, SW2, and SW4 as shown (see Table 12-35).
- 3 Set the ENB/DIS switch on the QPC471H to DIS and install the card in slot 6.

Table 12-35
QPC471H Clock Controller Card option switch settings

SW1				SW2				SW4			
1	2	3	4	1	2	3	4	1	2	3	4
off	off	off	off	off	off	off	off	off	on	on	off

- 4 Connect the NT8D79AD cables from the primary and secondary references to the faceplate of the clock controller card.
- 5 Route the NT1R04AA cable from the junctor board to the clock controller card.
- 6 Connect the NT1R04AA cable first to the controller card, then to the connector on the junctor panel.

- 7 Set the ENB/DIS switch to DIS on QPC471 or QPC775 cards.

CAUTION

Leave the ENB/DIS switch on the 3PE cards set to ENB. If the cards are disabled, the system will initialize.

- 8 On the QPC441 3PE cards in network shelf 0 of all groups, label and disconnect the cables connected to QPC215 SBE Cards.
- 9 As listed in Table 12-36, connect NTND95AA cables to the 3PE faceplates in network shelf 0 of all equipped network groups.

Table 12-36

Network shelf 0: NTND95AA cable connections to 3PE cards

Network group	Cable label	Connector housing	Connector position	3PE connector
0	CPU0-CNI-8D to 3PE-GRP0/0-J3	Group 0	H4	J3
0	CPU0-CNI-8F to 3PE-GRP0/0-J4	Group 0	H6	J4
1	CPU0-CNI-9A to 3PE-GRP1/0-J3	Groups 1 & 2	H2	J3
1	CPU0-CNI-9C to 3PE-GRP1/0-J4	Groups 1 & 2	H4	J4
2	CPU0-CNI-9D to 3PE-GRP2/0-J3	Groups 1 & 2	H6	J3
2	CPU0-CNI-9F to 3PE-GRP2/0-J4	Groups 1 & 2	H8	J4
3	CPU0-CNI-10A to 3PE-GRP3/0-J3	Groups 3 & 4	H2	J3
3	CPU0-CNI-10C to 3PE-GRP3/0-J4	Groups 3 & 4	H4	J4
4	CPU0-CNI-10D to 3PE-GRP4/0-J3	Groups 3 & 4	H6	J3
4	CPU0-CNI-10F to 3PE-GRP4/0-J4	Groups 3 & 4	H8	J4

- 10** Load overlay 135 and check the status of all configured CNI cards:
- | | |
|-----------------|--|
| LD 135 | to load the program |
| STAT CNI | to get the status of all configured CNIs |
| **** | to exit the program |
- 11** Set the ENB/DIS switch to ENB on the clock controller card in Core 0.
Software enable the card.
- | | |
|-----------------|------------------------------|
| LD 60 | to load the program |
| ENL CC 0 | to enable clock controller 0 |
| **** | to exit the program |
- 12** Set the ENB/DIS switch to ENB on all CNI cards in Core 0.
- 13** On the CP card in Core 0, press and release the MAN RST button. When SYS700 messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the LCD will display the following messages, confirming the process:

RUNNING ROM OS
ENTERING CP VOTE

Within 10 minutes, an HWI533 message from the Core 1 CPSI port indicates that the contents of Core 1 memory is copied to Core 0 memory. Wait until the memory synchronization is complete before continuing.

- 14 Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs, if necessary:

STAT	to get the status of CMDUs, IOPs, and redundancy
SWAP	to switch CMDUs (if necessary)
****	to exit the program

- 15 Set the NORM/MAINT switch to NORM on the CP card in Core 1 and perform a redundancy sanity test:

LD 135	to load the program
STAT CNI	to get the status of all configured CNIs
STAT CPU	to get the status of both Cores
TEST CPU	to test the inactive CP card and CP-to-CP cable
TEST IPB	to test the backplane protocol on the inactive side
TEST CNI c s	to test each configured CNI on the inactive side

Note: Testing the CNI cards can take up to 90 seconds each. Testing the CPU card can take up to 20 minutes.

- 16 Test the inactive Core, then switch Cores and test the other side:

SCPU	to switch to Core/Net 0
TEST CPU	to test the inactive CP card and CP-to-CP cable
TEST IPB	to test the backplane protocol on the inactive side

- 17 Get the status of the CP cards and memories and of the CNIs:

STAT CPU	to get the status of both Cores
STAT CNI	to get the status of all configured CNIs
SCPU	to switch to Core/Net 1
****	to exit LD 135

- 18** Synchronize the hard disks. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137	to load the program
STAT	get the status of IOPs, CMDUs, and redundancy.
SYNC	synchronize the hard disks

Note: Synchronization may take up to 50 minutes.

- 19** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.
- 20** Insert a B1 database diskette into each IOP/CMDU for backup. Load overlay 43 and perform a data dump to the backup disks. This command creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active IOP/CMDU if a diskette is installed.
- 21** Load the Equipment Data Dump Program (LD 43). At the prompt, enter
- | | |
|--------------|---------------------|
| LD 43 | to load the program |
|--------------|---------------------|

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD	to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

At this stage, the upgrade is complete. The system is operating in dual CPU mode with redundant hard disks. To confirm system operation, continue with the final upgrade steps.

Completing the upgrade

- 1 Install two alarm termination plugs (P0623569) in the QCA55 cabinet:
 - Install one plug at a convenient location on the cabinet frame near each CPU.
 - Disconnect the power monitor cable from each CPU shelf and plug it into a termination plug.
- 2 Power down the CPU shelves in the XT/71 cabinet by turning the CPU shelf input breaker to OFF.
- 3 In the XT/71 cabinets, verify that the following connections are in place, or install the equipment required (see Figure 12-31):
 - Connect the power monitor in the cabinet to a P0360683 Filter Adapter on the top of the cabinet. Use a new NT1R04AA cable or an existing QCAD117A, QCAD193A, or QCAD199A cable.
 - Connect the P0360683 Filter Adapter to the MDF with a P10 cable.
 - Connect an SDI card in a network shelf to an A0369107 Filter Adapter on the top of the cabinet. Use a new NT8D82AC or NT8D82AD cable, or an existing QCAD120A cable.
- 4 For Core 0 (see Figures 12-32 and 12-33):
 - Verify that an NT8D46 cable from J3 on the master system monitor is connected to the MDF.
 - Verify that the narrow ribbon on the NT8D46AD cable from connector J2 is connected to slot J11 on the right I/O panel.
- 5 Connect an NT8D95BJ cable to the A0369107 Filter Adapter on the XT/71 cabinet (see Figures 12-34 and 12-35).
- 6 Connect the NT8D95BJ cable to slot J11 on the right I/O panel (in Core 0, in a two-processor system).

Figure 12-31
Power monitor and SDI connections in the QCA55 cabinet

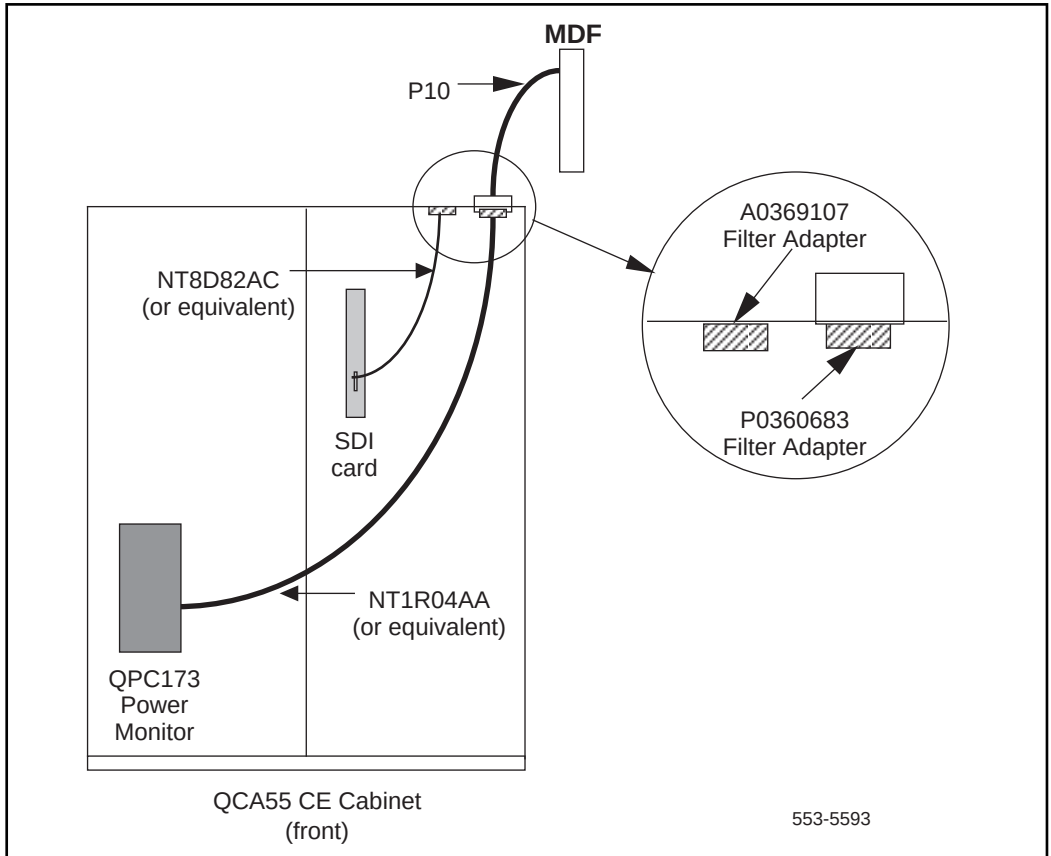


Figure 12-32
System monitor and SDI filter adapter connections in dual-column installations

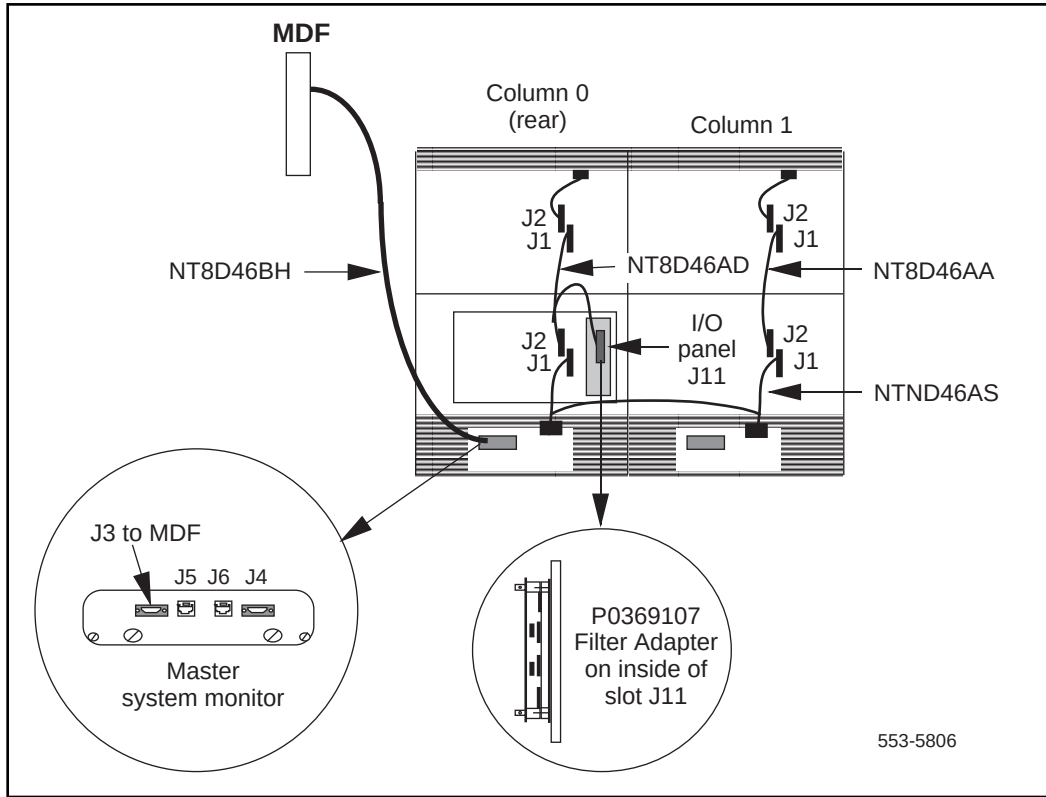


Figure 12-33
System monitor and SDI filter adapter connections in single-column installations

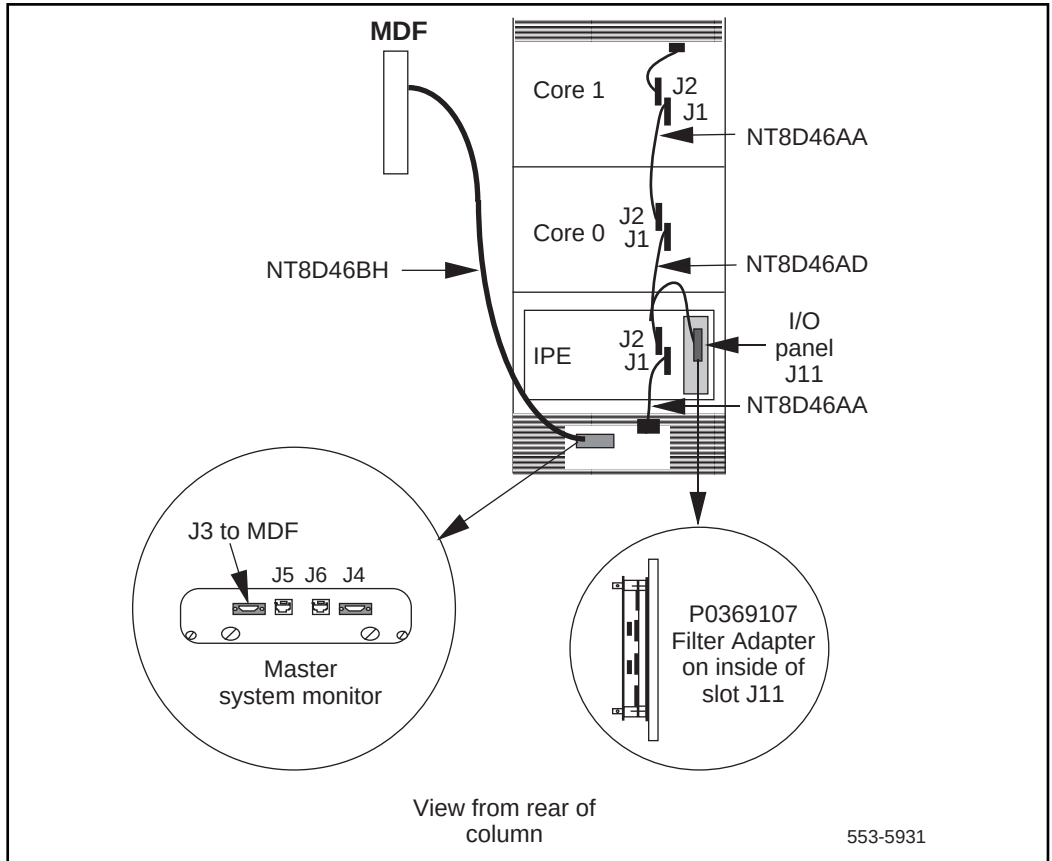


Figure 12-34
System monitor and SDI connections between XT/71 and Core Modules
in dual-column installations

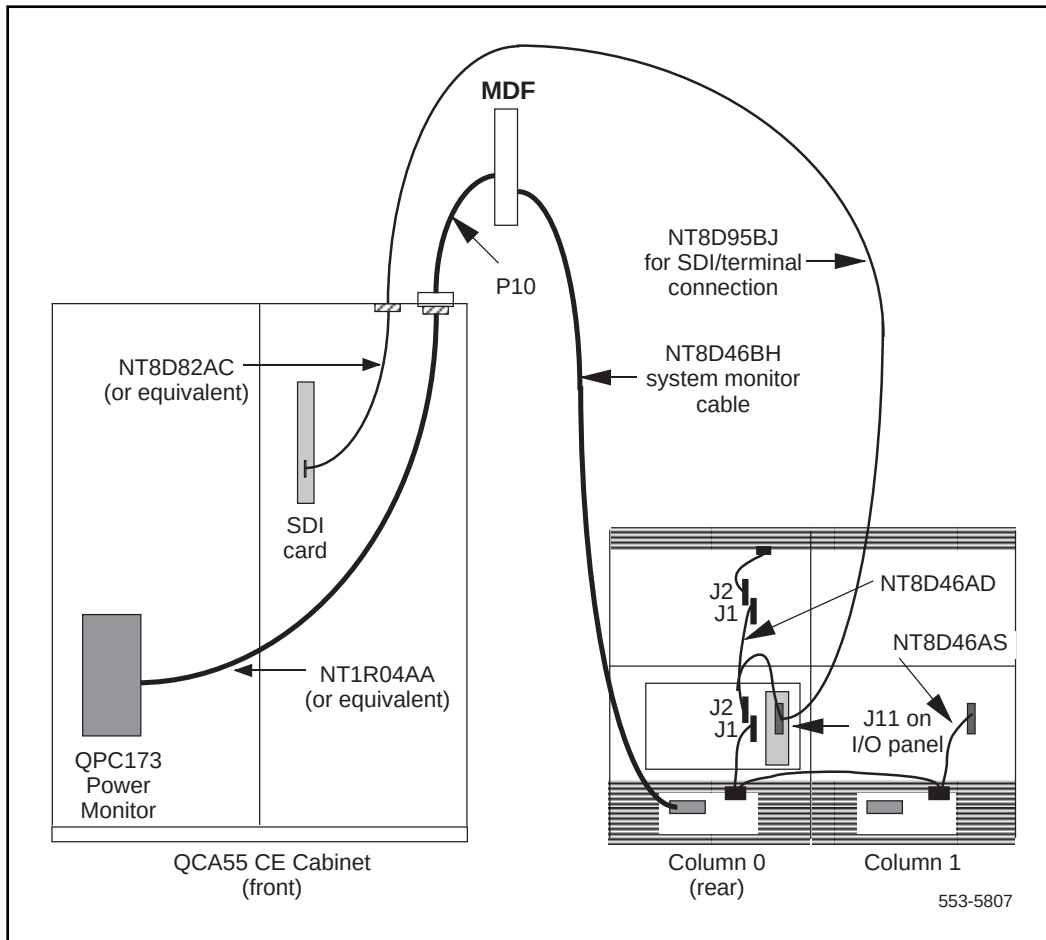
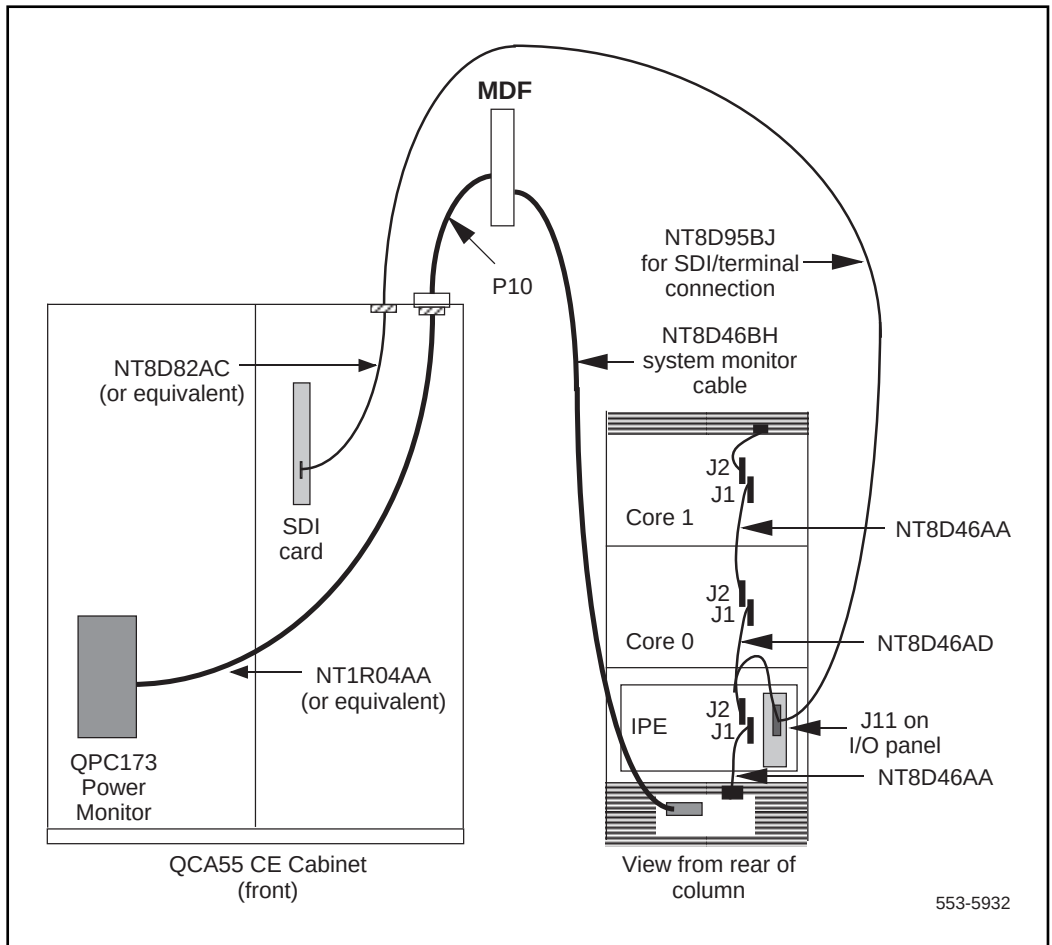


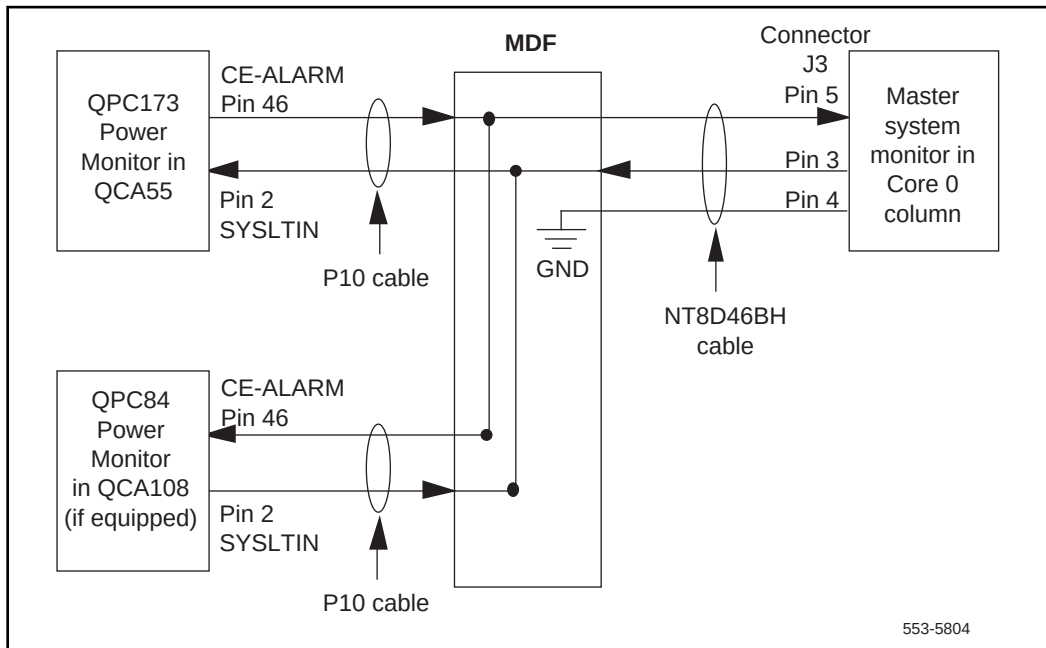
Figure 12-35
System monitor and SDI connections between XT/71 and Core Modules
in single-column installations



- 7 To enable a system monitor connection between the cabinets and column(s), cross-connect the NT8D46BH (or DH, or EH) cable from J3 on the master system monitor to the P10 cable from the XT/71 cabinets (see Figures 12-34, 12-35, and 12-36):

- Pin 5 (slate/white wire) of the NT8D46BH cable must terminate to Pin 46 (violet/blue wire) of the P10 cable.
- Pin 3 (green/white wire) of the NT8D46BH cable must terminate to Pin 2 (orange/white wire) of the P10 cable.
- Pin 4 (brown/white wire) of the NT8D46BH cable must terminate to MDF0/GND.

Figure 12-36
System monitor cross-connections at the MDF



- 8 In the tape shelf of the XT system CE cabinet, verify that the ENB/DIS switch on the QPC173 Power Monitor card is set to DIS and seat the card in the slot.
- 9 Set the ENB/DIS switch on the QPC173 Power Monitor card to ENB.
- 10 Using the terminal connected to the network SDI port, confirm the SDI and system monitor connections by checking the system monitor status:

LD 37	to load the program
STAT XSM	to check the system monitors
****	to exit the program
- 11 Test the IOP to IOP SCSI connection and test the CMDUs:

LD 137	to load the program
TEST SCSI	to check the IOP to IOP connection and access to the CMDUs
TEST CMDU	to test the hard and floppy disk drives (a floppy diskette must be installed)
****	to exit the program
- 12 Test Core functions:

LD 135	to load the program
TEST CPU	to test the inactive CP card and CP-to-CP cable
TEST IPB	to test the backplane protocol on the inactive side
TEST CNI c s	to test each configured CNI on the inactive side

If all the tests pass, switch Cores and test the side that is now inactive:

SCPU	to switch to the other Core
TEST CPU	to test the inactive CP card and CP-to-CP cable
TEST IPB	to test the backplane protocol on the inactive side
TEST CNI c s	to test each configured CNI on the inactive side

13 Clear displays, major alarms, and minor alarms:

CDSP	to clear the display
CMAJ	to clear all major alarms
CMIN ALL	to clear all minor alarms
SCPU	to switch to the other Core
CDSP	to clear the display
CDSP	to clear the display
****	to exit LD 135

14 Perform all applicable acceptance test procedures in *Meridian 1 system installation procedures* (553-3001-210).

The XT/71 Core Module upgrade to option 81 is complete.

XT Core and Network Module upgrade to option 81

This section covers Core and Network Module upgrades from XT systems to option 81. For a Core and Network Module upgrade (see Figure 12-37), you must perform the following steps:

- 1** Install two NT6D60 Core Module columns.
 - One column will contain an NT8D36 InterGroup Module.
 - At least one column will contain NT8D35 Network Modules.
 - Additional columns may be installed optionally.
 - One or more columns may contain NT8D37 Intelligent Peripheral Equipment (IPE) Modules.
- 2** Install network to peripheral equipment cabling.
- 3** Move network components into Network Modules.

This upgrade procedure describes the installation of hardware and software included in software upgrade package 298. Be sure that you have this upgrade package on hand before beginning the upgrade.

The hardware required for this upgrade is provided in the Core and Network Module Upgrade Package. All existing equipment that will be retained must be compatible with X11 release 21. Order replacements for all equipment that does not comply.

Verify that any existing QPC441 3-Port Extender cards in the system are of one of the vintages required for release 21. These vintages are: B1, D, E (series B), E1 (series B), or F. If any existing 3PE card in the system is not one of these vintages, replace it with a card of acceptable vintage. All 3PE cards in the system must be of the same vintage.

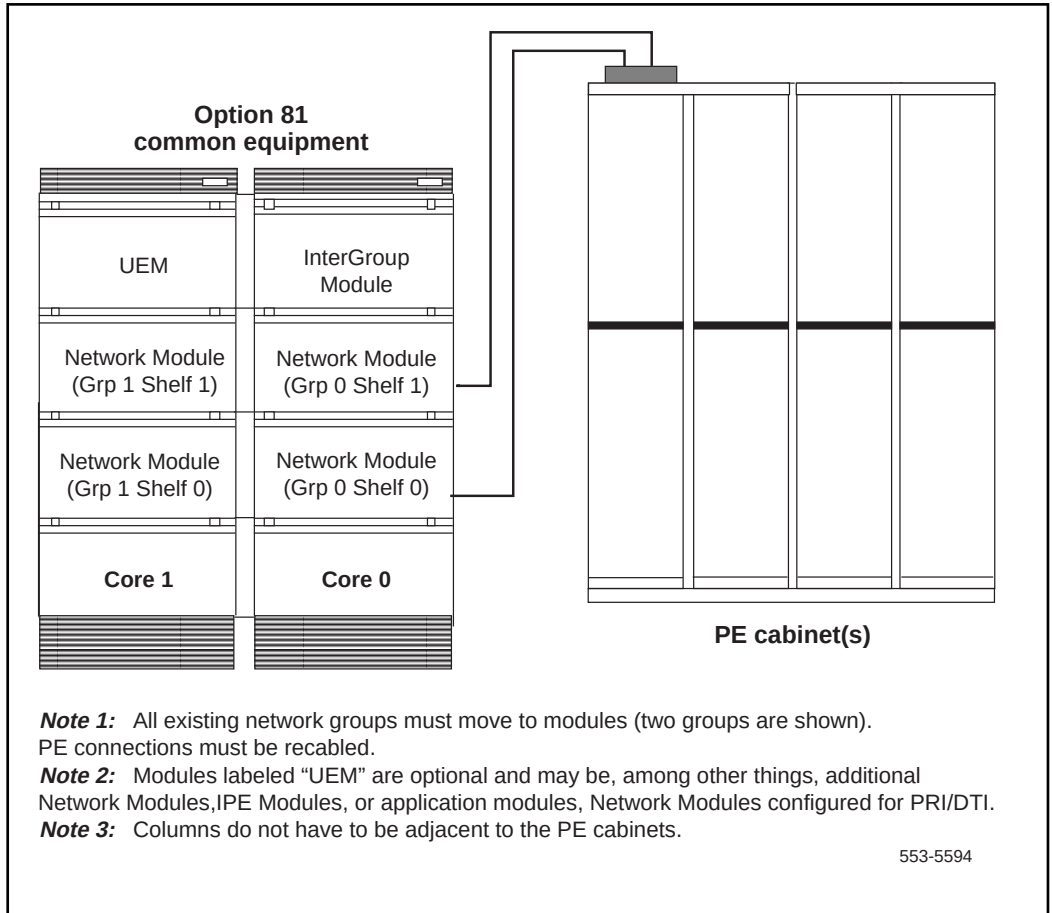
Before you begin to switch operation from the existing system to Core and Network columns, the columns should be powered up and all cables that can be pre-routed should be in place. At that point, there are two methods for performing the upgrade:

- If the system can be out of service for the time it will take to move the cards, you can shut down the existing system and move all of the network cards at one time. (If existing cabinets are being removed and replaced by the columns, this method will take longer, but it may be unavoidable.)
- If the system must remain in operation, you can move one network card at a time. This will take longer than moving all of the cards at one time, but will cause limited, localized interruptions in service rather than taking the system completely out of service. Note that even with this phased transfer of service, there will be no telephone connections between the old and new systems.

When the upgrade is complete, all CPU and network functionality will reside in the Meridian 1 columns. Existing peripheral equipment is retained but cabled to the network cards now located in the modules in the option 81.

The hardware required for this upgrade is provided in the Core and Network Module Upgrade Package. All existing equipment that will be retained must meet minimum vintage requirements and be compatible with X11 release 21. You must order replacements for equipment that does not comply. Refer to *Product compatibility* (553-3001-156) for vintage requirements.

Figure 12-37
Core and Network Module upgrade



Upgrade planning

The upgrade from a cabinet-based system to option 81 consists of the following general steps:

- 1 Install the new module-based common equipment. This equipment can be installed, powered up, and tested before the upgrade activities.
- 2 Install new network-to-PE intercabinet cabling to connect the network equipment in modules to the existing peripheral equipment in cabinets:
 - The cables needed must be identified and obtained before the upgrade. This cabling generally consists of sets of NT8D86, NT8D73, and NT9J96 cables, along with an appropriate number of connector housings that mount to the tops or sides of the existing PE cabinets. See *Upgrade engineering* (553-3001-150) for additional information on engineering these cables.
 - There must be available mounting locations for all required connector housings on PE cabinets. Modifications to the existing equipment may be necessary.
 - If any PRI or DTI cards will remain in the cabinets, they must be recabled to the corresponding QPC414 Network Cards that will now reside in the modules. The cables required for the connections must be identified and ordered separately.
 - If any PRI or DTI cards will be transferred to the Core Modules, the cables required for the connections must be identified and ordered separately.

- 3** Transfer the network cards from the existing network shelves to the new Network Modules. In the new modules, the first network group is always equipped as a functional network group, so it already contains IGS, 3PE, PS, and BTU cards and is ready to accept network cards. Additional groups may be engineered in several ways:
- Additional network groups may be ordered as pairs of empty Network Modules. In this case, all necessary cards from the existing network shelves are transferred to the network modules. This method reuses the greatest number of existing cards, but may result in a lengthier upgrade process and greater downtime.
 - Additional network groups may be ordered as pairs of Network Modules already equipped with the network common cards (such as IGS, 3PE, PS, or BTU). In this case, only the actual network cards need to be transferred. This method is recommended.

Upgrade preparation

Read through the entire procedure before you begin this upgrade. Perform a thorough audit on the existing system to verify the suitability of the upgrade package and to resolve any existing operational problems, error messages, or other problems.

- 1 Make sure there is room to position all the Meridian 1 columns. Check the cabling requirements. All columns must be positioned to accommodate the cable lengths provided.
- 2 Make sure the floor can handle the additional weight of the new columns.
- 3 Make sure a sufficient power source is available and can be accessed by the new columns.

Note: Specifications for Meridian 1 columns are provided in *Meridian 1 installation planning* (553-3001-120). Specifications for Meridian 1 power requirements are provided in *Meridian 1 power engineering* (553-3001-152).

- 4 Make sure there are open connector positions on existing connector housings, or available positions for installing new connector housings on the PE cabinets.
- 5 Check the contents of the upgrade package. Make sure all of the items on the order form are on the packing slip that comes with the equipment.
- 6 Label both ends of all network-to-PE cables with the loop number. Label one of each cable (NT8D86, NT8D73, NT9D96) with the same loop number.
- 7 Log into the system.
- 8 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program

Always enter LD 43 from the source (current) media.

- 9 When “EDD000” appears on the terminal, enter
EDD to begin the data dump

- 10** When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, enter

**** to exit the program

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 11** On the existing system, follow Procedure 1: “Pre-conversion procedure,” *Software conversion procedures* (553-2001-320) and print configuration records. Check the configuration record printouts to identify all configured I/O ports.

Note: When transferring call processing to a Core module during an upgrade, one I/O address is required for a CPSI port. If there is no address available, an SYS 4532 error is displayed. You must make available one port assignment for a CPSI port.

Core and Network Module installation

This section contains procedures to install the Meridian 1 columns that contain the Core and Network Modules and any other optional columns that are to be installed, and to transfer the customer database to the Meridian 1 Core. Existing lines and trunks in the PE shelves are already cabled to the MDF. You will connect the existing cabinets to the system monitor during the final upgrade steps, later in this chapter.

Note: The modules for Group 0 are equipped with BTUs and network common cards. The QPC414 Network Cards for Group 0 and all cards for other network groups may currently be housed in the existing cabinets. These cards will be moved later in the upgrade.

- 1 Install the Core and Network Module columns. Use the procedures (as required for the system configuration) in *Meridian 1 system installation procedures* (553-3001-210), as needed.
 - Prepare equipment for installation.
 - Place a fourth module on a column (if required).
 - Position and level equipment.
- 2 Install the module power supply in each module:
 - Make sure the system is disconnected from any power source.
 - Set the switch and breakers on all module power supplies or module power distribution units (MPDUs) to OFF.
 - Insert the power supply and hook the locking devices.
- 3 Install an IOP/CMDU in each Core Module.
- 4 Install AC or DC power equipment. Refer to *Upgrade engineering* (553-3001-150) for ground wiring.
- 5 Make changes at the MDF as required to accommodate equipment in the new columns and system monitor connections.
- 6 Install PFTUs (if required).

- 7 Configure the system monitor. Set the switches according to the tables in *Meridian 1 system installation procedures* (553-3001-210) with these exceptions:
 - For the master, set SW1 positions 1, 2, and 8 to ON.
 - For slaves, set SW1 positions 1 and 8 to ON.
- 8 Connect a system terminal to an SDI port. Also, connect a terminal to the J25 I/O panel slot for the CPSI ports.
- 9 Install common equipment cabling:
 - Cable all Core Module equipment.
 - Cable Network Modules.
- 10 If IPE cards are added in the columns, cable the lines and trunks.
- 11 Power-up the system and load system software.

Note: Make sure a terminal is connected to J25 on the I/O panel in Core 1. If you are using only one terminal or a switch box for the CPSI ports, set the connection to Core 1. Verify that the terminal is set for 9600 baud, 7 data bits, 1 stop bit, space parity, full duplex, XON protocol.
- 12 In Core 1, set the NORM/MAINT switch on the CP card to MAINT.
- 13 In Core 0, set the ENB/DIS switch on the NT6D65 CNI card to DIS.
- 14 Perform the appropriate step to restore power in each Core/Network Module:
 - For AC-powered systems, simultaneously set the MPDU in both Core/Network Modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core/Network Modules to ON (up position).
- 15 In Core 0, set the NORM/MAINT switch on the CP card to MAINT.

Converting the customer database

If the database is release 16 or lower, you must first convert the database to release 17 or higher before continuing with the upgrade. The customer database can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, use the database conversion instructions in Procedure 3: "Convert From One X11 Release To a Later Release," *Software conversion procedures* (553-2001-320). When you have converted the database to release 17, return to this procedure and continue with the steps below.

Note: If the database is on a 3.5-in., HD or ED floppy diskette, and if the customer database is X11 release 19 or 20, you will convert it to release 21 later in this upgrade.

In this procedure you will convert the database to release 19 (if it is lower than release 19), and then to release 21. The customer database can be sent to Northern Telecom for conversion or converted on-site. If you choose to convert the database on-site, refer to Table 12-37 to determine the appropriate conversion procedure to use.

Before beginning the database conversion procedure, obtain all of the conversion disks, system software disks, and interim ROM and memory cards required.

Note: Obtain extra-high-density floppy disks containing system software from your Northern Telecom representative.

Perform the "Pre-conversion procedure" in *Software conversion procedures* (553-2001-320) before beginning one of the following conversion procedures. During the pre-conversion procedure, always enter LD 43 using the source (Option XT) media.

CAUTION

Performing this database conversion procedure will result in disruption of call processing. Plan to perform the conversion when impact on your customers will be minimal.

Table 12-37**Database conversion requirements, XT system upgrade to Option 81**

X11 release		ROM card required	Software required (see note)
From	To		
For converting a release 17 or 18 customer database (Use conversion procedures beginning on page 12-174).			
17,18	19	none	Release 19.xx Option 81 software disk and data cartridge
19	21	none	Release 21.xx Option 81 software disk and data cartridge
For converting a release 19, 20, or 21 customer database (Use conversion procedure beginning on page 12-70)			
19,20 or 21	21	none	Software Installation Tool
Note: Use the latest software release (e.g., 20.xx) acquired from your Northern Telecom representative. If a specific issue is indicated (e.g., 20.15 or 20.17), it must be used.			

Converting a database from release 17 or 18

Follow the steps below to convert the release 17 or 18 database to release 19 and then to release 21, and install the customer database on the option 81 Core 1. You will need the B1 diskette previously removed from the XT system.

Note: Refer to Software Installation Tool reference, *Software conversion procedures* (553-2001-320).

- 1 Set the ENB/DIS switch on the IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 19 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- 2 To activate the Software Installation Tool, insert diskette 1 (from the release 19 diskette set) from the software upgrade package into the IOP/CMDU in Core 1.
- 3 Press the MAN RST button on the CP card in Core 1.

Note: The Software Installation Tool provides complete on-screen directions for updating software, database, and ROMs. Further detailed instructions are given in “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- 4 Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:

<c>	to install software
<y>	yes, start installation
<a>	continue with upgrade

Follow all on-screen directions until software installation is complete.

- 5 When the main menu appears, select the following options:

<d>	to install the database on the CMDU in Core 1
<c>	to transfer the previous system database

Follow all on-screen directions until database installation is complete.

- 6 When the main menu appears, select the following options. You will need the B1 diskette from the previous system:

<q> to quit
<yes> to confirm quit

Follow the instructions which appear on the screen.

- 7 Remove any diskettes from the floppy drive, and type
<a> to reboot the system

While the system is rebooting, database conversion occurs. The following message appear on the system terminal:

DATA CONVERSION
X11 RELEASE <old rls #> TO RELEASE 19.xx

- 8 Log into the system.
- 9 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
LD 43 to load the program
- 10 Insert a B1 diskette (from the release 19 diskette set) titled “DATABASE BACKUP DISK” into the floppy drive in the IOP/CMDU in Core 1.
- 11 Perform a data dump. At the prompt, enter
EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

Converting a database from release 19

Follow the steps below to convert the release 19 database to release 21, and install the customer database on option 81 Core 1.

- 1 Set the ENB/DIS switch on the IOP/CMDU card to DIS and remove the card. Install the QMM42 cartridge for release 21 onto the card. Reinstall the card and set the ENB/DIS switch to ENB.
- 2 To activate the Software Installation Tool, insert diskette 1 (from the release 21 diskette set) from the software upgrade package into the IOP/CMDU in Core 1.

- 3 Press the MAN RST button on the CP card in Core 1.

Note: The Software Installation Tool provides complete on-screen directions for updating software, database, and ROMs. Further detailed instructions are given in “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- 4 Select the following options in sequence, and insert the customer database diskette (from the steps above) when you are prompted to do so:

	to install software, database, CP-ROM, and IOP-ROM
<a>	yes, start installation
<a>	continue with upgrade

Follow all on-screen directions until the software, database CP-ROM and IOP-ROM installations are complete.

- 5 When the main menu appears, select the following options:

<q>	to quit
<yes>	to confirm quit

- 6 Remove any diskettes from the floppy drive, and type

<a>	to reboot the system

While the system is rebooting, database conversion occurs. The following message appears on the system terminal:

DATA CONVERSION
X11 RELEASE 19.xx TO RELEASE 21.xx

- 7 Configure networks as CNI groups, based on the number of CNI cards in the system. In a typical configuration, there are three CNI cards for five network groups (see Tables 12-38 and 12-39). Refer to *X11 input/output guide* (553-3001-400) for a complete description of the Configuration Record (LD 17).

Table 12-38
LD 17: Configuring CNI groups

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
•		
CEQU	YES	
•		
EXT0	3PE	Core 0 extended to 3PE
_CNI	s p g	s = card slot (8-12)
•		p = port (0 or 1)
		g = network group (0-4)
EXT1	3PE	Core 1 extended to 3PE
_CNI	s p g	s = card slot (8-12)
•		p = port (0 or 1)
		g = network group (0-4)

Table 12-39
Typical CNI configurations

CNI card slot	Port	Network group
8	0	pre-configured as "group 5"
8	1	Group 0
9	0	Group 1
9	1	Group 2
10	0	Group 3
10	1	Group 4
Note: Each port on the CNI card provides functions similar to one QPC215 SBE Card in an XT system. You do not have to configure both ports on the CNI card.		

Note: If the number of network groups configured in the system does not match the number of network groups equipped, you must add or remove groups. See the *X11 input/output guide* (553-3001-400) for procedures describing adding and removing groups.

- 8 Re-map all I/O ports (except CPSI ports) to the proper groups (see Table 12-40). The group number of these ports is determined by the physical location of the card. The configuration information must match the CNI configuration.

Table 12-40
LD 17: Configuring I/O ports

Prompt	Response	Comments
REQ	CHG	
TYPE	CFN	
•		
ADAN	CHG terminal	x = terminal number (0-15)
	x	
•		
GRP	g	g = network group (0-4)
•		

Note: The History File requires a dedicated I/O port.

- 9 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 5000 and 1000, respectively). Refer to *Meridian 1 capacity engineering* (553-3001-149). If changes are required, reconfigure the values in LD 17.
- 10 Load overlay 22 and print the Configuration Record to verify the above changes:
 - LD 22** to load the program
 - REQ PRT** to set the print option
 - TYPE CFN** to print the configuration
 - ******* to exit the program

- 11** Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

- 12** After a successful data dump, set the ENB/DIS switch to ENB on all NT6D65 CNI cards in Core 0.

- 13** If you upgraded the CP and IOP ROMs on Core 1, do the same for Core 0:

Note: The Software Installation Tool provides complete on-screen directions for updating software, database, and ROMs. Further detailed instructions are given in “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320).

- Insert diskette 1 from the software upgrade package into IOP/CMDU 0.
- Press the MAN RST button on the CP card in Core 0.
- At the main menu, select option <e> for the CP ROM and follow the on-screen directions.
- select option <f> for the IOP ROM and follow the on-screen directions.
- Refer to “Software Installation Tool reference,” *Software conversion procedures* (553-2001-320). Do not install software or the customer database on Core 0.

- 14** On the CP card in Core 0, press and release the MAN RST button. When “SYS700” messages appear on the LCD display, set the NORM/MAINT switch to NORM. Within 60 seconds, the following messages will appear on the LCD display:

**RUNNING ROM OS
ENTERING CP VOTE**

Within 10 minutes, an HWI533 message from the Core 1 CPIO port indicates the Core 0 memory is synchronized with the Core 1 memory. Wait until the memory synchronization is complete before continuing.

- 15** Synchronize the hard disks. To be sure the contents of CMDU 1 are copied to CMDU 0, verify that CMDU 0 is disabled:

LD 137	to load the program
STAT	get the status of IOPs, CMDUs, and redundancy.
SYNC	synchronize the hard disks

Note: Synchronization may take up to 50 minutes.

- 16** Get the status of the CMDUs and be sure CMDU 0 is active. Switch CMDUs, if necessary:

STAT	to get the status of CMDUs, IOPs, and redundancy
SWAP	to switch CMDUs (if necessary)
*****	to exit the program

- 17** Set the NORM/MAINT switch to NORM on the CP card in Core 1 and perform a redundancy sanity test:

LD 135	to load the program
STAT CNI	to get the status of all configured CNIs
STAT CPU	to get the status of both Cores
TEST CPU	to test the inactive CP card and CP-to-CP cable
TEST CNI c s	to test the CNI on the inactive side

Note: Testing the CNI cards can take up to 90 seconds each. Testing the CPU card can take up to 20 minutes.

- 18** Test the inactive Core, then switch Cores and test the other side:

SCPU to switch to Core 0

TEST CPU to test the inactive CP card and CP-to-CP cable

- 19** Get the status of the CP cards and memories and of the CNIs:

STAT CPU to get the status of both Cores

STAT CNI to get the status of all configured CNIs

******** to exit LD 135

- 20** In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35, but leave LD 37 selected.

- 21** Insert a B1 database disk into each IOP/CMDU for backup. Load overlay 43 and perform a data dump to the backup disks. This command creates backups on both hard disks when redundancy is in effect (the hard disks are synchronized) and on the floppy on the active IOP/CMDU if a disk is installed.

Load the Equipment Data Dump Program (LD 43). At the prompt, enter

LD 43 to load the program

When “EDD000” appears on the terminal, perform the data dump. At the prompt, enter

EDD to begin the data dump

When “DATABASE BACKUP COMPLETE” or “DATADUMP COMPLETE” appears on the terminal, proceed to the next step.

CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

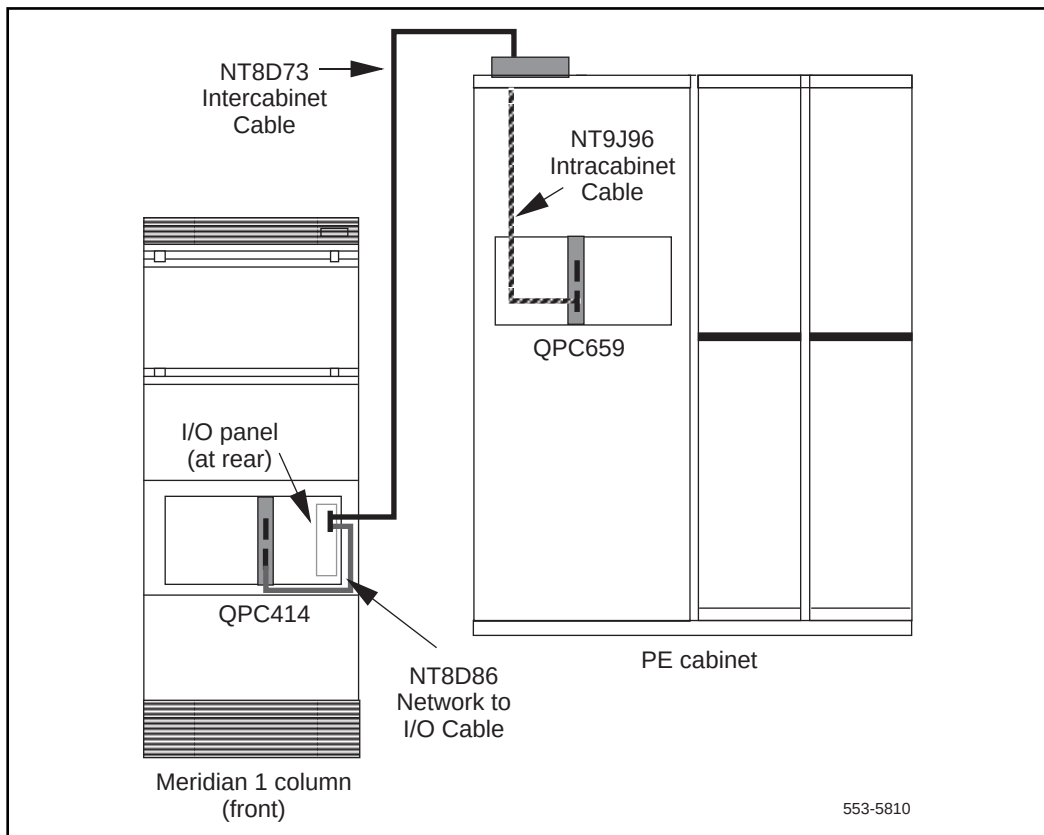
The system is operating in dual CPU mode with redundant hard disks.

Installing network-to-PE cabling and connector housings

There are three cables for each network-to-PE connection (see Figure 12-38):

- Cables from the QPC414 Network Cards in the Network Modules are routed internally from the faceplate of the cards to the I/O panels in the rear of the module.
- Cables from the I/O panels are routed externally to connector housings on the PE cabinets.
- Cables from the connector housings are routed internally to the faceplate of the QPC659 Dual Loop Peripheral Buffer Card in the PE cabinets.

Figure 12-38
Cabling path for network-to-PE connections

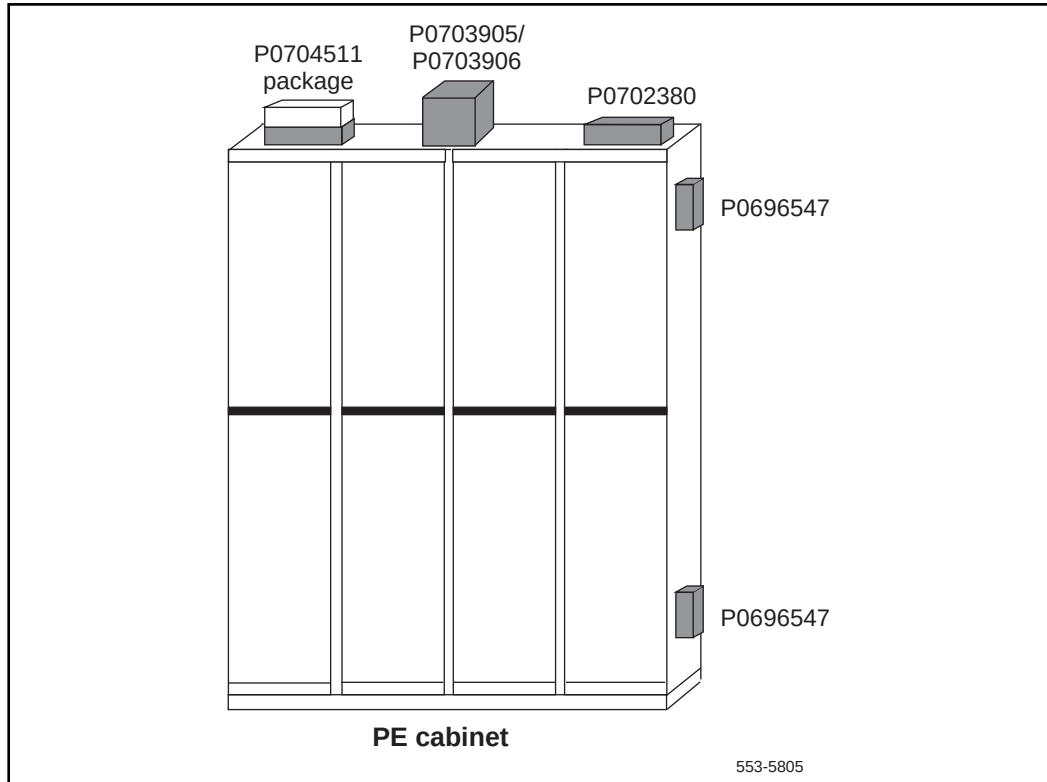


If connector housings for network-to-PE cabling are already installed on the cabinets, the same housings can be used for the new cables from the Network Modules when the existing cables are disconnected.

If connector housings are not already installed on the cabinets, you must install them. The following connector housings are available (see Figure 12-39):

- 1** P0696547 Connector Housing
 - mounts on the side of the cabinet
 - provides six connectors
 - covers a rectangular opening (up to two housings per opening) and round opening (one housing per opening)
- 2** P0702380 Connector Housing
 - mounts on the top of the cabinet
 - provides six connectors
 - covers a rectangular opening
- 3** P0703905 Adapter Panel and P0703906 Connector Housing unit
 - mounts on the top of the cabinet
 - provides ten connectors
 - covers a square opening
- 4** P0704511 Connector Housing Package includes P0703846 Connector Housing and P0703847 Adapter Panel
 - mounts on the top of the cabinet under another housing
 - provides three connectors
 - covers a rectangular opening

Figure 12-39
Connector housing positions



Installing external cables and connector housings

- 1 Label both ends of all network-to-PE cables.
- 2 In the rear of the modules, remove the eight screws that secure the I/O panels in the Network Modules. Keep the screws for reuse. Remove the I/O panels but keep them on hand for immediate reuse.
- 3 Connect NT8D86 cables, one per loop, to the inside of any slot on the I/O panel (the inside of the panel faces the backplane).
- 4 Route the NT8D86 cables to the front of the module. If the QPC414 Network Cards are installed, connect the faceplate connectors. If the network cards are not installed, leave the cables in position to be connected later in the upgrade.

Because of the MPDUs in AC-powered systems, the cables can route through only the left side of the module. For easier access, first route the cables from the right I/O panel to the front of the module, then route the cables from the left panel.

In DC-powered systems, you can route the cables around both sides of the module.

- 5 Reinstall the I/O panels in the Network Modules.
- 6 Connect the NT8D73 intercabinet cables to the outside of the I/O panel.
- 7 Route the NT8D73 cables to the PE cabinets (stow any excess cable length at the cabinet end:
- 8 If connector housings are already installed on the cabinets and cables currently connecting the network and PE cards together, leave those cables in place. Route the NT8D73 cables to the PE cabinets, but leave them disconnected at this point.

Later in the upgrade, the existing cables will be disconnected and replaced by the NT8D73 cables. In this situation, the cables from the connector housings to the PE cards remain in place permanently.

- 9 If connector housings are not already installed, perform the steps in the appropriate procedure(s) below to connect NT9J96 cables to the inside of the housings, install the housings, and connect the NT8D73 cables to the outside of the housings:
- P0696547 Connector Housing: refer to the section “Mounting the P0696547 Connector Housing,” below.
 - P0702380 Connector Housing: refer to the section “Mounting the P0702380 Connector Housing” on page 12-189
 - P0703905 / P0703906 Connector Housing unit: refer to the section “Mounting the P0703905 / P0703906 Connector Housing” on page 12-191
 - P0704511 Connector Housing Package: refer to the section “Mounting the P0704511 Connector Housing Package” on page 12-193

CAUTION

While mounting connector housings, do not drop screws or other hardware through the openings in the top panel.

Mounting the P0696547 Connector Housing

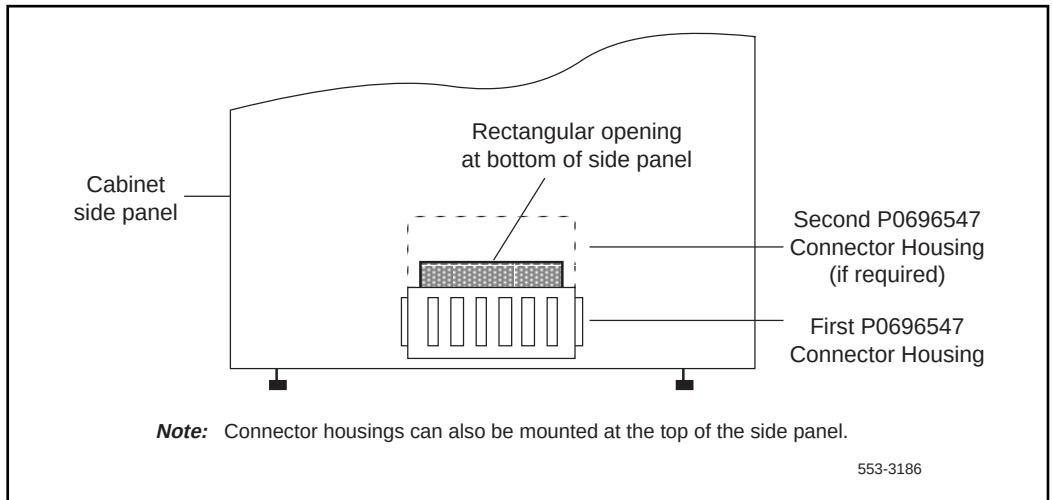
The following tools are required for drilling holes in the side panels when mounting the P0696547 Connector Housing:

- a drill with a #31 (.120) bit capable of piercing sheet metal
- a center punch and hammer

Refer to Figures 12-40 and 12-41 when installing the housings.

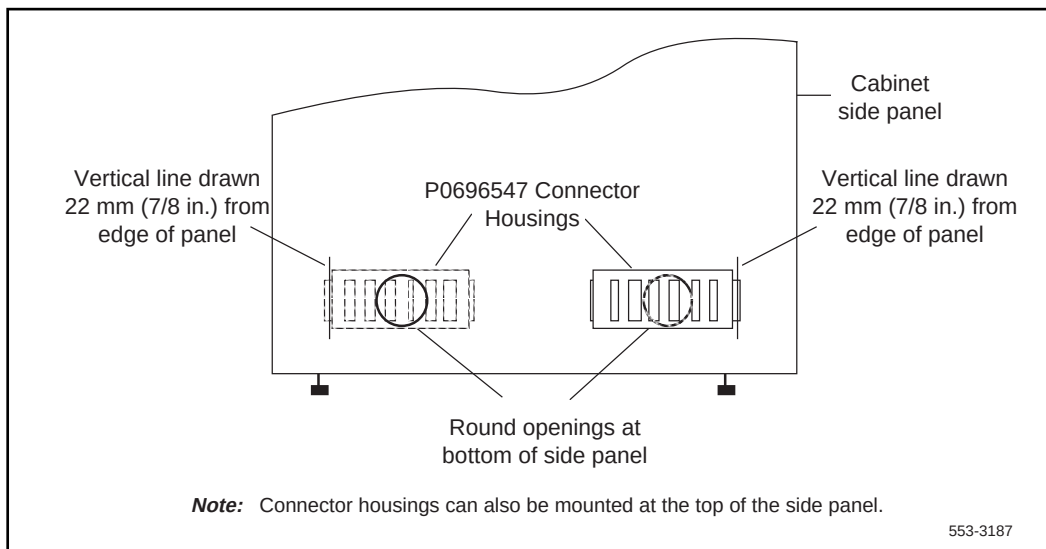
- 1 Remove the sliding cover or square cover (whichever is equipped) over the cable opening on the side panel of the cabinet.
- 2 Perform this step only if the opening is rectangular:
 - Center the P0696547 Connector Housing over the cutout area on the side panel.
 - If the opening is to be equipped with two housings, lower the housing until its upper edge falls in the horizontal center of the cutout. One inch of the upper part of the cutout should be visible (see Figure 12-40).
 - Mark the hole centers using the housing holes as a pattern. Center punch and drill the holes.
 - If the opening is to be equipped with two housings, temporarily mount the first housing and rest the second one on top of the first.
 - Center punch and drill the holes for the second housing.
 - Remove the housings from the cabinet.

Figure 12-40
P0696547 Connector Housing—rectangular access opening



- 3 Perform this step only if the opening is round:
- Measure a point 22 mm (7/8 in.) from the edge of the panel at the front and rear ends of the side panel.
 - Mark a vertical line 64 mm (2 1/2 in.) long starting at 75 mm (3 in.) from the bottom edge of the panel.
 - Center the P0696547 Connector Housing over the cable access opening. Gently move the housing until the pencil line is located in the center of one set of the housing mounting holes.
 - Level the housing and mark the hole centers using the housing mounting holes as a pattern. Center punch and drill the holes (see Figure 12-41).

Figure 12-41
P0696547 Connector Housing—round access openings



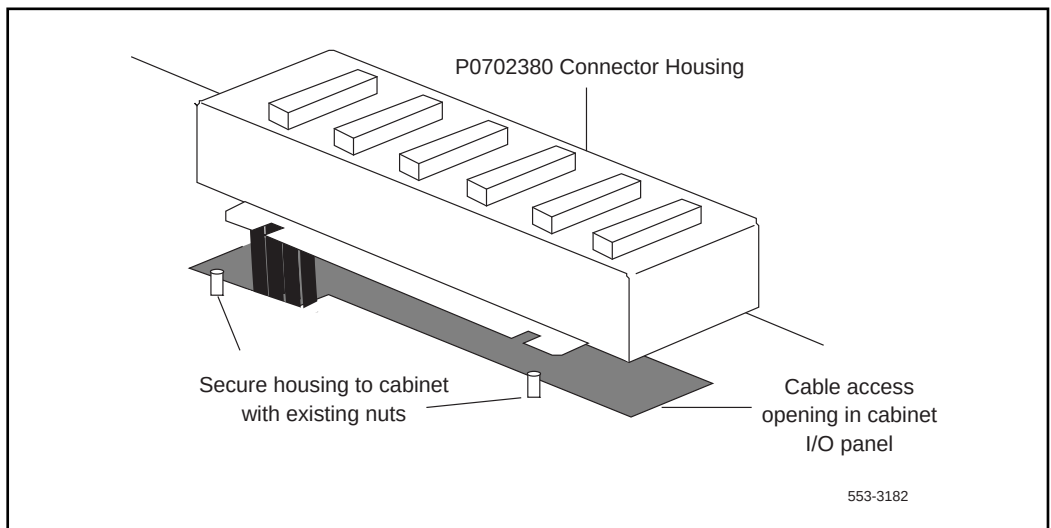
- 4 Using the hardware provided with the housing, secure the NT9J96 cables to the inside of the P0696547 Connector Housing.
- 5 Route the NT9J96 cables through the cabinet opening to the inside of the cabinet.
Note: Leave the cables disconnected inside the cabinet. They will be connected later in the upgrade.
- 6 Mount the housing(s) and secure it to the side panel with four #6 sheet metal screws.
- 7 Connect the NT8D73 cables from the Network Modules to the outside of the P0696547 Connector Housing.

Mounting the P0702380 Connector Housing

Refer to Figure 12-42 and Figure 12-43 while performing these steps:

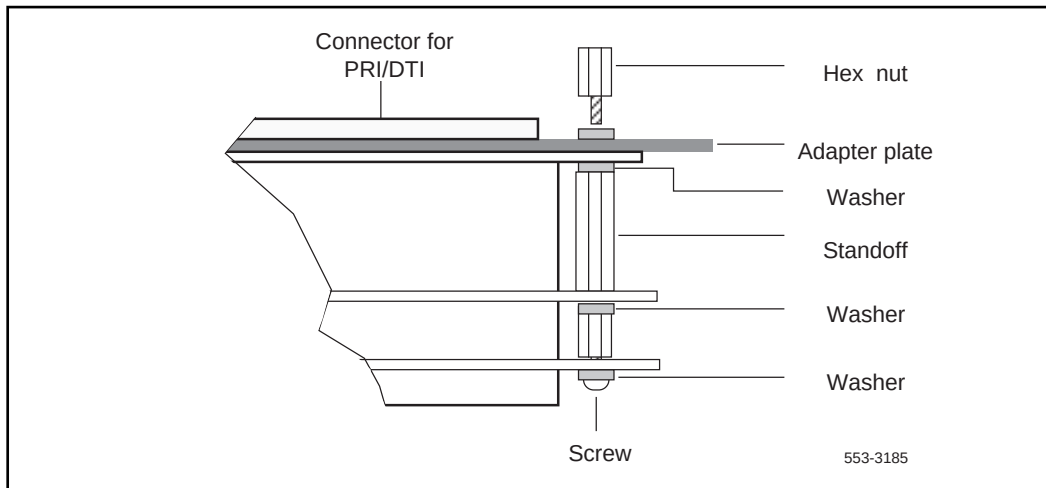
- 1 On the top of the PE cabinet, remove the cover from the selected opening on the I/O panel. Keep the four screws for reuse.

Figure 12-42
P0702380 Connector Housing



- 2 Perform this step only if there are PRI/DTI cables connected to the cover:
 - If possible, move the PRI/DTI cables to another connector housing on the top panel.
 - If the PRI/DTI cables cannot be relocated and so must be connected to the housing you are installing, install a P0703960 adapter plate kit on the cable and mount it in the new housing (see Figure 12-43).

Figure 12-43
Adapter plate mounting bracket for PRI/DTI connectors



- 3 Using the hardware provided with the housing, secure the NT9J96 cables to the inside of the P0702380 Connector Housing.
- 4 Route the NT9J96 cables through the cabinet opening to the inside of the cabinet.

Note: Leave the cables hanging. They will be connected later in the upgrade.
- 5 Using the screws you removed from the opening cover, secure the P0702380 Connector Housing to the top of the cabinet.
- 6 Connect the NT8D73 cables from the Network Modules to the outside of the P0702380 Connector Housing.

Mounting the P0703905 / P0703906 Connector Housing

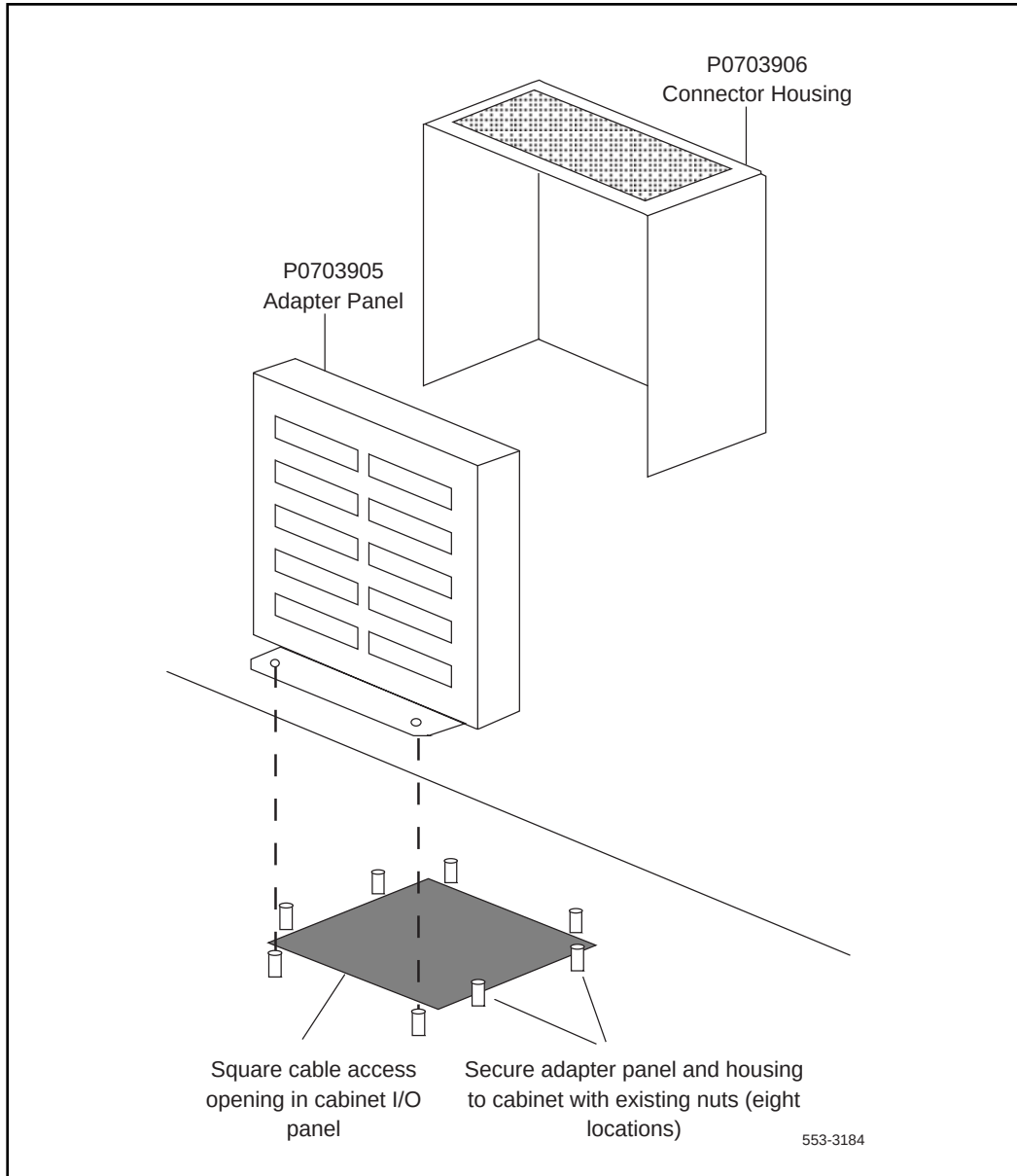
This unit is composed of the P0703905 Adapter Panel and P0703906 Connector Housing. Refer to Figure 12-44.

- 1** On the top of the PE cabinet, remove the cover from the square opening on the I/O panel. Keep the nuts and washers for reuse.
- 2** Using the hardware provided with the housing, secure the NT9J96 cables to the inside of the P0703905 Adapter Panel.
- 3** Route the NT9J96 cables through the cabinet opening to the inside of the cabinet.

Note: Leave the cables hanging. They will be connected later in the upgrade.

- 4** Secure the P0703905 Adapter Panel to the two studs closest to the center of the cabinet top panel.
- 5** Slide the P0703906 Connector Housing into place and secure it with two nuts and washers.
- 6** Connect the NT8D73 cables from the Network Modules to the outside of the P0703905 Adapter Panel.

Figure 12-44
P0703905/P0703906 Connector Housing Unit



Mounting the P0704511 Connector Housing Package

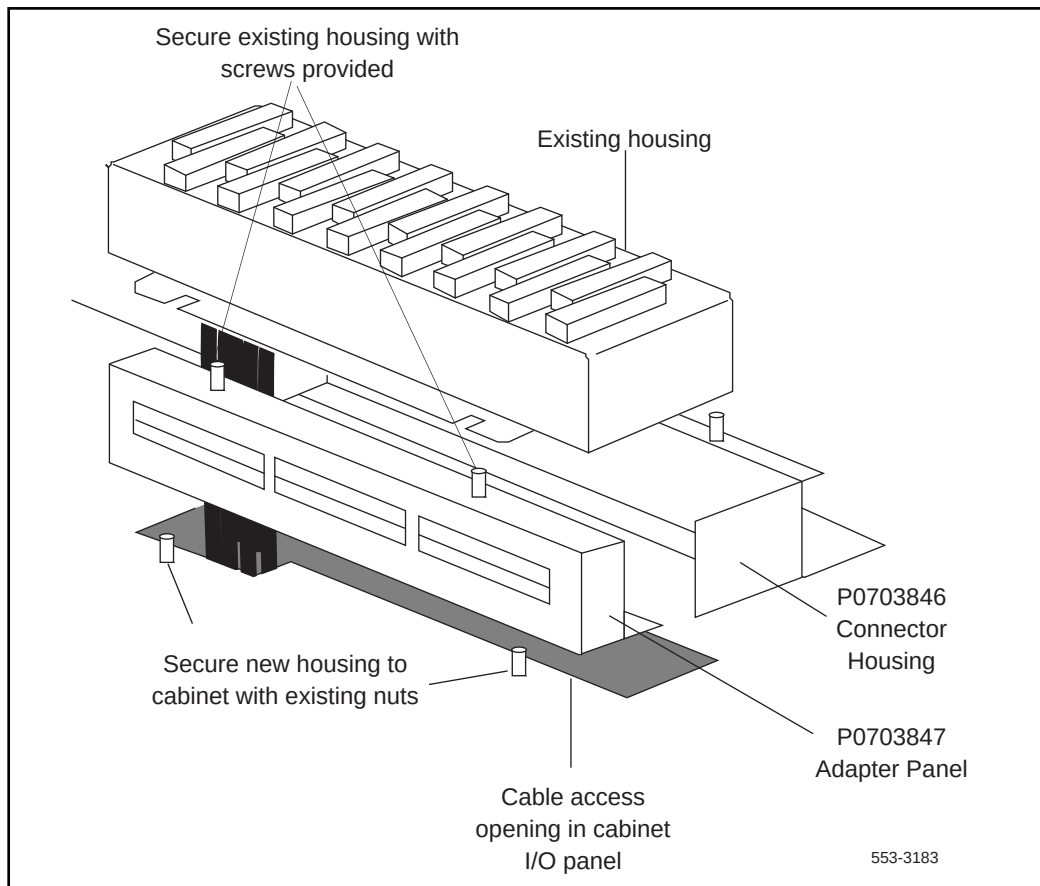
This package is composed of the P0703846 Connector Housing and P0703847 Adapter Panel. The P0704511 Connector Housing Package is placed underneath an existing connector housing. Refer to Figure 12-45 while performing these steps.

- 1 The existing connector housing will be raised approximately 75 mm (3 in.) to install the P0704511 Connector Housing Package. Make sure there is sufficient slack in the cables to the existing housing. If necessary, remove the tie wraps securing the cables.
- 2 Remove the screws that secure the existing connector housing. Keep the screws for reuse.
- 3 Using the hardware provided with the housing, secure the NT9J96 cables to the inside of the P0703847 Adapter Panel.
- 4 Raise the existing connector housing and place the P0703847 Adapter Panel under it. Along with the cables from the existing housing, route the NT9J96 cables through the cabinet opening to the inside of the cabinet.

Note: Leave the cables hanging. They will be connected later in the upgrade.

- 5 Using the screws for the original housing, secure the P0703847 Adapter Panel to the top of the cabinet.
- 6 Slide the P0703846 Connector Housing into place. Using screws for the original housing, secure the housing to the top of the cabinet.
- 7 Place the original connector housing on the studs on the tops of the P0703846 housing and P0703847 panel and secure it with the nuts and washers provided.
- 8 Connect the NT8D73 cables from the Network Modules to the outside of the P0703847 Adapter Panel.

Figure 12-45
P0704511 Connector Housing Package



Transferring service to the option 81

If the system can be out of service for the time it will take to move the cards, shut down the existing system and move all of the network cards at one time. The section titled “Moving all network cards” contains procedures to do this. If the system must remain in operation, move one network card at a time. Note that even with this phased transfer of service, there will be no telephone connections between the old and new systems. “Moving network cards one network shelf at a time” on page 12-197 contains procedures to do this.

Moving all network cards

Even though the system will not be operating, we recommend that you move the cards one network shelf at a time to limit confusion. If any cards are moved to a different group, or any other configuration change is made, be sure to check the switch and jumper settings on all affected cards.

- 1 Perform the appropriate step to turn off power in each Core Module:
 - For AC-powered systems, set the circuit breaker on the MPDU in the Module to OFF (down position).
 - For DC-powered systems, set the switch on the module power supply to OFF (down position).
- 2 Label each card that is being transferred to a Network Module with the group (0-4), shelf (0 or 1), and loop (0-159) for the card.
- 3 On all cards that are being transferred to Network Modules, disable the faceplate switches, disconnect all cables, and remove the cards.
- 4 If the BTUs are being transferred, install them in the following positions in the Network Modules:
 - QPC477A9 between slots 11 and 12
 - QPC477A10 or B10 between slots 12 and 13

- 5 Install all of the cards that are being transferred to Network Modules. Verify that the cards are installed in the correct slots (check group, shelf, and loop numbers as well as the slot location):
 - slot 1: QPC441 3PE Card
 - slots 2–3: QPC412 IGS Card
 - slot 4: QPC43 Peripheral Signaling Card
 - slots 5–12: QPC414 Network Card
 - NT8D17 Conference/TDS Card
 - PRI/DTI card (slots 5-11 only)
 - SDI-type card
 - MSDL card
 - MISP card
 - slots 13–14: PRI/DTI card
 - SDI-type card (slot 13 only)
- 6 Connect all cables to the cards (including the NT8D86 cables from the I/O panels to the QPC414 Network Cards). Enable the faceplate switches.
- 7 Switch the cables at the PE end:
 - If cables from network cabinets are still connected to the connector housings, disconnect those cables and replace them with the NT8D73 cables from the Network Modules.
 - If NT9J96 cables inside the PE cabinets are not connected, connect them to the faceplates of the appropriate QPC659 cards.
- 8 Follow the appropriate steps below to restore power in each Core Module.

Note: If power to both Core Modules is restored simultaneously, the CMDUs should still be synchronized.

 - For AC-powered systems, simultaneously set the MPDU in both Core Modules to ON (up position).
 - For DC-powered systems, simultaneously set the switch on the module power supply in both Core Modules to ON (up position).

Moving network cards one network shelf at a time

This procedure will cause limited, localized interruptions in service. You will move two loops at a time. Before you start, make sure you will have the ability to check for dial tone on each loop during the procedure.

If any cards are moved to a different group, or any other configuration change is made, be sure to check the switch and jumper settings on all affected cards.

CAUTION

To maintain service, disable and move only one QPC414 Network Card (and associated cards) at a time.

- 1 In the Network Module that will house the transferred cards, verify that BTUs are in place and that network common cards (IGS, 3PE, and PS cards) are properly installed and cabled:

BTUs:	QPC477A9 between slots 11 and 12
	QPC477A10 or B10 between slots 12 and 13
slot 1:	QPC441 3PE Card
slots 2–3:	QPC412 IGS Card
slot 4:	QPC43 Peripheral Signaling Card
- 2 Label each card that is being transferred to the Network Module with the group (0–4), shelf (0 or 1), and loop (0–159) for the card.
- 3 Software disable the QPC414 Network Card (two loops):

LD 32	to load the program
DISN loop	even or odd loop number disables the card
- 4 On all cards that are being transferred to the Network Module, disable the faceplate switches, disconnect all cables, and remove the cards.

- 5 Install the cards being transferred to the Network Module. Verify that the cards are installed in the correct slots (check group, shelf, and loop numbers as well as the slot location):

slots 5–12:	QPC414 Network Card
	NT8D17 Conference/TDS Card
	PRI/DTI card (slots 5–11 only)
	SDI-type card
	MSDL card
	MISP card
slots 13–14:	PRI/DTI card
- 6 Connect all cables to the cards (including the NT8D86 cables from the I/O panels to the QPC414 Network Cards). Enable the faceplate switches.
- 7 Switch the cables at the PE end:
 - If cables from network cabinets are still connected to the connector housings, disconnect those cables and replace them with the NT8D73 cables from the Network Modules.
 - If NT9J96 cables inside the PE cabinets are not connected, connect them to the faceplates of the appropriate QPC659 cards.
- 8 Software enable the network card:

ENLN loop	even or odd loop number enables the card
****	to exit LD 32
- 9 Test for dial tone on both loops.
- 10 Repeat step 1 through step 9 for all network shelves.

Completing the upgrade

- 1 Install alarm termination plugs (P0623569):
 - Install one plug at a convenient location on the cabinet frame near each CPU.
 - Disconnect the power monitor cable from each CPU shelf and plug it into a termination plug.
- 2 Turn off power to the CPU shelves in the cabinet:
 - Set the ENB/DIS switch on the power monitor to DIS.
 - Power down the CPU shelf input breaker.
- 3 Try to clear any shelf alarms in the cabinets.
- 4 Connect the cabinets to the system monitor. See “System monitor upgrade installation” on page 13-1.
- 5 Test the IOP to IOP SCSI connection and test the CMDUs:
 - LD 137** to load the program
 - TEST SCSI** to check the IOP to IOP connection and access to the CMDUs
 - TEST CMDU** to test the hard and floppy disk drives (a floppy diskette must be installed)
 - ****** to exit the program
- 6 Test Core functions:
 - LD 135** to load the program
 - TEST CPU** to test the inactive CP card and CP-to-CP cable
 - TEST IPB** to test the backplane protocol on the inactive side
 - TEST CNI c s** to test each configured CNI on the inactive side

If all the tests pass, switch Cores and test the side that is now inactive:

 - SCPU** to switch to the other Core
 - TEST CPU** to test the inactive CP card and CP-to-CP cable
 - TEST IPB** to test the backplane protocol on the inactive side
 - TEST CNI c s** to test each configured CNI on the inactive side

- 7 Clear displays, major alarms, and minor alarms:

CDSP	to clear the display
CMAJ	to clear all major alarms
CMIN ALL	to clear all minor alarms
SCPU	to switch to the other Core
CDSP	to clear the display
****	to exit LD 135
- 8 Remove any remaining cables that are no longer used.
- 9 Verify the system by using test procedures described in *Meridian 1 system installation procedures* (553-3001-210) and *X11 input/output guide* (553-3001-400). Clear any faults discovered during testing.
- 10 Perform the post-conversion procedure as outlined in *Software conversion procedures* (553-2001-320).

The XT Core and Network Module upgrade to option 81 is complete.

System monitor upgrade installation

This chapter describes how to connect the system monitors in the modules to the power monitors in the existing system.

Table 13-1 provides the SW1 switch settings for the system monitor in upgraded systems.

Table 13-1

SW1 system monitor switch settings for system upgrades (Part 1 of 2)

SW1	Setting	Function
1	ON	Is co-located with an existing system containing a QPC84, QPC173, or QPC704 Power Monitor.
	OFF	Is not co-located with an existing system.
2	ON	This is the master system monitor and is located in a column containing a CPU and is connected to an existing system containing a QPC84, QPC173, or QPC704 Power Monitor.
	OFF	Set to OFF on all slave system monitors.
	OFF	Switch 1 is set to ON and modules contain only peripheral equipment (PE).
	OFF	Is not co-located with an existing system containing a QPC84, QPC173, or QPC704 Power Monitor (switch is set to OFF).
3	ON	The entire system is DC powered.
	OFF	The modules are AC powered.
4	ON	The Power Fail Transfer Unit (PFTU) activates when overheating occurs.
	OFF	The PFTU will not be activated if overheating occurs.

Table 13-1
SW1 system monitor switch settings for system upgrades (Part 2 of 2)

SW1	Setting	Function
5	ON	Is co-located with a system containing a QPC704 Power Monitor (such as an ST or RT system).
	OFF	Is co-located with a system containing a QPC84 or a QPC173 Power Monitor (such as an NT or XT system).
	OFF	Is not co-located with an existing system containing a QPC84, QPC173, or QPC704 Power Monitor (switch is set to OFF).
6	ON	Is co-located with a system containing a QPC704 Power Monitor (such as an ST or RT system).
	OFF	Is co-located with a system containing a QPC84 or a QPC173 Power Monitor (such as an NT or XT system).
	OFF	Is not co-located with an existing system containing a QPC84, QPC173, or QPC704 Power Monitor (switch is set to OFF).
7	ON	Is co-located with a system containing a QPC84 or a QPC173 Power Monitor (such as an NT or XT system), and the modules contain only PE (the CE is in an existing cabinet).
	OFF	Is co-located with an existing system containing a QPC84, QPC173, or QPC704 Power Monitor, and the CPU is in a module.
	ON	Is co-located with a system containing a QPC704 Power Monitor (such as an ST or RT system), and the modules contain only PE.
	OFF	The PE and CE are located in modules only. There are no existing cabinets associated with this system.
8	OFF	Is co-located with a system containing a QPC84 or a QPC173 Power Monitor (such as an NT or XT system), and the modules contain only PE (the CE is in an existing cabinet).
	ON	Is co-located with an existing system containing a QPC84, QPC173, or QPC704 Power Monitor, and the CPU is in a module.
	ON	Is co-located with a system containing a QPC704 Power Monitor (such as an ST or RT system), and the modules contain only PE.
	OFF	The PE and CE are located in modules only. There are no existing cabinets associated with this system.

System monitoring in NT/XT systems and QCA60-type cabinets

Procedure 13-1 gives steps for connecting system monitors when existing common equipment (CE) and cabinets equipped with QPC84 or QPC173 Power Monitors are used in the upgrade.

Procedure 13-2 gives steps for connecting system monitors when the CE is located in a column and the existing cabinets are equipped with QPC84 Power Monitors.

Procedure 13-1

Connecting system monitor—CE remains in a cabinet equipped with a QPC84 or QPC173 Power Monitor

Note: During this procedure, use Figure 13-1 if the CE cabinet is equipped with a QPC84 Power Monitor (typically in an NT system). Use Figure 13-2 if the CE cabinet is equipped with a QPC173 Power Monitor (typically in an XT system).

- 1 Make sure that the NT8D46BH alarm cable from connector J3 at the rear of the pedestal housing the master system monitor is terminated at the main distribution frame (MDF). The column containing CPU 0 contains the master system monitor. See *Meridian 1 system installation procedures* (553-3001-210).
- 2 At the MDF, locate the P10 cable from each existing cabinet:
 - Make sure that the SYSLTIN connections (OR/W wire) in all P10 cables are connected together and to the SYSLTOUT connection (W/OR wire) on the P10 cable from the CE cabinet.
 - Make sure that the CE-ALARM connections (V/BL wire) in all P10 cables are connected together.
- 3 Locate a ground at the MDF. Connect it to the MDF 0/gnd connection (BR/W wire) on the NT8D46BH cable from the master column.

- 4 At the MDF, locate the SYSLTIN (BL/R wire) and CE-SYSLT (GR/W wire) connections in the NT8D46BH cable from the master column:
 - Connect the SYSLTIN connection (BL/R wire) on the NT8D46BH alarm cable to the SYSLTOUT (W/OR wire) connection on the P10 cable from the CE cabinet.
 - Connect the CE-SYSLT connection (GR/W wire) on the NT8D46BH alarm cable to the CE-ALARM connection (OR/W wire) on the P10 cable from the CE cabinet.
- 5 Refer to the installation manual for the existing system and install an SDI port. This port connects to the column containing the master system monitor and must be set for 1200 baud operation.
- 6 Check the switch settings on the system monitors in each column. Make sure that switch SW1 on all system monitors is set according to Table 13-1. See *Circuit card installation and testing* (553-3001-211) to set switches SW2 and SW3.

Note: Install and connect system monitors as described in *Meridian 1 system installation procedures* (553-3001-210). The column containing CPU 0 contains the master system monitor. Other columns contain slave system monitors. A master system monitor is always required.
- 7 Install an NT8D46AD cable from connector P1 in the pedestal containing the master system monitor to J1 on the backplane. Mount the SDI connector on the cable in an available opening in the I/O panel. See Figure 13-3 and *Meridian 1 system installation procedures* (553-3001-210).
- 8 Install an SDI cable from the SDI port on the existing CE cabinet to the SDI connector on the NT8D46AD cable in the I/O panel on the module.

Figure 13-1
Common equipment in existing cabinet equipped with a QPC84 Power Monitor

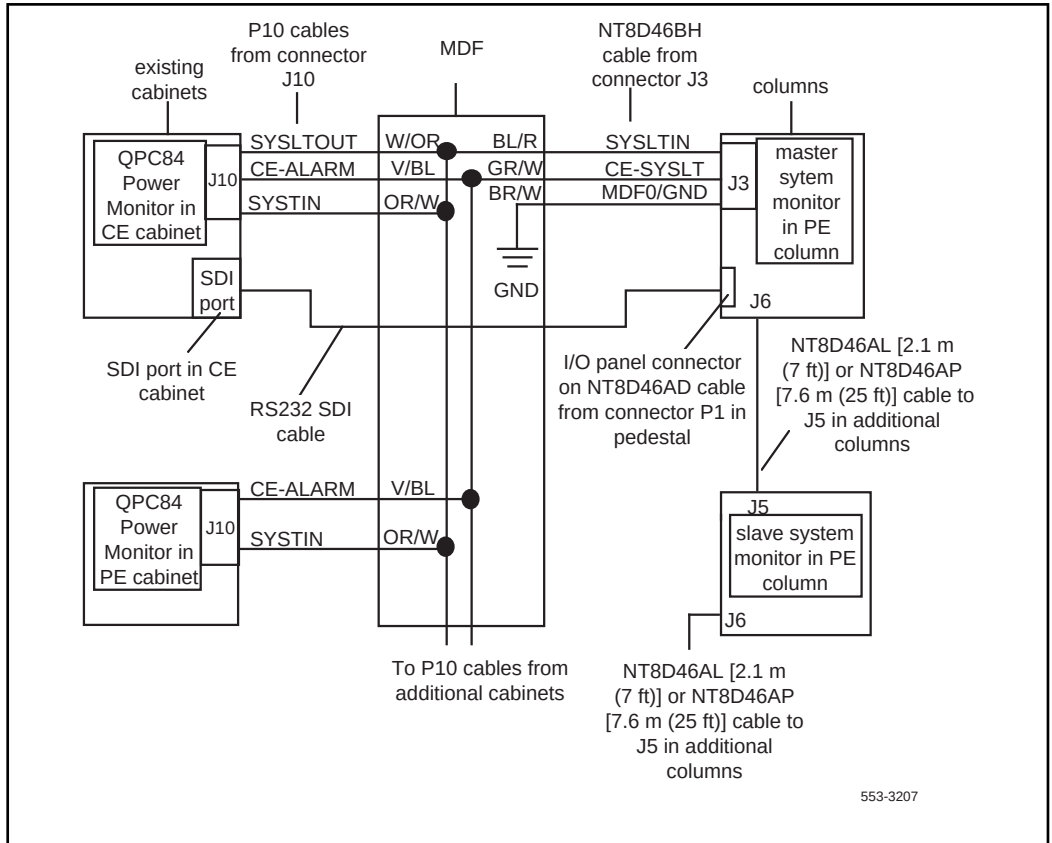


Figure 13-2
Common equipment in existing cabinet equipped with a QPC173 Power Monitor

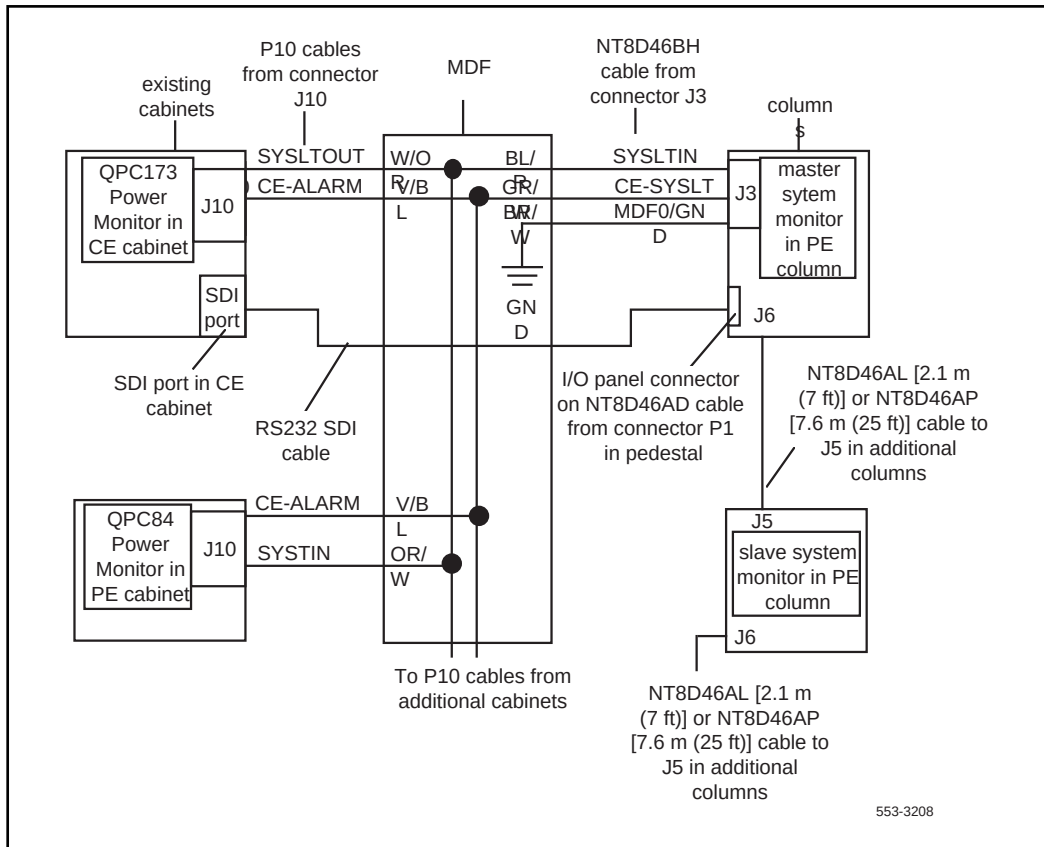
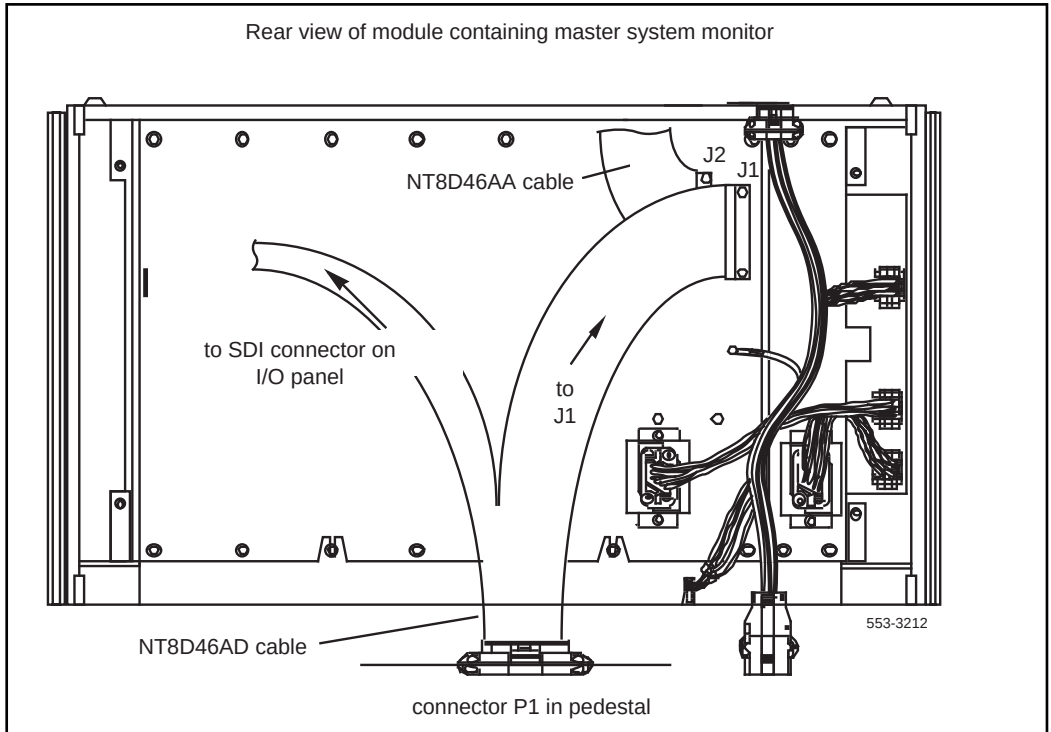


Figure 13-3
NT8D46AD cable connections

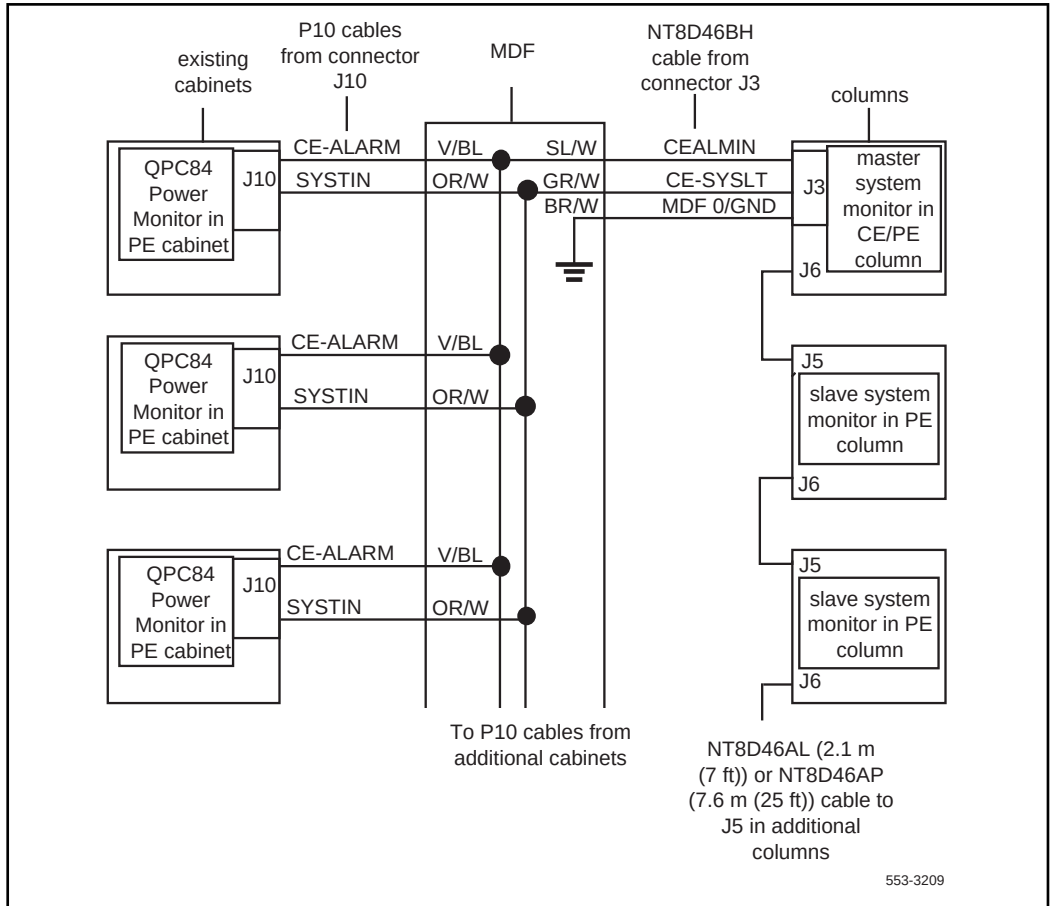


Procedure 13-2

Connecting system monitor—CE in a column and existing cabinets are equipped with QPC84 Power Monitors

- 1 Make sure that the NT8D46BH alarm cable from connector J3 at the rear of the pedestal housing the master system monitor is terminated at the MDF. The column containing CPU 0 contains the master system monitor. See *Meridian 1 system installation procedures* (553-3001-210).
- 2 At the MDF, locate the P10 cable from each existing cabinet:
 - Make sure that the SYSLTIN connections (OR/W wire) in all P10 cables are connected together. See Figure 13-4.
 - Make sure that the CE-ALARM connections (V/BL wire) in all P10 cables are connected together. See Figure 13-4.
- 3 Locate a ground source at the MDF. Connect it to the MDF 0/gnd connection (BR/W wire) on the NT8D46BH cable from the master column. See Figure 13-4.
- 4 At the MDF, locate the CEALMIN (SL/W wire) and CE-SYSLT (GR/W wire) connections in the NT8D46BH cable from the master column:
 - Connect the CEALMIN connection (SL/W wire) on the NT8D46BH alarm cable to the CE-ALARM (V/BL wire) connection on the P10 cable from the CE cabinet. See Figure 13-4.
 - Connect the CE-SYSLT connection (GR/W wire) on the NT8D46BH alarm cable to the SYSLTIN connection (OR/W wire) on the P10 cable from the CE cabinet. See Figure 13-4.
- 5 Check the switch settings on the system monitor in each column. Make sure that switch SW1 on all system monitors is set according to Table 13-1. See *Circuit card installation and testing* (553-3001-211) to set switches SW2 and SW3.

Note: Install and connect system monitors as described in *Meridian 1 system installation procedures* (553-3001-210). The column containing CPU 0 contains the master system monitor. Other columns contain slave system monitors. A master system monitor is always required.

Figure 13-4**Common equipment in module and existing cabinets equipped with QPC84 Power Monitors**

System monitoring in ST and RT systems

The system monitoring hardware requirements for ST and RT systems depend on the various combinations of cabinet types and whether the CPU is located in the cabinet or in the Meridian 1 module. See Table 13-2.

Table 13-2
Hardware requirements (Part 1 of 3)

Cabinet type	CPU location	Hardware required (one of each)
QCA136 and Meridian 1 Module(s)	QCA136	NT8D46AY System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) QCAD309 Alarm Adapter Cable (Note 2) P0678258 Filter Connector (Note 2)
	Meridian 1 Module	NT8D46AX System Monitor Cable NT8D46BA System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) NT6D81AA Power Regulator (Note 3) NT8D22AC System Monitor (Note 4)
QCA137 and Meridian 1 Module(s)	Meridian 1 Module	NT8D46AX System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) QCAD310 Ground Cable (Note 5)
QCA136, QCA137, and Meridian 1 Module(s)	QCA136	NT8D46BC System Monitor Cable NT8D46BE System Monitor Cable NT8D46BM System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) QCAD310 Ground Cable (Note 5)
	Meridian 1 Module	NT8D46BB System Monitor Cable NT8D46BC System Monitor Cable NT8D46BD System Monitor Cable NT8D46BE System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) QCAD310 Ground Cable (Note 5) NT6D81AA Power Regulator (Note 3) NT8D22AC System Monitor (Note 4)

Table 13-2
Hardware requirements (Part 2 of 3)

Cabinet type	CPU location	Hardware required (one of each)
QCA147 and Meridian 1 Module(s)	QCA147	NT8D46AY System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1)
	Meridian 1 Module	NT8D46AX System Monitor Cable NT8D46BG System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) NT8D22AC System Monitor (Note 4)
QCA147, QCA137, and Meridian 1 Module(s)	QCA147	NT8D46CH System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) QCAD310 Ground Cable (Note 5)
	Meridian 1 Module	NT8D46BC System Monitor Cable NT8D46BD System Monitor Cable NT8D46BE System Monitor Cable NT8D46BJ System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) QCAD310 Ground Cable (Note 5) NT8D22AC System Monitor (Note 4)
Two QCA137s and Meridian 1 Module(s)	Meridian 1 Module	NT8D46BC System Monitor Cable NT8D46BE System Monitor Cable NT8D46BK System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) QCAD310 Ground Cable (Note 5)

Table 13-2
Hardware requirements (Part 3 of 3)

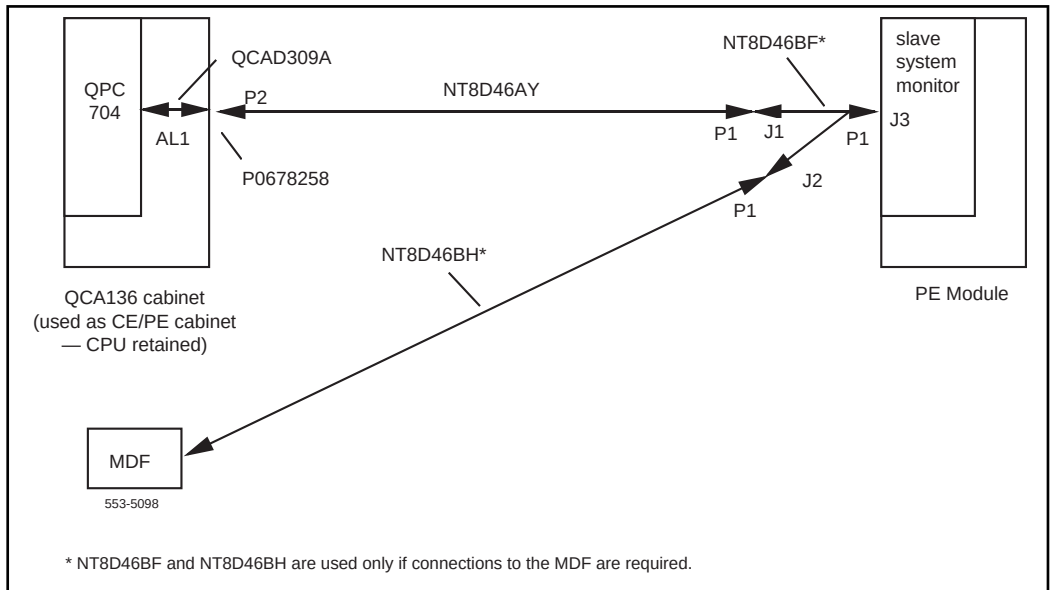
Cabinet type	CPU location	Hardware required (one of each)
QCA147, two QCA137s, and Meridian 1 Module(s)	QCA147	NT8D46BC System Monitor Cable NT8D46BE System Monitor Cable NT8D46BL System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) QCAD310 Ground Cable (Note 5)
	Meridian 1 Module	NT8D46BJ System Monitor Cable NT8D46BC System Monitor Cable NT8D46BD System Monitor Cable NT8D46BE System Monitor Cable NT8D46BF System Monitor Cable (Note 1) NT8D46BH System Monitor Cable (Note 1) QCAD310 Ground Cable (Note 5) NT8D22AC System Monitor (Note 4)
Note 1: The NT8D46BF and NT8D46BH cables are only required when extending the alarm connections to the main distribution frame (MDF). Note 2: ST systems consisting of a single QCA136 cabinet require the installation of a QCAD309 Alarm Adapter cable and one P0678258 Filter Connector. Note 3: The NT6D81AA Power Regulator Card is required when a QCA136 cabinet is retained as part of the upgraded system. Each cabinet requires one card that resides in any network or SDI card slot. Note 4: The NT8D22AC System Monitor is required when a QCA136, QCA137, or QCA147 cabinet is retained as part of the upgraded system. Note 5: The QCAD310 Ground Cable must be installed in ST or RT systems using one or more QCA137 cabinets.		

Configuration 1—ST system with QCA136 and PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an ST system equipped with a QCA136 cabinet and a PE Module (see Figure 13-5). The CPU is located in the cabinet.

Figure 13-5
Connecting system monitor—Configuration 1



Procedure 13-3

Connecting system monitor—Configuration 1

Note: This procedure requires powering down the QCA136 cabinet and removing the EMI back panel from the cabinet. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46AY cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.
Note: This step is not applicable to new installations.
- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
Note: When configuring the system monitor, use the switch settings for a *slave* unit.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap light emitting diode (LED) flashes three times then stays off.
- 4 Install connector P1 of the NT8D46AY cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 6 Install connector J2 of the NT8D46BF cable into connector P1 of the NT8D46BH cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Reinstall the pedestal back panel.
- 9 Power down the QCA136 cabinet.
- 10 Remove the QCA136 rear panels.
- 11 Remove the QCA136 EMI back panel.
- 12 Install the QCAD309 cable and the filter connector (P0678258) according to the instructions, "Installing and Connecting Alarm and Transfer Wiring" in the ST System Installation procedures located in *Meridian SL-1 ST installation procedures* (553-2431-210).
- 13 Connect P2 of the NT8D46AY cable into the filter connector at the bottom rear of the QCA136 cabinet. Ensure the connection with a screwdriver.

- 14** Reinstall the QCA136 EMI back panel.
- 15** Reinstall the QCA136 rear panels.
- 16** Power up the QCA136 cabinet.

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1** The PFTU (if installed) is not activated.
- 2** All ringing generators are enabled.
- 3** All LEDs on the QUAA3 Power Unit stay on. If not, verify that step 12 of the installation procedure has been completed.
- 4** The LED on the top cap of the PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.

To verify the installation, perform the following optional procedure on the PE Module:

- 1** Locate the blower unit inside the pedestal of the PE Module.
- 2** Set the circuit breaker on the blower unit to off. Verify that the LED on the top cap is on, and the PE 2-5 LED on the QUAA3 Power Unit is off.
- 3** Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off, and the PE 2-5 LED on the QUAA3 Power Unit is on.

To verify the installation, perform the following optional procedure on the QCA136 cabinet:

- 1** Hardware disable the QPC659 DLB card. Verify that the PE 2-5 LED on the QUAA3 Power Unit is off and the LED on the top cap of the PE Module stays off.

Hardware enable the QPC659 DLB card, and verify that the PE 2-5 LED is on.

- 2** Set the LN XFR switch on the QUAA3 Power Unit to 1. Verify the following:

 - the CE/PE 1 LED is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - the ringing generator is off
- 3** Set the LN XFR switch to 0. After 90 seconds, verify the following:

 - the CE/PE 1 LED is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - the ringing generator is on
- 4** Perform a data dump using LD 43.
- 5** Perform a sysload on the QCA136 cabinet. Verify the following:

 - the CE/PE 1 LED is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - the ringing generator is off
- 6** Wait 90 seconds after the sysload; then verify the following:

 - the CE/PE 1 LED is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - the ringing generator is on

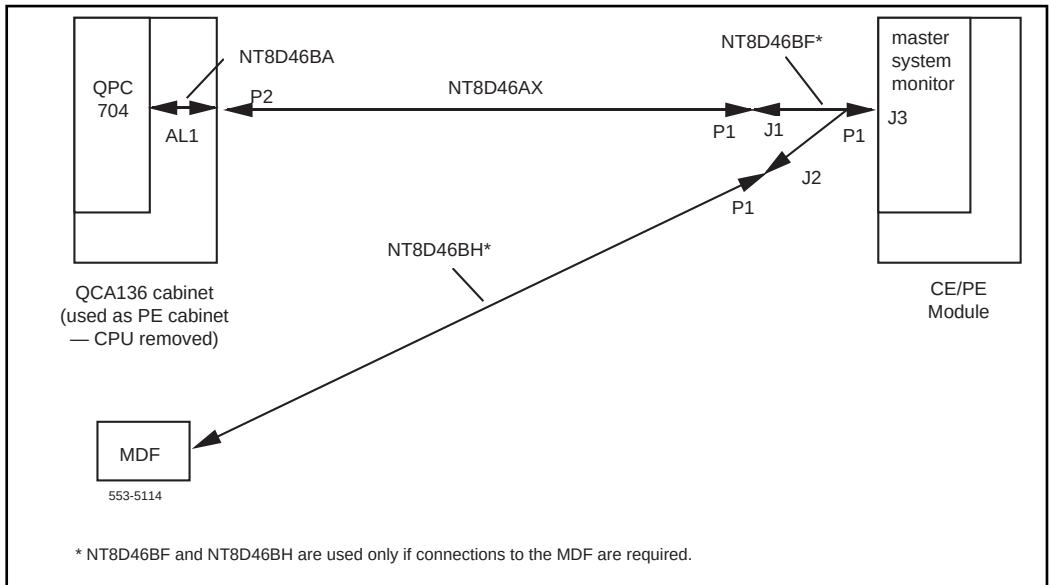
If any test fails, verify that the QCAD309A and NT8D46AY cables are installed properly, and the switch settings on the system monitor are correct for this configuration.

Configuration 2—ST system with QCA136 and CE/PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an ST system equipped with a QCA136 cabinet and a CE/PE Module (see Figure 13-6). The CPU is located in the module.

Figure 13-6
Connecting system monitor—Configuration 2



Procedure 13-4
Connecting system monitor—Configuration 2

Note: This procedure requires powering down the QCA136 cabinet and removing the EMI back panel from the cabinet. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46AX cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.

Note: This step is not applicable to new installations.

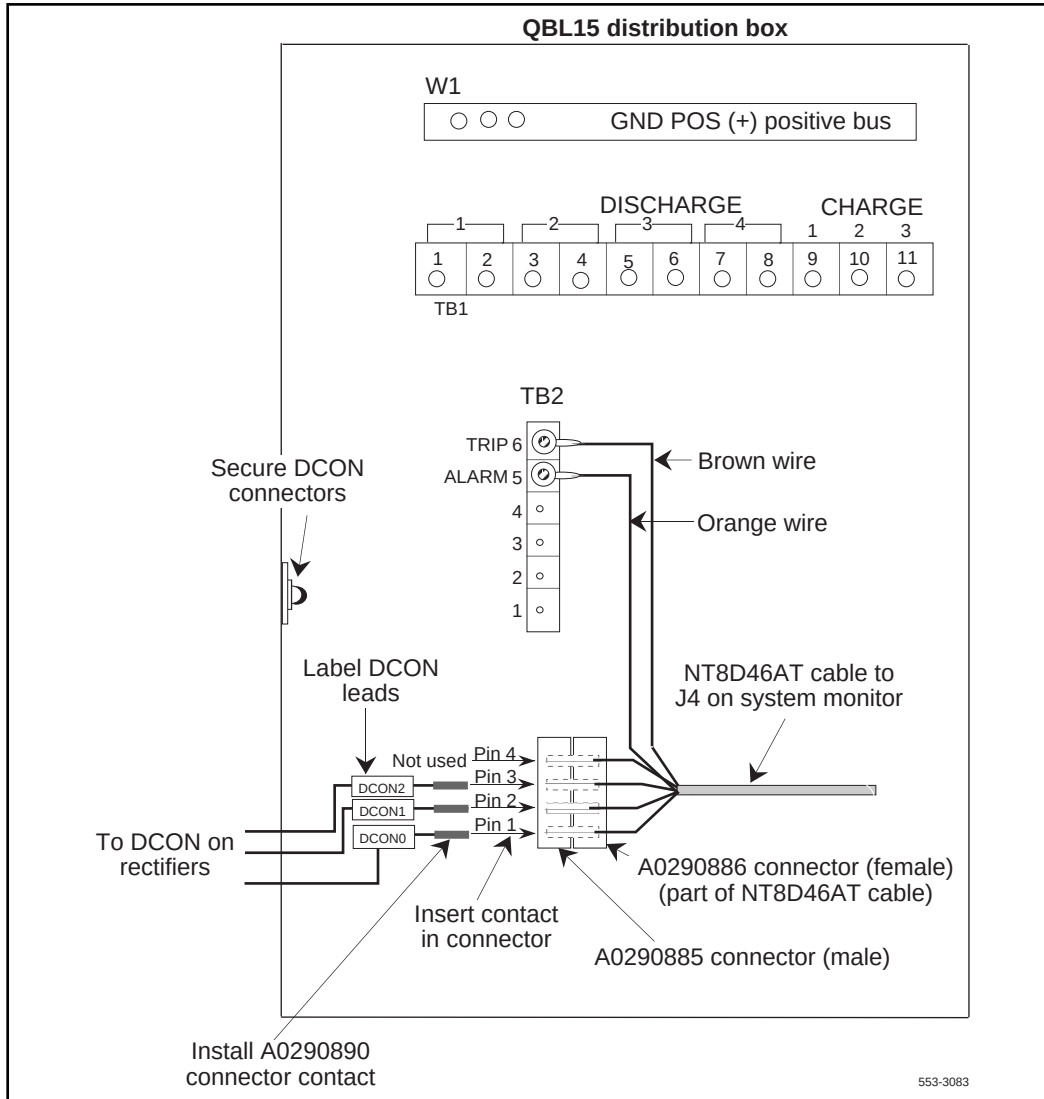
- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off, and the maintenance console displays the following message:

PWR0054 XSMC 00 0 0

- 4 Install connector P1 of the NT8D46AX cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 6 Install connector P1 of the NT8D46BH cable into connector J2 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Verify that the RECT/BATT, PE 2-5, CE/PE 1, and FN alarm LEDs on the QUAA3 Power Unit are on. Power down the QCA136 cabinet.
- 9 Remove all circuit cards from the CE shelf.
- 10 Install the NT6D81AA Power Regulator Board in any of slots 2 through 11 of the CE shelf.
- 11 Remove the QCA136 rear panels.
- 12 Remove the QCA136 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit.

- 13** On DC-powered ST systems using a QBL15 Battery Distribution Box, perform these steps:
- On the ST system, remove the wire between terminal 5 (DC ON) on terminal board TB4 of the QRF12 rectifier and terminal 3 on terminal board TB2 of the QUX19 breaker assembly.
 - Install the NT8D46AT cable from J4 of the system monitor to the terminal area in the QBL15.
 - Connect the brown wire of the NT8D46AT cable to terminal 6 (TRIP) on terminal board TB2 in the QBL15. Connect the orange wire to terminal 5 (ALARM). Refer to Figure 13-7.
- Note:** The QCA136 cabinet does not require a TRIP wire to be connected to the QBL15.
- Run an AWG 22 wire from terminal 5 (DC ON) on terminal board TB4 of the QRF12 rectifier to the QBL15.
 - Install an A0290890 connector contact on the end of the AWG 22 wire inside the QBL15. Insert the contact into pin 1, 2, or 3 of the NT8D86 system monitor cable.
 - Attach the DCON label to the AWG 22 wire.
 - Attach the strain-relief clip to a clean surface inside the QBL15 near the terminal boards. Secure the NT8D46AT cable under the strain-relief clip.
- 14** Unplug connector P5 of the existing harness from connector J5 on the rear of the QUAA3 Power Unit.
- 15** Install connector P5 of the NT8D46BA cable into connector J5 on the rear of the QUAA3 Power Unit.
- 16** Install connector J5 of the NT8D46BA cable into connector P5 of the existing harness.
- 17** Install connector ALM1 into the filter connector (P0678258) located in one of the three horizontal cutouts located at the bottom rear of the QCA136 cabinet.
- 18** Loosen screws REMA and REMB on terminal block TB2 of the QUX19 Power Distribution Unit.

Figure 13-7
NT8D46AT cable field wiring connections



- 19** Connect lug REMA (yellow wire) from the NT8D46BA cable to screw REMA on terminal block TB2 of the QUX19 Power Distribution Unit. Tighten screw REMA.
- 20** Connect lug REMB (black wire) from the NT8D46BA cable to screw REMB on terminal block TB2 of the QUX19 Power Distribution Unit. Tighten screw REMB.
- 21** Loosen one of the ground lugs located on the ground bar on the rear of the QUAA3 Power Unit with a 7/16 inch socket driver.
- 22** Connect the GND ring lug (2 black wires) to the loosened ground lug on the rear of the QUAA3 Power Unit and tighten with the socket driver.
- 23** Install connector P2 of the NT8D46AX cable into connector ALM1 (filter connector P0678258). Ensure the connection with a screwdriver. Verify that the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 24** Reinstall the EMI back panel.
- 25** Reinstall the QCA136 rear panels.
- 26** Power up the QCA136 cabinet. Verify that all alarm LEDs on the QUAA3 Power Unit are on, except the CE/PE 1 LED, which is on after approximately 90 seconds. Verify that the maintenance console displays the following message:
PWR0055 00 0 0

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1** The PFTU (if installed) is not activated.
- 2** All LEDs on the QUAA3 Power Unit stay on. If not, verify that steps 13 through 22 of the installation procedure have been completed.
- 3** The LED on the top cap of the CE/PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.
 - Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the CE/PE Module:

- 1 Locate the blower unit inside the pedestal of the CE/PE Module.
- 2 Set the circuit breaker on the blower unit to off. Verify the following:
 - the LED on the top cap is on
 - all LEDs on the QUAA3 Power Unit stay on
 - the maintenance console displays the following message:
PWR0006 FANU 00 0 0
- 3 Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the maintenance console displays the following message:
PWR0046 FANU 00 0 0
- 4 Perform a data dump using LD 43.
- 5 Perform a sysload on the CE/PE Module. Verify the following:
 - the CE/PE 1 LED on the QUAA3 Power Unit is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the CE/PE Module is on
 - the LEDs on all ringing generators are off
- 6 Wait 90 seconds after the sysload, then verify the following:
 - the CE/PE 1 LED is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the CE/PE Module is off
 - the LEDs on all ringing generators are on
 - the maintenance console displays the following messages:
PWR0056 PFTU XX X X
PWR0055 XSMC 00 0 0
PWR0000 PWSP XX X X
(for each ringing generator)

To verify the installation, perform the following optional procedure on the QCA136 cabinet:

- 1** Hardware disable the QPC659 DLB card and verify the following:
 - the PE 2-5 LED on the QUAA3 Power Unit is off
 - the LED on the top cap of the CE/PE Module is off
 - the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 2** Hardware enable the QPC659 DLB card. Verify that the PE 2-5 LED is on and the maintenance console displays the following message:
PWR0055 XSMC 00 0 0

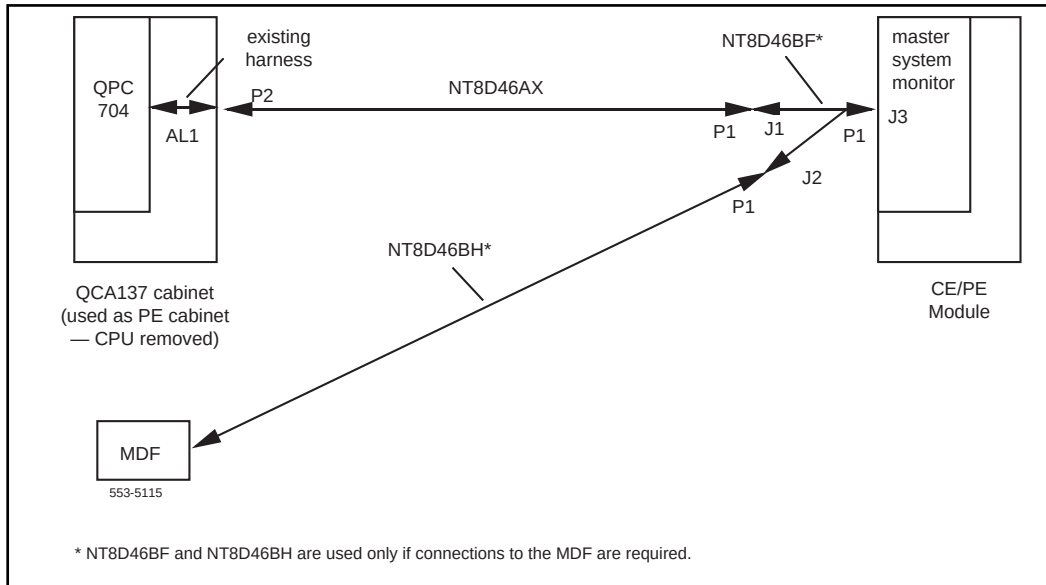
If any test fails, verify that the QCAD309A and NT8D46AY cables are installed properly, and the switch settings on the system monitor are correct for this configuration.

Configuration 3—ST/RT system with QCA137 and CE/PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an ST or RT system equipped with a QCA137 cabinet and a CE/PE Module (see Figure 13-8). The CPU is located in the module.

Figure 13-8
Connecting system monitor—Configuration 3



Procedure 13-5**Connecting system monitor—Configuration 3**

Note: This procedure requires powering down the QCA137 cabinet and removing the EMI back panel from the cabinet. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46AX cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.

Note: This step is not applicable to new installations.

- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off, and the maintenance console displays the following message:

PWR0054 XSMC 00 0 0

- 4 Install connector P1 of the NT8D46AX cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 6 Install connector P1 of the NT8D46BH cable into connector J2 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Reinstall the pedestal back panel on the module.
- 9 Verify that the RECT/BATT, PE 2-5, and FN alarm LEDs on the QUAA3 Power Unit are on. Power down the QCA137 cabinet.
- 10 Remove the QCA137 rear panels.
- 11 Remove the QCA137 EMI back panel. Install a customer-provided #6 or #10 AWG wire between terminal lugs GND1 and GND2 on the ground bar at the back of the QUUA3 Power Unit.

- 12 Install connector P2 of the NT8D46AX cable into connector AL1 (P0678258 Filter Connector) at the bottom rear of the QCA137 cabinet. Ensure the connection with a screwdriver. Verify that the maintenance console displays the following message:

PWR0015 XSMC 00 0 0

- 13 Reinstall the EMI back panel.
- 14 Reinstall the QCA137 rear panels.
- 15 Power up the QCA137 cabinet. Verify that all alarm LEDs on the QUAA3 Power Unit are on except the CE/PE 1 LED, which is on after approximately 90 seconds. Verify that the maintenance console displays the following message:

PWR0055 00 0 0

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1 The PFTU (if installed) is not activated.
- 2 All LEDs on the QUAA3 Power Unit stay on. If not, verify cable connections.
- 3 The LED on the top cap of the CE/PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.
 - Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the CE/PE Module:

- 1 Locate the blower unit inside the pedestal of the CE/PE Module.
- 2 Set the circuit breaker on the blower unit to off. Verify the following:
 - the LED on the top cap is on
 - all LEDs on the QUAA3 Power Unit stay on
 - the maintenance console displays the following message:

PWR0006 FANU 00 0 0

- 3 Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the maintenance console displays the following message:
PWR0046 FANU 00 0 0
- 4 Perform a data dump using LD 43.
- 5 Perform a sysload on the CE/PE Module. Verify the following:
 - the CE/PE 1 LED on the QUAA3 Power Unit is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the CE/PE Module is on
 - the LEDs on all ringing generators are off
- 6 Wait 90 seconds after the sysload, then verify the following:
 - the CE/PE 1 LED is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the CE/PE Module is off
 - the LEDs on all ringing generators are on
 - the maintenance console displays the following messages:
PWR0056 PFTU XX X X
PWR0055 XSMC 00 0 0
PWR0000 PWSP XX X X
(for each ringing generator)

To verify the installation, perform the following optional procedure on the QCA137 cabinet:

- 1 Hardware disable the QPC659 DLB card and verify the following:
 - the PE 2-5 LED on the QUAA3 Power Unit is off
 - the LED on the top cap of the CE/PE Module is off
 - the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 2 Hardware enable the QPC659 DLB card. Verify that the PE 2-5 LED is on, and the maintenance console displays the following message:
PWR0055 XSMC 00 0 0

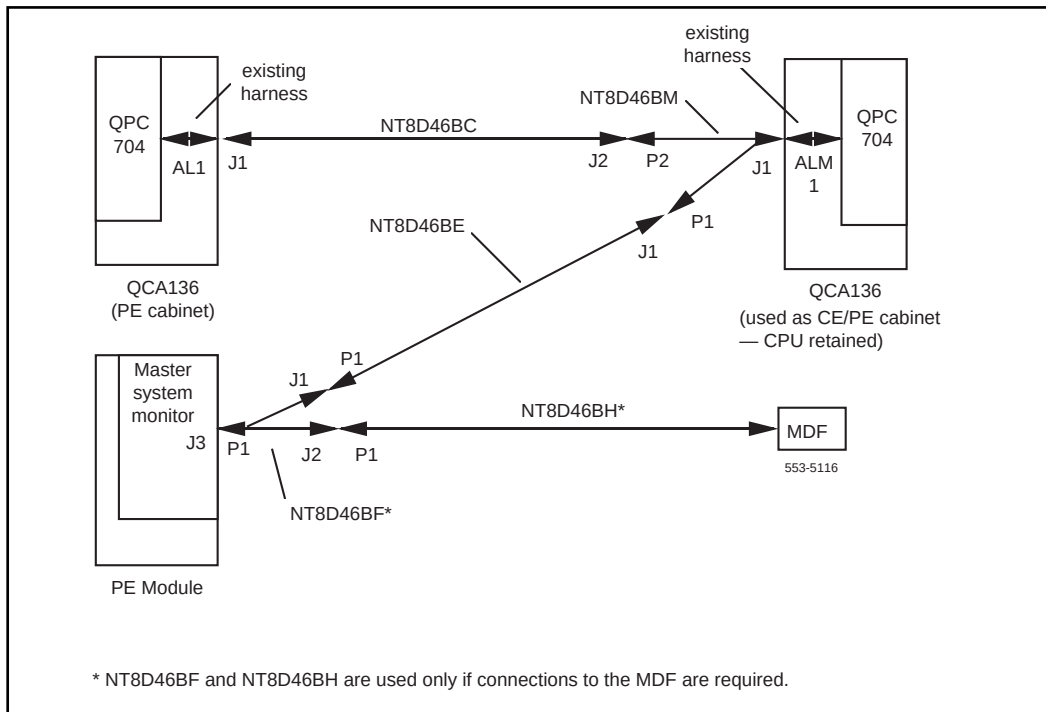
If any test fails, verify that the NT8D46AX cable is installed properly, and the switch settings on the system monitor are correct for this configuration.

Configuration 4—ST system with QCA136, QCA137, and PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an ST system equipped with a QCA136 cabinet, a QCA137 cabinet, and a PE Module (see Figure 13-9). The CPU is located in the QCA136 cabinet.

Figure 13-9
Connecting system monitor—Configuration 4



Procedure 13-6**Connecting system monitor—Configuration 4**

Note: This procedure requires powering down the QCA136 and QCA137 cabinets and removing the EMI back panels from both cabinets. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46BE cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.
Note: This step is not applicable to new installations.
- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off.
- 4 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46BE cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 6 Install connector P1 of the NT8D46BH cable into connector J2 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Reinstall the pedestal back panel.
- 9 Verify that the RECT/BATT, PE 2-5, CE/PE 1, and FN alarm LEDs on the QUAA3 Power Unit are on. Power down the QCA136 cabinet.
- 10 Remove the QCA136 rear panels.
- 11 Remove the QCA136 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit.
- 12 Install connector J1 of the NT8D46BM cable into connector AL1 (P0678258 Filter Connector) at the bottom rear of the QCA136 cabinet. Ensure the connection with a screwdriver.
- 13 Install connector J1 of the NT8D46BE cable into connector P1 of the NT8D46BM cable. Ensure the connection with a screwdriver.

- 14** Install connector J2 of the NT8D46BC cable into connector P2 of the NT8D46BM cable. Ensure the connection with a screwdriver.
- 15** Reinstall the QCA136 EMI back panel.
- 16** Reinstall the QCA136 rear panels.
- 17** Remove the QCA137 rear panels. Verify that the QCAD310 cable is installed between the ground bars of the QCA136 and QCA137 cabinets.
- 18** Remove the QCA137 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit.
- 19** Install connector J1 of the NT8D46BC cable into connector AL1 (P0678258 Filter Connector) at the bottom rear of the QCA137 cabinet. Ensure the connection with a screwdriver.
- 20** Reinstall the QCA137 EMI back panel.
- 21** Reinstall the QCA137 rear panels.
- 22** Power up the QCA136 and QCA137 cabinets. Ninety seconds after sysload, verify the following:
 - all LEDs on the QUAA3 Power Unit are on
 - the ringing generators are back on
 - the LED on the top cap of the PE Module is off

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1** The PFTU (if installed) is not activated.
- 2** All ringing generators are enabled.
- 3** All LEDs on the QUAA3 Power Units in the QCA136 and QCA137 cabinets stay on. If not, verify that steps 12 through 19 of the installation procedure have been completed.
- 4** The LED on the top cap of the PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.

- Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the PE Module:

- 1** Locate the blower unit inside the pedestal of the PE Module.
- 2** Set the circuit breaker on the blower unit to off. Verify that the LED on the top cap is on, and the PE 2-5 LED on the QUAA3 Power Unit is off.
- 3** Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off, and the PE 2-5 LED on the QUAA3 Power Unit is on.

To verify the installation, perform the following optional procedure on the QCA136 cabinet:

- 1** Hardware disable the QPC659 DLB card. Verify that the PE 2-5 LED on the QUAA3 Power Unit is off, and the LED on the top cap of the PE Module stays off.

Hardware enable the QPC659 DLB card, and verify that the PE 2-5 LED is on.
- 2** Set the LN XFR switch on the QUAA3 Power Unit to 1. Verify the following:
 - all CE/PE 1 LEDs are off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - all ringing generators are off
- 3** Set the LN XFR switch to 0. After 90 seconds, verify the following:
 - all CE/PE 1 LEDs are on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on
- 4** Perform a data dump using LD 43.

- 5** Perform a sysload on the QCA136 cabinet. Verify the following:
 - all CE/PE 1 LEDs are off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - the ringing generator is off
- 6** Wait 90 seconds after the sysload, then verify the following:
 - all CE/PE 1 LEDs are on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on

To verify the installation, perform the following optional procedure on the QCA137 cabinet:

- 1** Hardware disable the QPC659 DLB card. Verify that the PE 2-5 LEDs on the QCA136 and QCA137 cabinets and the LED on the top cap of the PE Module are off.

Hardware enable the QPC659 DLB card and verify that all PE 2-5 LEDs are on.
- 2** Set the LN XFR switch on the QUAA3 Power Unit to 1. Verify the following:
 - all CE/PE 1 LEDs are off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - all ringing generators are off
- 3** Set the LN XFR switch to 0. After 90 seconds, verify the following:
 - all CE/PE 1 LEDs are on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on

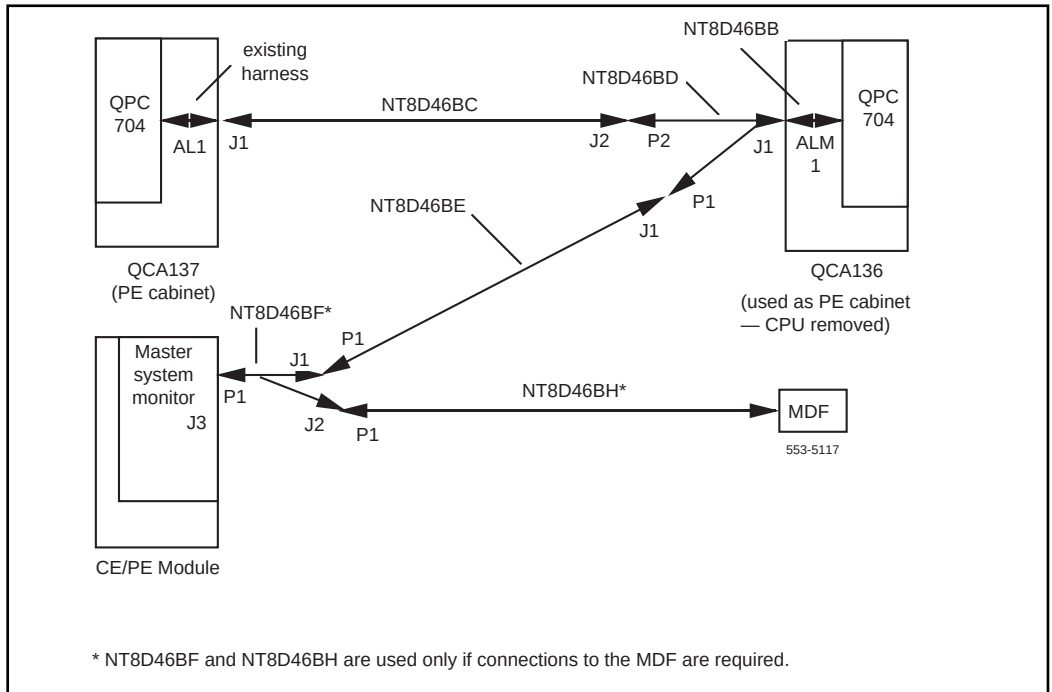
If any test fails, verify that the NT8D46BE and NT8D46BM cables are installed properly, and the switch settings on the system monitor are correct for this configuration. For the QCA137 cabinet, verify that the NT8D46BC and QCAD310 cables are installed properly.

Configuration 5—ST system with QCA136, QCA137, and CE/PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an ST system equipped with a QCA136 cabinet, a QCA137 cabinet, and a CE/PE Module (see Figure 13-10). The CPU is located in the module.

Figure 13-10
Connecting system monitor—Configuration 5



Procedure 13-7

Connecting system monitor—Configuration 5

Note: This procedure requires powering down the QCA136 and QCA137 cabinets and removing the EMI back panels from both cabinets. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46BE cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.

Note: This step is not applicable to new installations.

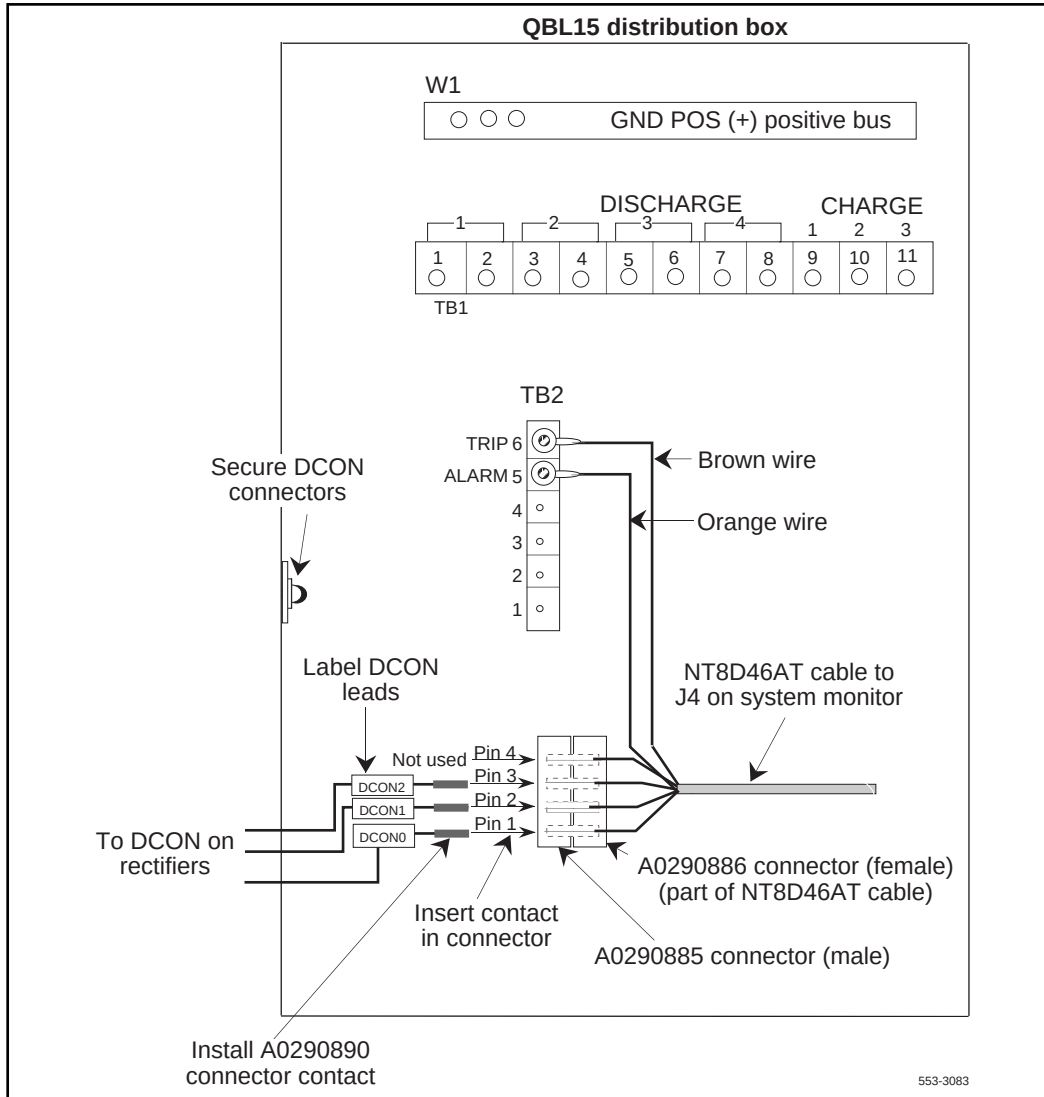
- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off, and the maintenance console displays the following message:

PWR0054 XSMC 00 0 0

- 4 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46BE cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 6 Install connector P1 of the NT8D46BH cable into connector J2 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Reinstall the pedestal back panel.
- 9 Verify that the RECT/BATT, PE 2-5, CE/PE 1, and FN alarm LEDs on the QUAA3 Power Unit are on. Power down the QCA136 cabinet.
- 10 Remove all circuit cards from the CE shelf.
- 11 Install the NT6D81AA Power Regulator Board in any slots 2 through 11 of the CE shelf.
- 12 Remove the QCA136 rear panels.
- 13 Remove the QCA136 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit.

- 14** On DC-powered ST systems using a QBL15 Battery Distribution Box, perform these steps:
- On the ST system, remove the wire between terminal 5 (DC ON) on terminal board TB4 of the QRF12 rectifier and terminal 3 on terminal board TB2 of the QUX19 breaker assembly.
 - Install the NT8D46AT cable from J4 of the system monitor to the terminal area in the QBL15.
 - Connect the brown wire of the NT8D46AT cable to terminal 6 (TRIP) on terminal board TB2 in the QBL15. Connect the orange wire to terminal 5 (ALARM). Refer to Figure 13-11.
- Note:** The QCA136 cabinet does not require a TRIP wire to be connected to the QBL15.
- Run an AWG 22 wire from terminal 5 (DC ON) on terminal board TB4 of the QRF12 rectifier to the QBL15.
 - Install an A0290890 connector contact on the end of the AWG 22 wire inside the QBL15. Insert the contact into pin 1, 2, or 3 of the NT8D86 system monitor cable.
 - Attach the DCON label to the AWG 22 wire.
 - Attach the strain-relief clip to a clean surface inside the QBL15 near the terminal boards. Secure the NT8D46AT cable under the strain-relief clip.
- 15** Unplug connector P6 of the existing harness from connector J6 of the QCAD309 Alarm Cable.
- 16** Unplug connector P6 of the QCAD309 Alarm Cable from connector J6 of the QUAA3 Power Unit.
- 17** Unplug connector P4 of the existing harness from connector J4 of the QCAD309 Alarm Cable.
- 18** Unplug connector P4 of the QCAD309 Alarm Cable from connector J4 of the QUAA3 Power Unit.

Figure 13-11
NT8D46AT cable field wiring connections



- 19** Remove connector AL1 of the QCAD309 Alarm Cable from the P0678258 Filter Connector located in one of the three horizontal cutouts at the bottom rear of the QCA136 cabinet.
- 20** Remove the QCA309 Alarm Cable.
- 21** Remove the NE-25MQA1 Alarm Cable connecting the QCA136 and QCA137 cabinets.
- 22** Unplug connector P5 of the existing harness from connector J5 on the rear of the QUAA3 Power Unit.
- 23** Install connector P5 of the NT8D46BB cable into connector J5 on the rear of the QUAA3 Power Unit.
- 24** Install connector J5 of the NT8D46BB cable into connector P5 of the existing harness.
- 25** Install connector P4 of the existing harness into connector J4 on the rear of the QUAA3 Power Unit.
- 26** Unplug connector P6 of the existing harness from connector J6 on the QUAA3 Power Unit.
- 27** Install connector P6 of the NT8D46BB cable into connector J6 on the QUAA3 Power Unit.
- 28** Install connector J6 of the NT8D46BB cable into connector P6 of the existing harness.
- 29** Loosen screws XCE, REMA, and REMB on terminal block TB2 of the QUX19 Power Distribution Unit.
- 30** Connect lug XCE (white wire) from the NT8D46BB cable to screw XCE on terminal block TB2 of the QUX19 Power Distribution Unit. Tighten screw XCE.
- 31** Connect lug REMA (yellow wire) from the NT8D46BB cable to screw REMA on terminal block TB2 of the QUX19 Power Distribution Unit. Tighten screw REMA.
- 32** Connect lug REMB (black wire) from the NT8D46BB cable to screw REMB on terminal block TB2 of the QUX19 Power Distribution Unit. Tighten screw REMB.
- 33** Loosen one of the ground lugs located on the ground bar on the rear of the QUAA3 Power Unit with a 7/16 inch socket driver.

- 34 Connect the GND ring lug (four black wires) to the loosened ground lug on the rear of the QUAA3 Power Unit and tighten with the socket driver.
- 35 Install connector ALM1 of the NT8D46BB cable into one of the three horizontal cutouts using the existing P0678258 Filter Connector.
- 36 Install connector J1 of the NT8D46BD cable into the P0678258 Filter Connector. Ensure the connection with a screwdriver.
- 37 Install connector J1 of the NT8D46BE cable into connector P1 of the NT8D46BD cable. Ensure the connection with a screwdriver. Verify that the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 38 Install connector J2 of the NT8D46BC cable into connector P2 of the NT8D46BD cable. Ensure the connection with a screwdriver.
- 39 Reinstall the QCA136 EMI back panel.
- 40 Reinstall the QCA136 rear panels.
- 41 Verify that the RECT/BATT, PE 2-5, CE/PE 1, and FN alarm LEDs on the QUAA3 Power Unit are on. Power down the QCA137 cabinet.
- 42 Remove the QCA137 rear panels. Verify that the QCAD310 cable is installed between the ground bars of the QCA136 and QCA137 cabinets.
- 43 Remove the QCA137 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit.
- 44 Install connector J1 of the NT8D46BC cable into connector AL1 (P0678258 Filter Connector) at the bottom rear of the QCA137 cabinet. Ensure the connection with a screwdriver.
- 45 Reinstall the QCA137 EMI back panel.
- 46 Reinstall the QCA137 rear panels.
- 47 Power up the QCA136 and QCA137 cabinets. Verify that all alarm LEDs on the QUAA3 Power Unit are on except the CE/PE 1 LED, which is on after approximately 90 seconds. Verify that the maintenance console displays the following message:

PWR0055 00 0 0

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1 The PFTU (if installed) is not activated.
- 2 All LEDs on the QUAA3 Power Units in the QCA136 and QCA137 cabinets stay on. If not, verify that steps 10, 11, and 14 through 33 of the installation procedure have been completed.
- 3 The LED on the top cap of the CE/PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.
 - Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the CE/PE Module:

- 1 Locate the blower unit inside the pedestal of the CE/PE Module.
- 2 Set the circuit breaker on the blower unit to off. Verify the following:
 - the LED on the top cap is on
 - all LEDs on the QUAA3 Power Units of the QCA136 and QCA137 cabinets stay on
 - the maintenance console displays the following message:
PWR0006 FANU 00 0 0
- 3 Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the maintenance console displays the following message:
PWR0046 FANU 00 0 0
- 4 Perform a data dump using LD 43.

- 5 Perform a sysload on the CE/PE Module. Verify the following:
 - all CE/PE 1 LEDs are off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the CE/PE Module is on
 - the LEDs on all ringing generators are off
- 6 Wait 90 seconds after the sysload, then verify the following:
 - all CE/PE 1 LEDs are on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the CE/PE Module is off
 - the LEDs on all ringing generators are on
 - the maintenance console displays the following messages:
PWR0056 PFTU XX X X
PWR0055 XSMC 00 0 0
PWR0000 PWSP XX X X
(for each ringing generator)

To verify the installation, perform the following optional procedure on the QCA136 cabinet:

- 1 Hardware disable the QPC659 DLB card and verify the following:
 - the PE 2-5 LEDs on the QUAA3 Power Units of the QCA136 and QCA137 cabinets stay on
 - the LED on the top cap of the PE Module stays off
 - the maintenance console displays message:
PWR0015 XSMC 00 0 0
- 2 Hardware enable the QPC659 DLB card and verify that the PE 2-5 LEDs on the QUAA3 Power Units of the QCA136 and QCA137 cabinets are on. Verify that the maintenance console displays the following message:
PWR0055 XSMC 00 0 0

To verify the installation, perform the following optional procedure on the QCA137 cabinet:

- 1** Hardware disable the QPC659 DLB card and verify the following:
 - the PE 2-5 LED on the QUAA3 Power Unit of the QCA137 cabinet is off
 - the PE 2-5 LED on the QUAA3 Power Unit of the QCA136 cabinet stays on
 - the LED on the top cap of the CE/PE Module stays off
 - the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 2** Hardware enable the QPC659 DLB card and verify that the PE 2-5 LEDs on the QUAA3 Power Units of the QCA136 and QCA137 cabinets are on. Verify that the maintenance console displays the following message:

PWR0055 XSMC 00 0 0

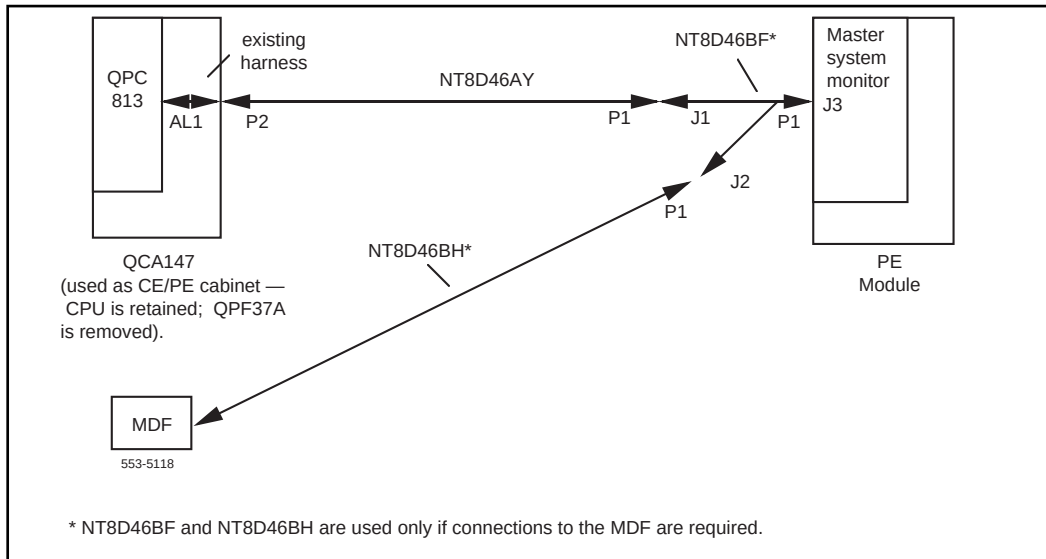
If any test fails, verify that all cables are installed properly and the switch settings on the system monitor are correct for this configuration. On the QCA137 cabinet, verify the installation of the QCAD310 cable.

Configuration 6—RT system with QCA147 and PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an RT system equipped with a QCA147 cabinet and a PE Module (see Figure 13-12). The CPU is located in the QCA147 cabinet.

Figure 13-12
Connecting system monitor—Configuration 6



Procedure 13-8**Connecting system monitor—Configuration 6**

Note: This procedure requires powering down the QCA147 cabinet and removing the EMI back panel from the cabinet. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46AY cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.
Note: This step is not applicable to new installations.
- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off.
- 4 Install connector P1 of the NT8D46AY cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 6 Install connector J2 of the NT8D46BF cable into connector P1 of the NT8D46BH cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Reinstall the pedestal back panel.
- 9 Verify that the RECT/BATT, PE 1-2, CPU/NWK/MSU, and FN alarm LEDs on the QUAA5 Power Unit are on. Power down the QCA147 cabinet.
- 10 Remove the QCA147 rear panels.
- 11 Remove the QCA147 EMI back panel.
- 12 Install connector P2 of the NT8D46AY cable into connector AL1 (P0678258 Filter Connector) at the bottom rear of the QCA147 cabinet. Ensure the connection with a screwdriver.
- 13 Remove the QPF37A Alarm Adapter Plug.
- 14 Reinstall the QCA147 EMI back panel.
- 15 Reinstall the QCA147 rear panels.

- 16** Power up the QCA147 cabinet. Ninety seconds after sysload, verify the following:
- all LEDs on the QUAA3 Power Unit are on
 - the ringing generators are back on
 - the LED on the top cap of the PE Module is off

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1** The PFTU (if installed) is not activated.
- 2** All ringing generators are enabled.
- 3** All LEDs on the QUAA5 Power Unit stay on.
- 4** The LED on the top cap of the PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.
 - Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the PE Module:

- 1** Locate the blower unit inside the pedestal of the PE Module.
- 2** Set the circuit breaker on the blower unit to off. Verify that the LED on the top cap is on, and the PE 1-2 LED on the QUAA5 Power Unit is off.
- 3** Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the PE 1-2 LED is on.

To verify the installation, perform the following optional procedure on the QCA147 cabinet:

- 1** Hardware disable the QPC659 DLB card. Verify that the PE 1-2 LED on the QUAA5 Power Unit is off, and the LED on the top cap of the PE Module stays off.

Hardware enable the QPC659 DLB card and verify that the PE 1-2 LED is on.

- 2** Set the LN XFR switch on the QUAA5 Power Unit to 1. Verify the following:
 - the CPU/NWK/MSU LED is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - all ringing generators are off
- 3** Set the LN XFR switch to 0. After 90 seconds, verify the following:
 - the CPU/NWK/MSU LED is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on
- 4** Perform a data dump using LD 43.
- 5** Perform a sysload on the QCA147 cabinet. Verify the following:
 - the CPU/NWK/MSU LED is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - all ringing generators are off
- 6** Wait 90 seconds after the sysload, then verify the following:
 - the CPU/NWK/MSU LED is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on

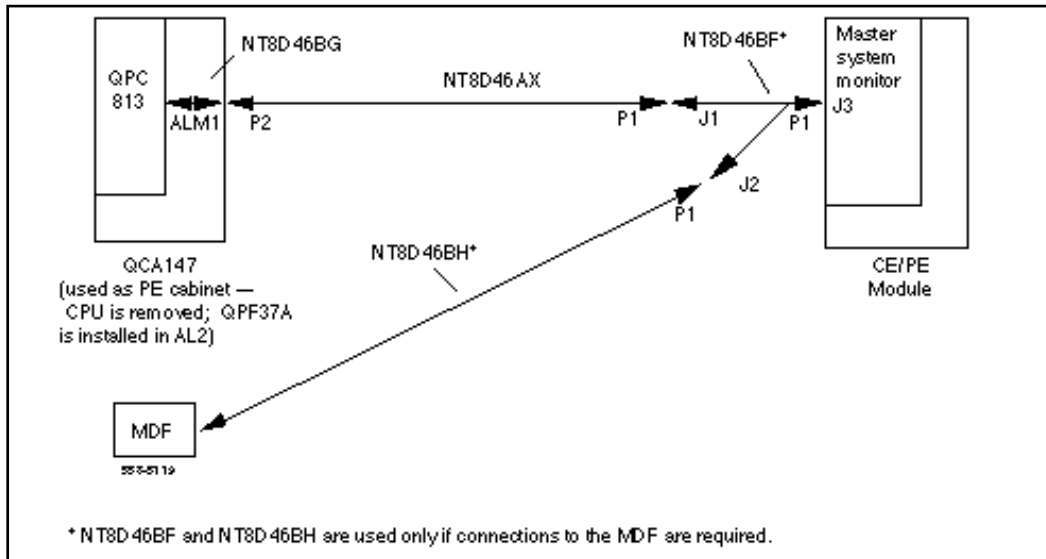
If any test fails, verify that the NT8D46AY cable and the QPF37A Alarm Adapter Plug are installed properly.

Configuration 7—RT system with QCA147 and CE/PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an RT system equipped with a QCA147 cabinet and a CE/PE Module (see Figure 13-13). The CPU is located in the module.

Figure 13-13
Connecting system monitor—Configuration 7



Procedure 13-9 Connecting system monitor—Configuration 7

Note: This procedure requires powering down the QCA147 cabinet and removing the EMI back panel from the cabinet. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46AX cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.

Note: This step is not applicable to new installations.

- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.

- 3** Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off, and the maintenance console displays the following message:

PWR0054 XSMC 00 0 0
- 4** Install connector P1 of the NT8D46AX cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 5** Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 6** Install connector P1 of the NT8D46BH cable into connector J2 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 7** Terminate the other end of the NT8D46BH cable.
- 8** Verify that the RECT/BATT, PE 1-2, CPU/NWK/MSU, and FN alarm LEDs on the QUAA5 Power Unit are on. Power down the QCA147 cabinet.
- 9** Remove the QCA147 rear panels.
- 10** Remove the QCA147 EMI back panel.
- 11** Unplug connector P2 of the existing harness from connector J2 of the QUAA5 Power Unit.
- 12** Install connector J2 of the NT8D46BG cable into connector P2 of the existing harness.
- 13** Install connector P2 of the NT8D46BG cable into connector J2 of the QUAA5 Power Unit.
- 14** Unplug connector P3 of the existing harness from connector J3 of the QUAA5 Power Unit.
- 15** Install connector J3 of the NT8D46BG cable into connector P3 of the existing harness.
- 16** Install connector P3 of the NT8D46BG cable into connector J3 of the QUAA5 Power Unit.
- 17** Unplug connector P5 of the existing harness from connector J5 of the QUAA5 Power Unit.
- 18** Install connector J5 of the NT8D46BG cable into connector P5 of the existing harness.

- 19 Install connector P5 of the NT8D46BG cable into connector J5 of the QUAA5 Power Unit.
- 20 Unplug connector P6 of the existing harness from connector J6 on the rear of the QUAA5 Power Unit.
- 21 Install connector J6 of the NT8D46BG cable into connector P6 of the existing harness.
- 22 Install connector P6 of the NT8D46BG cable into connector J6 on the rear of the QUAA5 Power Unit.
- 23 Unplug connector P8 of the existing harness from connector J8 (horizontally oriented) near the top of the QUAA5 Power Unit.
- 24 Install connector J8 of the NT8D46BG cable into connector P8 of the existing harness.
- 25 Install connector P8 of the NT8D46BG cable into connector J8 on the rear of the QUAA5 Power Unit.
- 26 Install connector ALM1 into the AL1 cutout at the bottom rear of the QCA147 cabinet using the existing P0678258 Filter Connector.
- 27 Loosen one of the ground lugs located on the ground bar on the rear of the QUAA5 Power Unit with a 7/16 inch socket driver.
- 28 Connect the GND ring lug (two white wires) to the loosened ground lug on the rear of the QUAA5 Power Unit and tighten with the socket driver.
- 29 Ensure that the QPF37A Alarm Adapter Plug is inserted into connector AL2.
- 30 Install connector P2 of the NT8D46AX cable into connector ALM1 (P0678258 Filter Connector). Ensure the connection with a screwdriver. Verify that the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 31 Reinstall the QCA147 EMI back panel.
- 32 Reinstall the QCA147 rear panels.
- 33 Power up the QCA147 cabinet. Verify that all alarm LEDs on the QUAA5 Power Unit are on, except the CPU/NWK/MSU LED which is on after approximately 90 seconds. Verify that the maintenance console displays the following message:

PWR0055 00 0 0

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1 The PFTU (if installed) is not activated.
- 2 All LEDs on the QUAA5 Power Unit stay on. If not, verify that steps 12 through 30 of the installation procedure have been completed.
- 3 The LED on the top cap of the CE/PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.
 - Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the CE/PE Module:

- 1 Locate the blower unit inside the pedestal of the CE/PE Module.
- 2 Set the circuit breaker on the blower unit to off. Verify the following:
 - the LED on the top cap is on
 - all LEDs on the QUAA5 Power Unit stay on
 - the maintenance console displays the following message:
PWR0006 FANU 00 0 0
- 3 Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the maintenance console displays the following message:
PWR0046 FANU 00 0 0
- 4 Perform a data dump using LD 43.
- 5 Perform a sysload on the CE/PE Module. Verify the following:
 - the CPU/NWK/MSU LED is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the CE/PE Module is on
 - all ringing generators are off

- 6 Wait 90 seconds after the sysload, then verify the following:
- the CPU/NWK/MSU LED is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the CE/PE Module is off
 - all ringing generators are on
 - the maintenance console displays the following messages:

PWR0056 PFTU XX X X
PWR0055 XSMC 00 0 0
PWR0000 PWSP XX X X
(for each ringing generator)

To verify the installation, perform the following optional procedure on the QCA147 cabinet:

- 1 Hardware disable the QPC659 DLB card. Verify that the PE 1-2 LEDs on the QUAA5 Power Unit and the LED on the top cap of the CE/PE Module are off. Verify that the maintenance console displays the following message:

PWR0015 XSMC 00 0 0

- 2 Hardware enable the QPC659 DLB card. Verify that the PE 1-2 LED is on and the maintenance console displays the following message:

PWR0055 XSMC 00 0 0

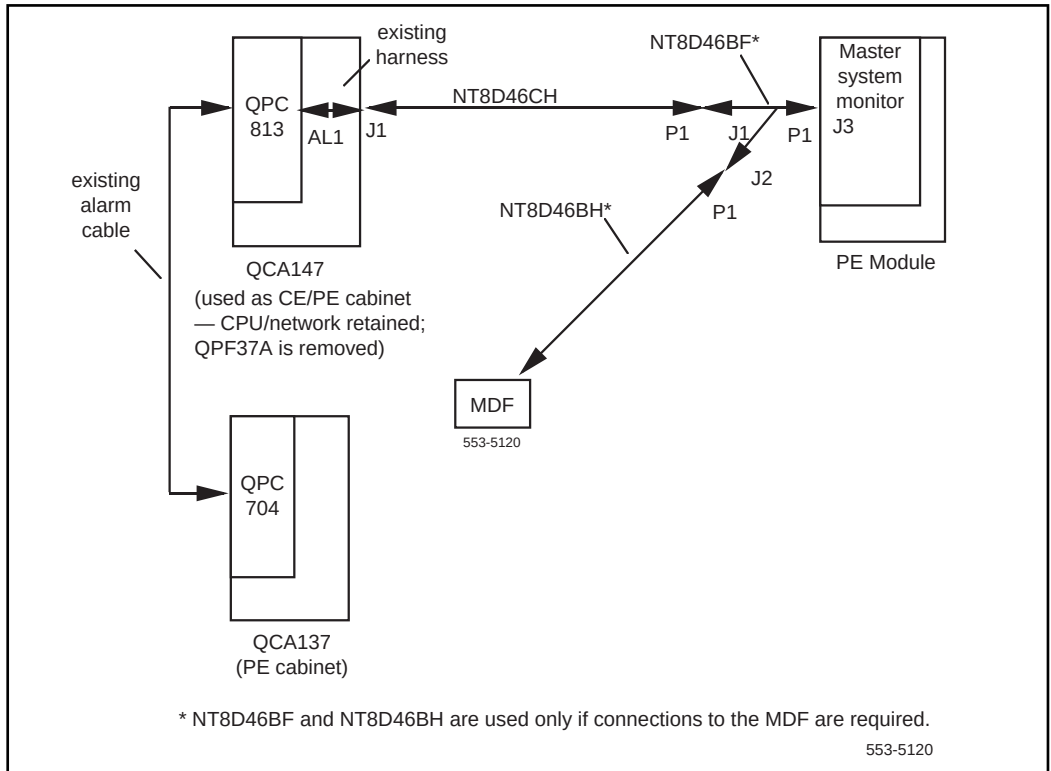
If any test fails, verify that the NT8D46BG and NT8D46AX cables are installed properly, the switch settings on the system monitor are correct for this configuration, and the QPF37A Alarm Adapter Plug is installed in AL2 of the existing harness.

Configuration 8—RT system with QCA147, QCA137, and PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an RT system equipped with a QCA147 cabinet, a QCA137 cabinet, and a PE Module (see Figure 13-14). The CPU is located in the QCA147 cabinet.

Figure 13-14
Connecting system monitor—Configuration 8



Procedure 13-10**Connecting system monitor—Configuration 8**

Note: This procedure requires powering down the QCA147 cabinet and removing the EMI back panel from the cabinet. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46CH cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.
Note: This step is not applicable to new installations.
- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off.
- 4 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46CH cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 6 Install connector J2 of the NT8D46BF cable into connector P1 of the NT8D46BH cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Reinstall the pedestal back panel.
- 9 Verify that the RECT/BATT, PE 1-2, CPU/NWK/MSU, and FN alarm LEDs on the QUAA5 Power Unit are on. Power down the QCA147 cabinet.
- 10 Remove the QCA147 rear panels.
- 11 Verify that the existing alarm cable (NE25MQ1A) between the QCA147 and QCA137 cabinets is installed.
- 12 Remove the QCA147 EMI back panel. Verify that the QCAD310 cable is installed between the ground bars of the QCA147 and QCA137 cabinets.
- 13 Remove the QPF37A Alarm Adapter Plug from the QCA147 cabinet.

- 14** Install connector J1 of the NT8D46CH cable into connector AL1 (P0678258 Filter Connector) at the bottom rear of the QCA147 cabinet. Ensure the connection with a screwdriver.
- 15** Reinstall the QCA147 EMI back panel.
- 16** Reinstall the QCA147 rear panels.
- 17** Power up the QCA147 cabinet. Ninety seconds after sysload, verify the following:
 - all LEDs on the QUAA3 and QUAA5 Power Units are on
 - the ringing generators are back on
 - the LED on the top cap of the PE Module is off

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1** The PFTU (if installed) is not activated.
- 2** All ringing generators are enabled.
- 3** All LEDs on the QUAA3 and QUAA5 Power Units stay on. If not, verify that steps 11 and 13 of the installation procedure have been completed.
- 4** The LED on the top cap of the PE Module is off. If not, unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.

To verify the installation, perform the following optional procedure on the PE Module:

- 1** Locate the blower unit inside the pedestal of the PE Module.
- 2** Set the circuit breaker on the blower unit to off. Verify that the LED on the top cap is on and the PE 1-2 LED on the QUAA5 Power Unit is off.
- 3** Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the PE 1-2 LED is on.

To verify the installation, perform the following optional procedure on the QCA147 cabinet:

- 1** Hardware disable the QPC659 DLB card. Verify that the PE 1-2 LED on the QUAA5 Power Unit is off and the LED on the top cap of the PE Module stays off.

Hardware enable the QPC659 DLB card, and verify that the PE 1-2 LED is on.
- 2** Set the LN XFR switch on the QUAA5 Power Unit to 1. Verify the following:
 - the CPU/NWK/MSU LED on the QUAA5 Power Unit of the QCA147 cabinet is off
 - the CE/PE 1 LED on the QUAA3 Power Unit of the QCA137 cabinet is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - all ringing generators are off
- 3** Set the LN XFR switch to 0. After 90 seconds, verify the following:
 - the CPU/NWK/MSU LED on the QUAA5 Power Unit of the QCA147 cabinet is on
 - the CE/PE 1 LED on the QUAA3 Power Unit of the QCA137 cabinet is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on
- 4** Perform a data dump using LD 43.
- 5** Perform a sysload on the QCA147 cabinet. Verify the following:
 - the CPU/NWK/MSU LED on the QUAA5 Power Unit of the QCA147 cabinet is off
 - the CE/PE 1 LED on the QUAA3 Power Unit of the QCA137 cabinet is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - all ringing generators are off

- 6** Wait 90 seconds after the sysload, then verify the following:
- the CPU/NWK/MSU LED on the QUAA5 Power Unit of the QCA147 cabinet is on
 - the CE/PE 1 LED on the QUAA3 Power Unit of the QCA137 cabinet is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on

To verify the installation, perform the following optional procedure on the QCA137 cabinet:

- 1** Hardware disable the QPC659 DLB card and verify the following:
- the PE 2-5 LED on the QUAA3 Power Unit of the QCA137 cabinet is off
 - the PE 1-2 LED on the QUAA5 Power Unit of the QCA147 cabinet is off
 - the LED on the top cap of the PE Module stays off
- Hardware enable the QPC659 DLB card and verify that the PE 1-2 and PE 2-5 LEDs are on.
- 2** Set the LN XFR switch on the QUAA3 Power Unit to 1. Verify the following:
- the PE 1-2 LED on the QUAA5 Power Unit of the QCA147 cabinet is off
 - the CE/PE 1 LED on the QUAA3 Power Unit of the QCA137 cabinet is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - all ringing generators are off

- 3** Set the LN XFR switch to 0. After 90 seconds, verify the following:
- the PE 1-2 LED on the QUAA5 Power Unit of the QCA147 cabinet is on
 - the CE/PE 1 LED on the QUAA3 Power Unit of the QCA137 cabinet is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on

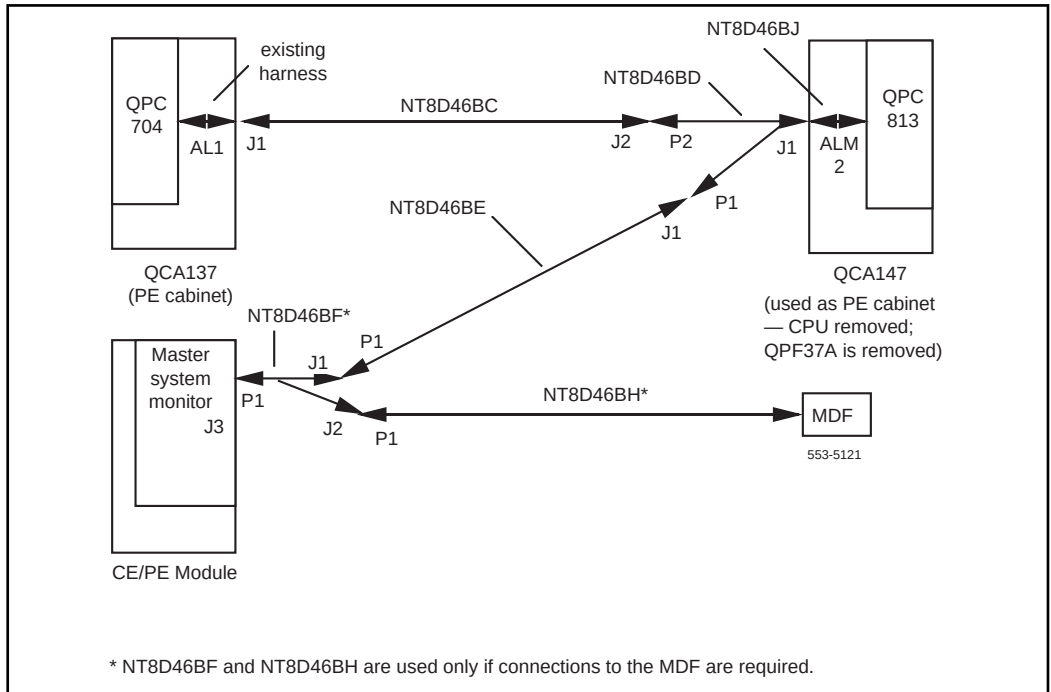
If any test fails, verify that the NT8D46CH cable is installed properly, and the switch settings on the system monitor are correct for this configuration. Verify the N5-25MQ1A cable installation on the QCA137 cabinet.

Configuration 9—RT system with QCA147, QCA137, and CE/PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an RT system equipped with a QCA147 cabinet, a QCA137 cabinet, and a CE/PE Module (see Figure 13-15). The CPU is located in the module.

Figure 13-15
Connecting system monitor—Configuration 9



Procedure 13-11**Connecting system monitor—Configuration 9**

Note: This procedure requires powering down the QCA137 and QCA147 cabinets and removing the EMI back panels from both cabinets. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46BE cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.

Note: This step is not applicable to new installations.

- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off, and the maintenance console displays the following message:

PWR0054 XSMC 00 0 0

- 4 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46BE cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 6 Install connector J2 of the NT8D46BF cable into connector P1 of the NT8D46BH cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Reinstall the pedestal back panel.
- 9 Verify that the RECT/BATT, PE 1-2, CPU/NWK/MSU, and FN alarm LEDs on the QUAA5 Power Unit are on. Power down the QCA147 cabinet.
- 10 Remove the QCA147 rear panels.
- 11 Remove the QCA147 EMI back panel.
- 12 Remove the QPF37A Alarm Adapter Plug. Verify that the QCAD310 cable is installed between the ground bars of the QCA137 and QCA147 cabinets.

- 13** Unplug connector P2 of the existing harness from connector J2 on the rear of the QUAA5 Power Unit.
- 14** Install connector P2 of the NT8D46BJ cable into connector J2 on the rear of the QUAA5 Power Unit.
- 15** Install connector J2 of the NT8D46BJ cable into connector P2 of the existing harness.
- 16** Unplug connector P3 of the existing harness from connector J3 on the rear of the QUAA5 Power Unit.
- 17** Install connector P3 of the NT8D46BJ cable into connector J3 on the rear of the QUAA5 Power Unit.
- 18** Install connector J3 of the NT8D46BJ cable into connector P3 of the existing harness.
- 19** Unplug connector P5 of the existing harness from connector J5 on the rear of the QUAA5 Power Unit.
- 20** Install connector P5 of the NT8D46BJ cable into connector J5 on the rear of the QUAA5 Power Unit.
- 21** Install connector J5 of the NT8D46BJ cable into connector P5 of the existing harness.
- 22** Unplug connector P6 of the existing harness from connector J6 on the QUAA5 Power Unit.
- 23** Install connector P6 of the NT8D46BJ cable into connector J6 on the QUAA5 Power Unit.
- 24** Install connector J6 of the NT8D46BJ cable into connector P6 of the existing harness.
- 25** Unplug connector P8 from the existing harness on the rear of the QUAA5 Power Unit.
- 26** Install connector P8 of the NT8D46BJ cable into connector J8 (horizontally oriented) near the top of the QUAA5 Power Unit.
- 27** Install connector J8 of the NT8D46BJ cable into connector P8 of the existing harness.
- 28** Loosen one of the ground lugs located on the ground bar on the rear of the QUAA5 Power Unit with a 7/16 inch socket driver.
- 29** Insert the GND ring lug (three wires) into the ground lug and tighten with the socket driver.

- 30 Install connector ALM1 into one of the horizontal cutouts using the existing P0678258 Filter Connector.
- 31 Install connector J1 of the NT8D46BD cable into connector ALM1 (P0678258 Filter Connector) of the NT8D46BJ cable. Ensure the connection with a screwdriver.
- 32 Install connector ALM2 of the NT8D46BJ cable into connector AL1 of the existing harness.
- 33 Install connector J1 of the NT8D46BE cable into connector P1 of the NT8D46BD cable. Ensure the connection with a screwdriver. Verify that the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 34 Install connector J2 of the NT8D46BC cable into connector P2 of the NT8D46BD cable. Ensure the connection with a screwdriver.
- 35 Reinstall the QCA147 EMI back panel.
- 36 Reinstall the QCA147 rear panels.
- 37 Remove the QCA137 rear panels.
- 38 Remove the QCA137 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit.
- 39 Install connector J1 of the NT8D46BC cable into connector AL1 (P0678258 Filter Connector) in the QCA137 cabinet. Ensure the connection with a screwdriver.
- 40 Reinstall the QCA137 EMI back panel.
- 41 Reinstall the QCA137 rear panels.
- 42 Power up the QCA147 cabinet. Verify that all alarm LEDs on the QUAA5 Power Unit are on, except the CPU/NWK/MSU LED, which is on after approximately 90 seconds.
- 43 Power up the QCA137 cabinet. Verify that all alarm LEDs on the QUAA3 Power Unit are on, except the CE/PE 1 LED, which is on after approximately 90 seconds. Verify that the maintenance console displays the following message:

PWR0055 00 0 0

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1 The PFTU (if installed) is not activated.
- 2 All LEDs on the QUAA3 and QUAA5 Power Units stay on. If not, verify that steps 12 through 33 of the installation procedure have been completed.
- 3 The LED on the top cap of the CE/PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.
 - Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the CE/PE Module:

- 1 Locate the blower unit inside the pedestal of the CE/PE Module.
- 2 Set the circuit breaker on the blower unit to off. Verify the following:
 - the LED on the top cap is on
 - all LEDs on the QUAA3 and QUAA5 Power Units stay on
 - the maintenance console displays the following message:
PWR0006 FANU 00 0 0
- 3 Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the maintenance console displays the following message:
PWR0046 FANU 00 0 0
- 4 Perform a data dump using LD 43.

- 5 Perform a sysload on the CE/PE Module. Verify the following:
 - the CPU/NWK/MSU LED on the QUAA5 Power Unit is off
 - the CE/PE 1 LED on the QUAA3 Power Unit is off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the CE/PE Module is on
 - all ringing generators are off
- 6 Wait 90 seconds after the sysload, then verify the following:
 - the CPU/NWK/MSU LED is on
 - the CE/PE 1 LED is on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the CE/PE Module is off
 - all ringing generators are on
 - the maintenance console displays the following messages:

PWR0056 PFTU XX X X
PWR0055 XSMC 00 0 0
PWR0000 PWSP XX X X
(for each ringing generator)

To verify the installation, perform the following optional procedure on the QCA147 cabinet:

- 1 Hardware disable the QPC659 DLB card and verify the following:
 - the PE 1-2 LED on the QUAA5 Power Unit is off
 - the PE 2-5 LED on the QUAA3 Power Unit stays on
 - the LED on the top cap of the CE/PE Module stays off
 - the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 2 Hardware enable the QPC659 DLB card. Verify that the PE 1-2 LED is on and the maintenance console displays the following message:
PWR0055 XSMC 00 0 0

To verify the installation, perform the following optional procedure on the QCA137 cabinet:

1 Hardware disable the QPC659 DLB card and verify the following:

- the PE 2-5 LED on the QUAA3 Power Unit is off
- all LEDs on the QUAA5 Power Unit stay on,
- the LED on the top cap of the CE/PE Module stays off
- the maintenance console displays the following message:

PWR0015 XSMC 00 0 0

2 Hardware enable the QPC659 DLB card. Verify that all LEDs on the QUAA5 and QUAA3 Power Units are on and the maintenance console displays the following message:

PWR0055 XSMC 00 0 0

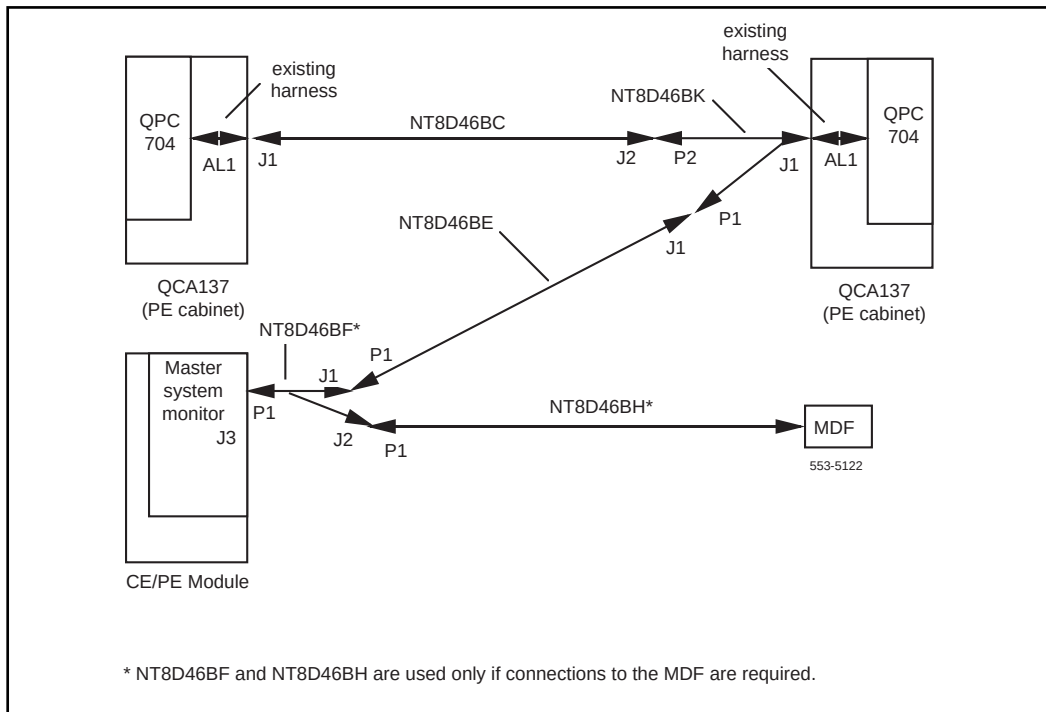
If any test fails, verify that all cables are installed properly and the switch settings on the system monitor are correct for this configuration. Verify the QCAD310 cable installation on the QCA137 cabinet.

Configuration 10—RT system with two QCA137s and CE/PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an RT system equipped with two QCA137 cabinets and a CE/PE Module (see Figure 13-16). The CPU is located in the module.

Figure 13-16
Connecting system monitor—Configuration 10



Procedure 13-12**Connecting system monitor—Configuration 10**

Note: This procedure requires powering down the QCA137 cabinets and removing the EMI back panels from both cabinets. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46BE cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1** Remove the existing system monitor in the module.
Note: This step is not applicable to new installations.
- 2** Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3** Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off, and the maintenance console displays the following message:

PWR0054 XSMC 00 0 0
- 4** Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 5** Install connector P1 of the NT8D46BE cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 6** Install connector J2 of the NT8D46BF cable into connector P1 of the NT8D46BH cable. Ensure the connection with a screwdriver.
- 7** Terminate the other end of the NT8D46BH cable.
- 8** Reinstall the pedestal back panel.
- 9** Verify that the RECT/BATT, PE 2-5, and FN alarm LEDs on the QUAA3 Power Unit are on. Power down either QCA137 cabinet, which is hereafter referred to as the first QCA137 cabinet.
- 10** Remove the first QCA137 rear panels.
- 11** Remove the first QCA137 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit, and the QCAD310 cable is installed between the two QCA137 cabinets.

- 12 Install connector J1 of the NT8D46BK cable into connector AL1 (P0678258 Filter Connector) of the first QCA137 cabinet. Ensure the connection with a screwdriver.
- 13 Install connector J1 of the NT8D46BE cable into connector P1 of the NT8D46BK cable. Ensure the connection with a screwdriver. Verify that the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 14 Install connector J2 of the NT8D46BC cable into connector P2 of the NT8D46BK cable. Ensure the connection with a screwdriver.
- 15 Reinstall the first QCA137 EMI back panel.
- 16 Reinstall the first QCA137 rear panels.
- 17 Verify that the RECT/BATT, PE 2-5, and FN alarm LEDs on the QUAA3 Power Unit are on. Power down the second QCA137 cabinet.
- 18 Remove the second QCA137 rear panels.
- 19 Remove the second QCA137 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit.
- 20 Install connector J1 of the NT8D46BC cable into connector AL1 (P0678258 Filter Connector) of the second QCA137 cabinet. Ensure the connection with a screwdriver.
- 21 Reinstall the second QCA137 EMI back panel.
- 22 Reinstall the second QCA137 rear panels.
- 23 Power up both QCA137 cabinets. Verify that all alarm LEDs on the QUAA3 Power Units are on, except the CE/PE 1 LEDs, which are on after approximately 90 seconds. Verify that the maintenance console displays the following message:
PWR0055 00 0 0

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1 The PFTU (if installed) is not activated.
- 2 All LEDs on the QUAA3 Power Unit stay on. If not, verify all cable connections.
- 3 The LED on the top cap of the CE/PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.
 - Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the CE/PE Module:

- 1 Locate the blower unit inside the pedestal of the CE/PE Module.
- 2 Set the circuit breaker on the blower unit to off. Verify that the LED on the top cap is on and all LEDs on the QUAA3 Power Unit stay on. Verify that the maintenance console displays the following message:

PWR0006 FANU 00 0 0

- 3 Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the maintenance console displays the following message:

PWR0046 FANU 00 0 0

- 4 Perform a data dump using LD 43.
- 5 Perform a sysload on the CE/PE Module. Verify the following:
 - the CE/PE 1 LEDs on the QUAA3 Power Units are off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the CE/PE Module is on
 - all ringing generators are off

- 6 Wait 90 seconds after the sysload, then verify the following:
- the CE/PE 1 LEDs are on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the CE/PE Module is off
 - all ringing generators are on
 - the maintenance console displays the following messages:
PWR0056 PFTU XX X X
PWR0055 XSMC 00 0 0
PWR0000 PWSP XX X X
(for each ringing generator)

To verify the installation, perform the following optional procedure on each QCA137 cabinet:

- 1 Hardware disable the QPC659 DLB card and verify the following:
- the PE 2-5 LED on the QUAA3 Power Unit of the QCA137 cabinet under test is off
 - the PE 2-5 LED on the QUAA3 Power Unit of the QCA137 cabinet not under test is on
 - the LED on the top cap of the CE/PE Module is off
 - the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 2 Hardware enable the QPC659 DLB card and verify that the PE 2-5 LED on the QUAA3 Power Unit of the QCA137 cabinet under test is on and the maintenance console displays the following message:
PWR0055 XSMC 00 0 0

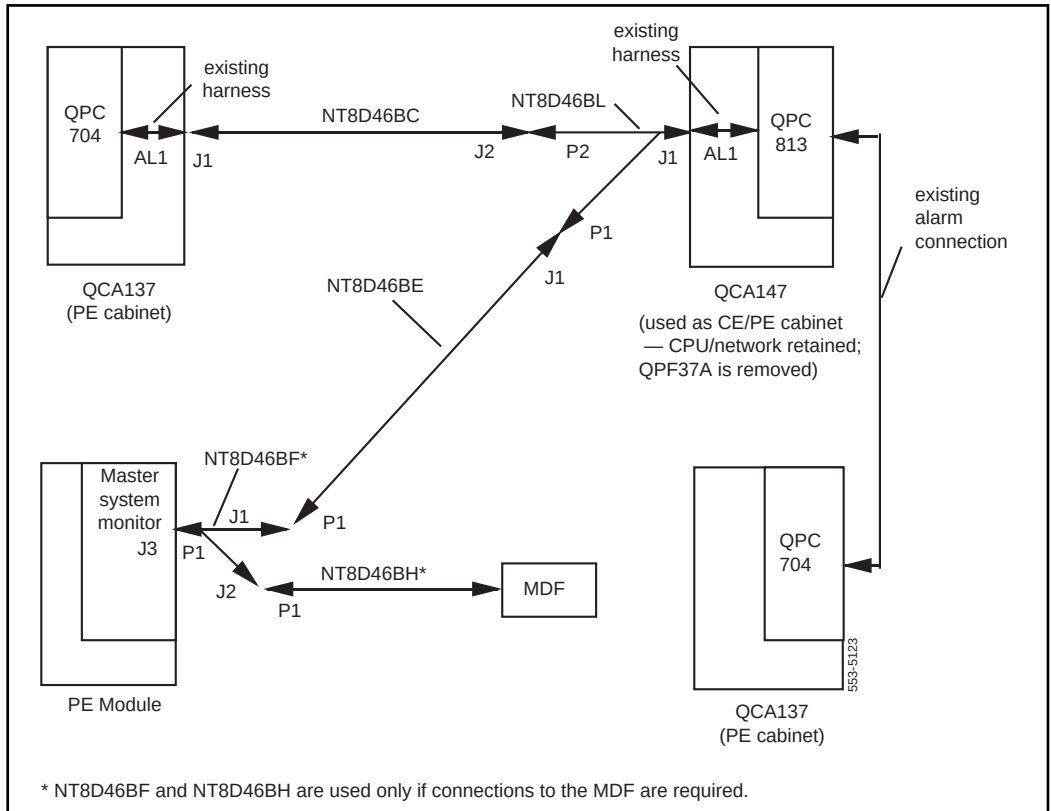
If any test fails, verify that all cables are installed properly, and the switch settings on the system monitor are correct for this configuration. Also verify the QCAD310 cable connections.

Configuration 11—RT system with QCA147, two QCA137s, and PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an RT system equipped with a QCA147 cabinet, two QCA137 cabinets, and a PE Module (see Figure 13-17). The CPU is located in the QCA147 cabinet.

Figure 13-17
Connecting system monitor—Configuration 11



Procedure 13-13

Connecting system monitor—Configuration 11

Note: This procedure requires powering down one QCA137 and the QCA147 cabinets and removing the EMI back panels from both cabinets. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46BE cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.
Note: This step is not applicable to new installations.
- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off.
- 4 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46BE cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 6 Install connector J2 of the NT8D46BF cable into connector P1 of the NT8D46BH cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Reinstall the pedestal back panel.
- 9 Verify that the RECT/BATT, PE 1-2, CPU/NWK/MSU, and FN alarm LEDs on the QUAA5 Power Unit are on. Power down the QCA147 cabinet.
- 10 Remove the QCA147 rear panels.
- 11 Remove the QCA147 EMI back panel.
- 12 Remove the QPF37A Alarm Adapter Plug in the QCA147 cabinet.
- 13 Verify that the alarm cable (NE25MQ1A) is installed between the QCA147 and the first QCA137 cabinets.

- 14** Install connector J1 of the NT8D46BL cable into connector AL1 (P0678258 Filter Connector) of the QCA147 cabinet. Ensure the connection with a screwdriver.
- 15** Install connector J1 of the NT8D46BE cable into connector P1 of the NT8D46BL cable. Ensure the connection with a screwdriver.
- 16** Install connector J2 of the NT8D46BC cable into connector P2 of the NT8D46BL cable. Ensure the connection with a screwdriver.
- 17** Reinstall the QCA147 EMI back panel.
- 18** Reinstall the QCA147 rear panels.
- 19** Verify that the RECT/BATT, PE 1-2, and FN alarm LEDs on the QUAA3 Power Unit are on. Power down the second QCA137 cabinet.
- 20** Remove the second QCA137 rear panels. Verify that the QCAD310 cable is installed between the ground bars of the two QCA137 cabinets.
- 21** Remove the second QCA137 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit.
- 22** Install connector J1 of the NT8D46BC cable into connector AL1 (P0678258 Filter Connector) of the second QCA137 cabinet. Ensure the connection with a screwdriver.
- 23** Reinstall the second QCA137 EMI back panel.
- 24** Reinstall the second QCA137 rear panel.
- 25** Power up the QCA147 and QCA137 cabinets. Ninety seconds after sysload, verify the following:
 - all LEDs on the QUAA3 and QUAA5 Power Units are on
 - the ringing generators are back on
 - the LED on the top cap of the PE Module is off

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1 The PFTU (if installed) is not activated.
- 2 All ringing generators are enabled.
- 3 All LEDs on the QUAA3 and QUAA5 Power Units stay on. If not, verify that steps 12 through 16 and 22 of the installation procedure have been completed.
- 4 The LED on the top cap of the PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.
 - Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the PE Module:

- 1 Locate the blower unit inside the pedestal of the PE Module.
- 2 Set the circuit breaker on the blower unit to off. Verify the following:
 - the LED on the top cap is on
 - the PE 1-2 LED on the QUAA5 Power Unit of the QCA147 cabinet is off
 - all LEDs on the two QUAA3 Power Units of the QCA137 cabinets stay on
- 3 Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the PE 1-2 LED on the QUAA5 Power Unit is on.

To verify the installation, perform the following optional procedure on the QCA147 cabinet:

- 1** Hardware disable the QPC659 DLB card and verify the following:
 - the PE 1-2 LED on the QUAA5 Power Unit is off
 - the CE/PE 1 LEDs on both QUAA3 Power Units are off
 - the LED on the top cap of the PE Module stays off.

Hardware enable the QPC659 DLB card and verify that the PE 1-2 LED and the CE/PE 1 LEDs are on.
- 2** Set the LN XFR switch on the QUAA5 Power Unit to 1. Verify the following:
 - the CPU/NWK/MSU LED on the QUAA5 Power Unit is off
 - the CE/PE 1 LEDs on both QUAA3 Power Units are off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - all ringing generators are off
- 3** Set the LN XFR switch to 0. After 90 seconds, verify the following:
 - the CPU/NWK/MSU LED is on
 - the CE/PE 1 LEDs are on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on
- 4** Perform a data dump using LD 43.
- 5** Perform a sysload on the QCA147 cabinet. Verify the following:
 - the CPU/NWK/MSU LED on the QUAA5 Power Unit is off
 - the CE/PE 1 LEDs on both QUAA3 Power Units are off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the PE Module is on
 - all ringing generators are off

- 6** Wait 90 seconds after the sysload, then verify the following:
 - the CPU/NWK/MSU LED is on
 - the CE/PE 1 LEDs are on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the PE Module is off
 - all ringing generators are on

To verify the installation, perform the following optional procedure on each QCA137 cabinet:

- 1** Hardware disable the QPC659 DLB card and verify the following:
 - the PE 2-5 LED on the QUAA3 Power Unit of the QCA137 cabinet under test is off
 - the PE 2-5 LED on the QUAA3 Power Unit of the QCA137 cabinet not under test is on
 - the LED on the top cap of the PE Module is off
- 2** Hardware enable the QPC659 DLB card. Verify that the PE 2-5 LED on the QUAA3 Power Unit and the PE 1-2 LED on the QUAA5 Power Unit are on.

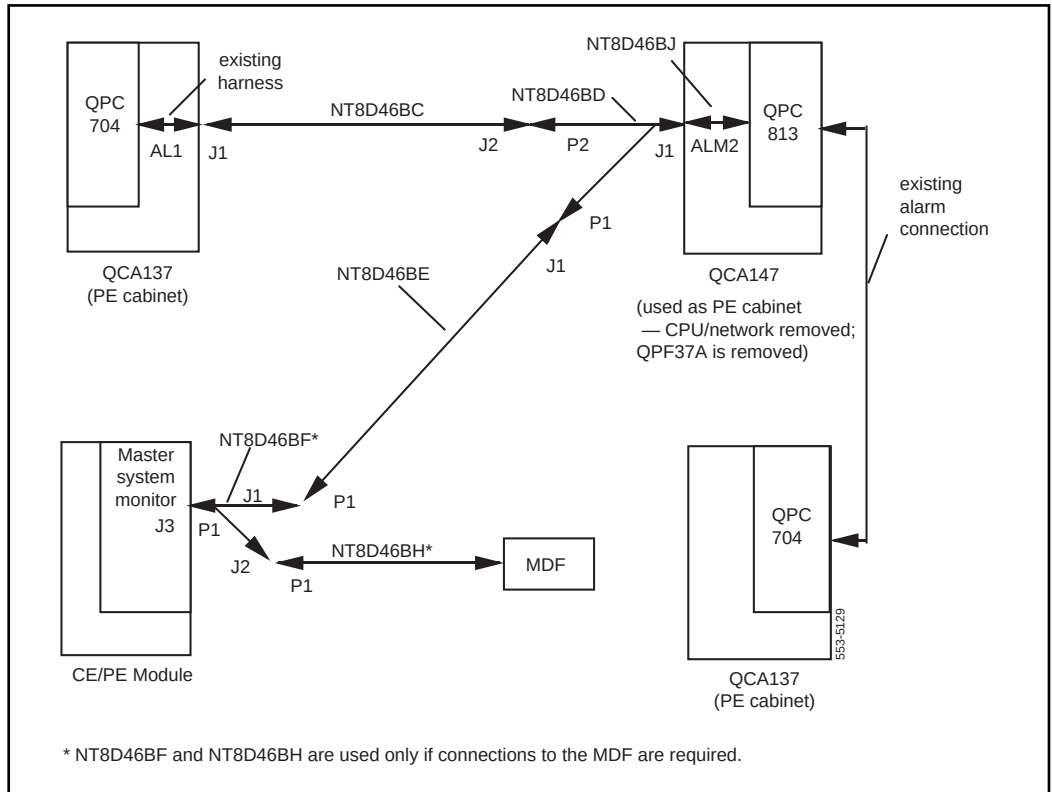
If any test fails, verify that all cables are installed properly and the switch settings on the system monitor are correct for this configuration. Verify the NE-25MQ1A and QCAD310 cable installation for the QCA137 cabinets.

Configuration 12—RT system with QCA147, two QCA137s, and CE/PE Module

Hardware installation procedure

The following procedure describes how to connect the system monitor in an RT system equipped with a QCA147 cabinet, two QCA137 cabinets, and a CE/PE Module (see Figure 13-18). The CPU is located in the module.

Figure 13-18
Connecting system monitor—Configuration 12



Procedure 13-14**Connecting system monitor—Configuration 12**

Note: This procedure requires powering down one QCA137 and the QCA147 cabinets and removing the EMI back panels from both cabinets. If alarm monitor connections to the MDF are not required, skip steps 4 through 7 and directly install connector P1 of the NT8D46BE cable into connector J3 of the system monitor, ensuring the connections with a screwdriver.

- 1 Remove the existing system monitor in the module.

Note: This step is not applicable to new installations.

- 2 Before installing the NT8D22AC System Monitor, set switch SW2-2 to ON. Verify the other switch settings using Table 13-1.
- 3 Install the system monitor in the pedestal. Ensure the installation with a screwdriver. Verify that the top cap LED flashes three times then stays off, and the maintenance console displays the following message:

PWR0054 XSMC 00 0 0

- 4 Install connector P1 of the NT8D46BF cable into connector J3 of the system monitor. Ensure the connection with a screwdriver.
- 5 Install connector P1 of the NT8D46BE cable into connector J1 of the NT8D46BF cable. Ensure the connection with a screwdriver.
- 6 Install connector J2 of the NT8D46BF cable into connector P1 of the NT8D46BH cable. Ensure the connection with a screwdriver.
- 7 Terminate the other end of the NT8D46BH cable.
- 8 Reinstall the pedestal back panel.
- 9 Verify that the RECT/BATT, PE 1-2, CCPU/NWK/MSU, and FN alarm LEDs on the QUAA5 Power Unit are on. Power down the QCA147 cabinet.
- 10 Remove the QCA147 rear panels.
- 11 Remove the QCA147 EMI back panel. Verify that the QCAD310 cable is installed between the ground bars of the QCA147 and QCA137 cabinets.
- 12 Remove the QPF37A Alarm Adapter Plug.

- 13** Verify that the alarm cable is installed between the QCA147 cabinet and the first QCA137 cabinet. The alarm cable is connected to AL2 in the QCA147 cabinet and AL1 in the QCA137 cabinet.
- 14** Unplug connector P2 of the existing harness from connector J2 on the rear of the QUAA5 Power Unit.
- 15** Install connector P2 of the NT8D46BJ cable into connector J2 on the rear of the QUAA5 Power Unit.
- 16** Install connector J2 of the NT8D46BJ cable into connector P2 of the existing harness.
- 17** Unplug connector P3 of the existing harness from connector J3 on the rear of the QUAA5 Power Unit.
- 18** Install connector P3 of the NT8D46BJ cable into connector J3 on the rear of the QUAA5 Power Unit.
- 19** Install connector J3 of the NT8D46BJ cable into connector P3 of the existing harness.
- 20** Unplug connector P5 of the existing harness from connector J5 on the rear of the QUAA5 Power Unit.
- 21** Install connector P5 of the NT8D46BJ cable into connector J5 on the rear of the QUAA5 Power Unit.
- 22** Install connector J5 of the NT8D46BJ cable into connector P5 of the existing harness.
- 23** Unplug connector P6 of the existing harness from connector J6 on the QUAA5 Power Unit.
- 24** Install connector P6 of the NT8D46BJ cable into connector J6 on the rear of the QUAA5 Power Unit.
- 25** Install connector J6 of the NT8D46BJ cable into connector P6 of the existing harness.
- 26** Unplug connector P8 of the existing harness from connector J8 (horizontally oriented) near the top of the QUAA5 Power Unit.
- 27** Install connector P8 of the NT8D46BJ cable into connector J8 on the rear of the QUAA5 Power Unit.
- 28** Install connector J8 of the NT8D46BJ cable into connector P8 of the existing harness.
- 29** Loosen one of the ground lugs located on the ground bar on the rear of the QUAA5 Power Unit with a 7/16 inch socket driver.

- 30 Insert the GND ring lug (three wires) into the ground lug and tighten with the socket driver.
- 31 Install connector ALM2 of the NT8D46BJ cable into connector AL1 of the existing harness.
- 32 Install connector ALM1 of the NT8D46BJ cable into the P0678258 Filter Connector.
- 33 Install connector J1 of the NT8D46BD cable into connector ALM1 (P0678258 Filter Connector) of the NT8D46BJ cable. Ensure the connection with a screwdriver.
- 34 Install connector J1 of the NT8D46BE cable into connector P1 of the NT8D46BD cable. Ensure the connection with a screwdriver. Verify that the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 35 Install connector J2 of the NT8D46BC cable into connector P2 of the NT8D46BD cable. Ensure the connection with a screwdriver.
- 36 Reinstall the QCA147 EMI back panel.
- 37 Reinstall the QCA147 rear panels.
- 38 Remove the second QCA137 rear panels. Verify that the QCAD310 cable is installed between the ground bars of the QCA147 and QCA137 cabinets.
- 39 Remove the second QCA137 EMI back panel. Verify that the GND1 and GND2 cables are tied together on the ground bar at the back of the QUAA3 Power Unit.
- 40 Install connector J1 of the NT8D46BC cable into connector AL1 (P0678258 Filter Connector) in the second QCA137 cabinet. Ensure the connection with a screwdriver.
- 41 Reinstall the second QCA137 EMI back panel.
- 42 Reinstall the second QCA137 rear panels.
- 43 Power up the QCA147 cabinet. Verify that all alarm LEDs on the QUAA5 Power Unit are on, except the CPU/NWK/MSU LED, which is on after approximately 90 seconds.

- 44** Power up the QCA137 cabinets. Verify that all alarm LEDs on the QUAA3 Power Units are on, except the CE/PE 1 LEDs, which are on after approximately 90 seconds. Verify that the maintenance console displays the following message:

PWR0055 00 0 0

Fault clearing

After powering up the system and sysloading is complete, wait 90 seconds then verify the following:

- 1** The PFTU (if installed) is not activated.
- 2** All LEDs on the QUAA3 and QUAA5 Power Units stay on. If not, verify that steps 11 through 34 and 39 of the installation procedure have been completed.
- 3** The LED on the top cap of the CE/PE Module is off. If not, perform one of the following:
 - Unseat the system monitor, verify the switch settings (Table 13-1), and reinstall it into the pedestal.
 - Use LD 37, Input/Output Diagnostic, and issue the command "STAT XSM" to identify the fault. See *X11 input/output guide* (553-3001-400).

To verify the installation, perform the following optional procedure on the CE/PE Module:

- 1** Locate the blower unit inside the pedestal of the CE/PE Module.
- 2** Set the circuit breaker on the blower unit to off and verify the following:
 - the LED on the top cap is on
 - all LEDs on the QUAA3 and QUAA5 Power Units stay on
 - the maintenance console displays the following message:

PWR0006 FANU 00 0 0

- 3** Set the circuit breaker on the blower unit back on. Verify that the LED on the top cap is off and the maintenance console displays the following message:

PWR0046 FANU 00 0 0

- 4** Perform a data dump using LD 43.

- 5 Perform a sysload on the CE/PE Module. Verify the following:
 - the CPU/NWK/MSU LED on the QUAA5 Power Unit is off
 - the CE/PE 1 LEDs on the QUAA3 Power Units are off
 - the PFTU (if installed) is activated
 - the LED on the top cap of the CE/PE Module is on
 - all ringing generators are off
- 6 Wait 90 seconds after the sysload, then verify the following:
 - the CPU/NWK/MSU LED is on
 - the CE/PE 1 LEDs are on
 - the PFTU (if installed) is deactivated
 - the LED on the top cap of the CE/PE Module is off
 - all ringing generators are on
 - the maintenance console displays the following messages:
PWR0056 PFTU XX X X
PWR0055 XSMC 00 0 0
PWR0000 PWSP XX X X
(for each ringing generator)

To verify the installation, perform the following optional procedure on the QCA147 cabinet:

- 1 Hardware disable the QPC659 DLB card and verify the following:
 - the PE 1-2 LED on the QUAA5 Power Unit is off
 - the PE 2-5 LEDs on the QUAA3 Power Units stay on
 - the LED on the top cap of the CE/PE Module stays off
 - the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 2 Hardware enable the QPC659 DLB card. Verify that the PE 1-2 LED is on and the maintenance console displays the following message:
PWR0055 XSMC 00 0 0

To verify the installation, perform the following optional procedure on each QCA137 cabinet:

- 1** Hardware disable the QPC659 DLB card and verify the following:
 - the PE 2-5 LED on the QUAA3 Power Unit is off
 - all LEDs on the QUAA5 Power Unit stay on
 - the LED on the top cap of the CE/PE Module stays off
 - the maintenance console displays the following message:
PWR0015 XSMC 00 0 0
- 2** Hardware enable the QPC659 DLB card. Verify that all LEDs on the QUAA5 and QUAA3 Power Units are on and the maintenance console displays the following message:

PWR0055 XSMC 00 0 0

If any test fails, verify that all cables are installed properly and the switch settings on the system monitor are correct for this configuration. Verify the NE-25MQ1A and QCAD310 cable installation on the QCA137 cabinets.

Ground package installation

This chapter describes how to install Ground Packages P0677580, P0677587, and P0677588.

Installing Ground Package P0677580

The installation procedure is simple to follow and can be accomplished within one hour. For those systems already in service, call processing can continue without disruption during the installation procedure. It is recommended that this procedure be accomplished before the cutover of the upgraded system.

If additional assistance is required to complete the installation procedure, please contact your customer service representative.

To modify those systems that are affected, Northern Telecom has prepared the following field installation package. This package contains all the necessary materials and installation instructions required for field installation.

Note: For those systems that are already in service, it is necessary to have available approximately 25 feet of #6 AWG wire to jumper the system ground during the installation procedure. This wire is not provided in the installation package and must be purchased before modifying the ground.

The following are step-by-step instructions required to modify the ground on systems that do not have a ground mini-bus bar but have conduit for the ground wire.

To install Ground Package P0677580:

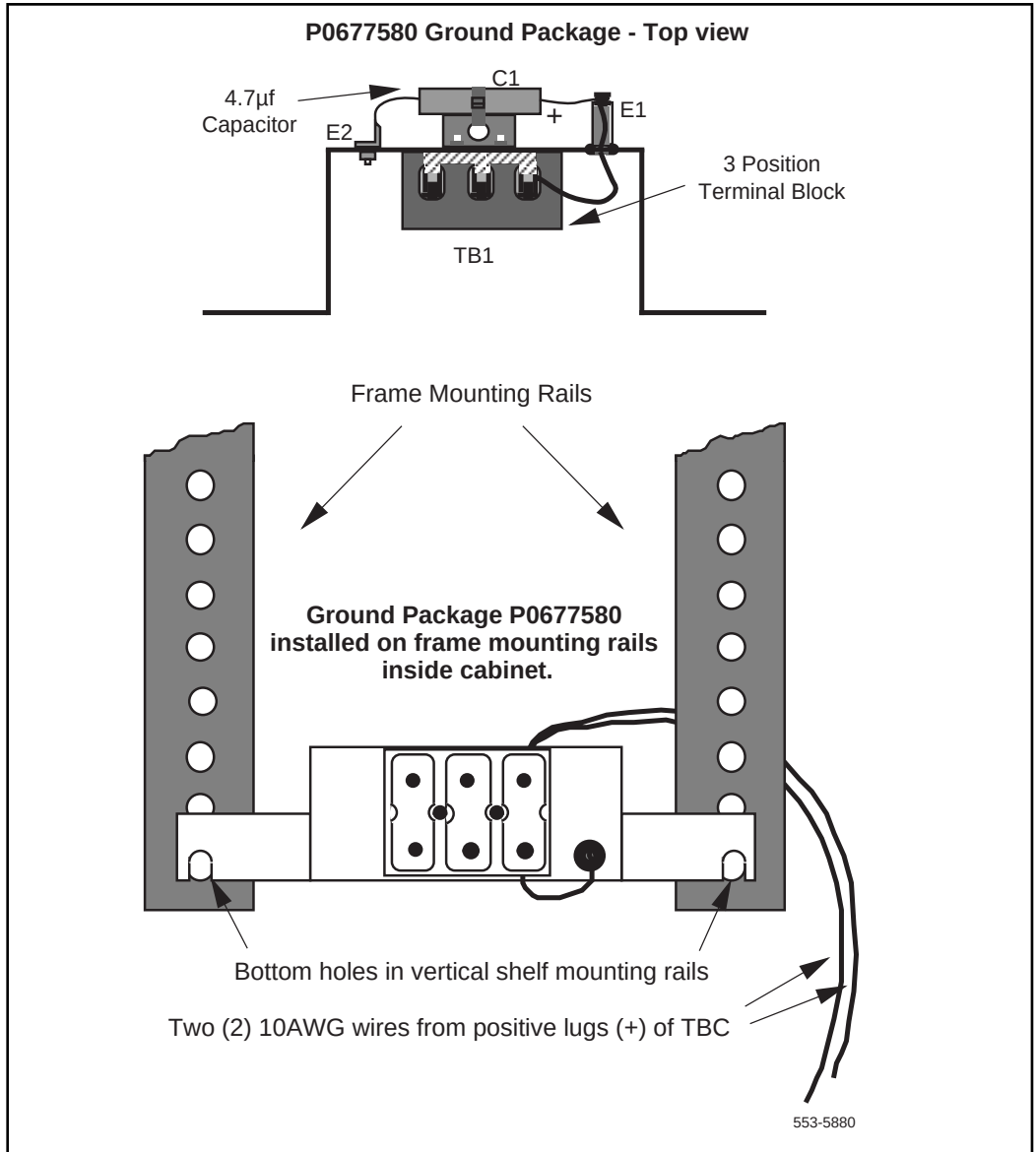
Note: Before modifying the ground, a temporary bypass ground wire must be added to avoid interrupting call processing.

- 1 Locate the supplied ground lugs and a 1/4-20 hex nut. Place the ground lug over one of the 1/4-20 threaded studs on the analog ground bar and secure it using the 1/4-20 hex nut.
- 2 Insert one end of the #6 AWG wire, which is not supplied, into the ground lug and tighten securely. Connect the other end of the wire to the ground window, the positive bus bar in the power distribution box, or the I.G. of the AC panel depending on the system.
- 3 Disconnect existing +48 volt return wires from the frame. These wires are terminated in ground lugs located at the bottom of the cabinet near the end of the 3/4-in. ground conduit.
- 4 Install the terminal block bracket using the bottom holes in the two center vertical shelf mounting rails. Assemble to rails using two of the supplied No.12-24 x.50 screws.

Note: The bracket should be oriented so that when installed between the rails, the capacitor assembly is facing toward the rear of the cabinet and the two rail mounting slots are facing down. See Figure 14-1.

- 5 Connect the wires previously disconnected in step 2 to the terminal block.
- 6 Connect the two #10 AWG wires from the TBC into the third position of the terminal bracket.
- 7 This completes the ground modification. Remove the bypass ground wire, ground lug, and 1/4-20 hex nut from the analog ground bar previously installed in step 1.

Figure 14-1
Ground Package P0677580



Installing Ground Package P0677587

The installation procedure is simple to follow and can be accomplished within one hour. For those systems already in service, call processing can continue without disruption during the installation procedure. It is recommended that this procedure be accomplished before the cutover of the upgraded system.

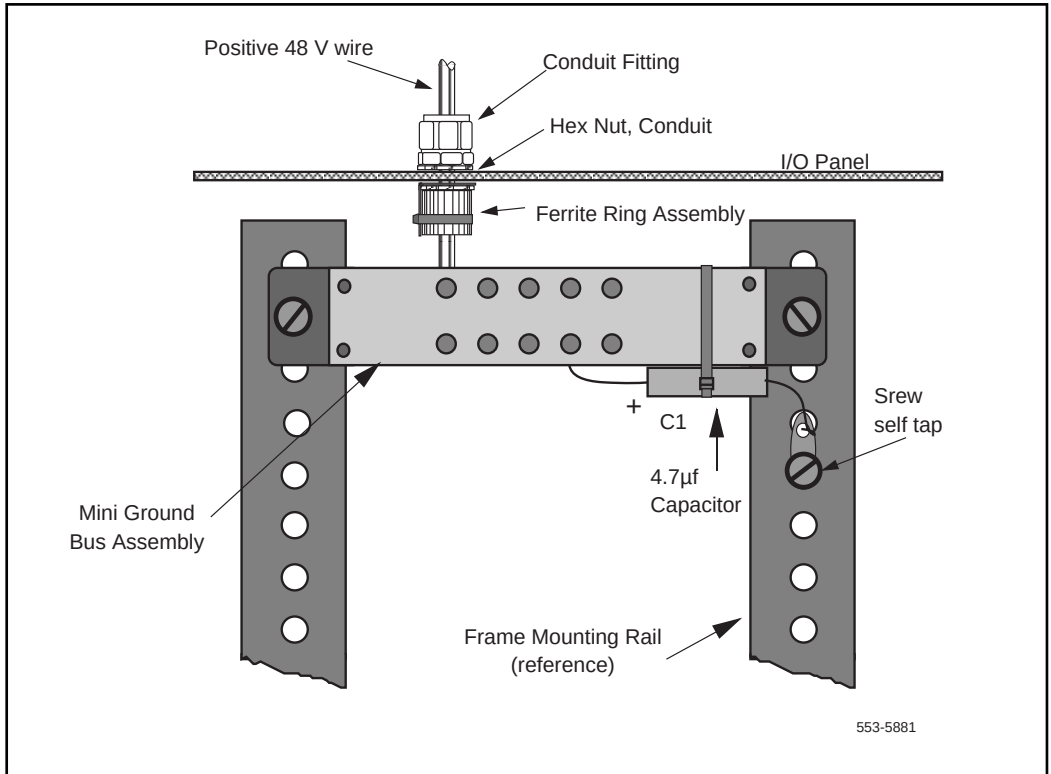
To install those systems that are affected, Northern Telecom has prepared the following field installation package. This package contains all the necessary materials and installation instructions required for field installation.

Note: For those systems that are already in service, it is necessary to have available approximately 25 feet of #6 AWG wire to jumper the system ground during the installation procedure. This wire is not provided in the installation package and must be purchased before modifying the ground.

To install Ground Package P0677587:

- 1 Disconnect the small jumper between the isolated mini ground bus bar and the frame. See Figure 14-2.
- 2 To jumper the system ground, connect one end of the # 6 AWG wire to the isolated mini ground bus bar and connect the other end of the wire to the ground window, positive bus bar of the QBL-15, or to I.G. of the AC panel depending on the system.

Figure 14-2
Installing Ground Package P0677587



- 3** Disconnect the +48V return wire from the isolated mini ground bus bar. See Figure 14-2. Install the supplied ferrite ring assembly (P0677577) as shown in Figure 14-2. To install the ferrite ring assembly, do the following:

 - Remove the locknut and lockwasher from the ground conduit fitting. These are located on the shelf side of the I/O panel.
 - Remove the conduit fitting from the hole in the I/O panel and attach the supplied locknut. Hand tighten until the nut rests against the base of the fitting.
 - To insert the conduit fitting into the hole in the I/O panel, reassemble the lockwasher and locknut that were previously removed. (The lockwasher may be discarded because of an insufficient number of threads for the bottom locknut.) While these are still loose, slip the two prongs of the ferrite ring assembly on either side of the conduit fitting and between the lockwasher and the I/O panel. Tighten the locknut until the ferrite assembly is securely in place.
- 4** Reinstall the +48V return wire from the isolated ferrite ring and connect it to the isolated mini ground bus bar.
- 5** Connect the 4.7 μ F 200V capacitor (A0275046) as shown in Figure 14-2.
- 6** Disconnect the #6 AWG wire that was previously installed in step 2.

Installing Ground Package P0677588

The installation procedure is simple to follow and can be accomplished within one hour. For those systems already in service, call processing can continue without disruption during the installation procedure. It is recommended that this procedure be accomplished before the cutover of the upgraded system.

In order to install those systems that are affected, Northern Telecom has prepared the following field installation package. This package contains all the necessary materials and installation instructions required for field installation.

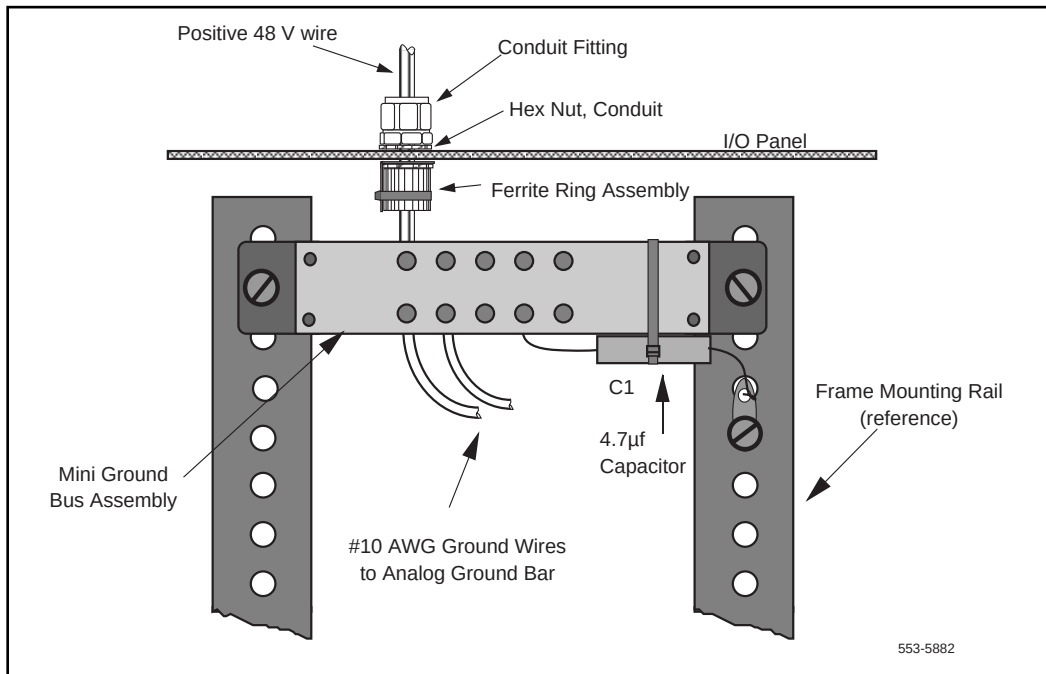
Note: For those systems that are already in service, it is necessary to have available approximately 25 feet of #6 AWG wire to jumper the system ground during the installation procedure. This wire is not provided in the installation package and must be purchased before modifying the ground.

To install Ground Package P0677588:

- 1 Locate the supplied ground lugs and a 1/4-20 hex nut. Place the ground lug over one of the 1/4-20 threaded studs on the analog ground bar and secure it using the 1/4-20 hex nut.
- 2 Insert one end of the #6 AWG wire, which is not supplied, into the ground lug and tighten securely. Connect the other end of the wire to the ground window, the positive bus bar in the power distribution box, or the I.G. of the AC panel depending on the system.
- 3 Disconnect the existing +48 volt return wire from the frame.
- 4 Locate the two wires between the analog bus bar and the frame ground near the top of the cabinet. Disconnect the two wires at the frame ground end and remove the ground lugs.

- 5 Install the supplied ferrite ring assembly as shown in Figure 14-3. To install the ferrite ring assembly do the following:
 - Remove the locknut and lockwasher from the ground conduit fitting. These are located on the shelf side of the I/O panel.
 - Remove the conduit fitting from the hole in the I/O panel and attach the supplied locknut. Hand tighten until the nut rests against the base of the fitting.
 - To insert the conduit fitting into the hole in the I/O panel, reassemble the lockwasher and locknut that were previously removed. (The lockwasher may be discarded because of an insufficient number of threads for the bottom locknut.) While these are still loose, slip the two prongs of the ferrite ring assembly on either side of the conduit fitting and between the lockwasher and the I/O panel. Tighten the locknut until the ferrite assembly is securely in place.

Figure 14-3
Installing Ground Package P0677588



- 6** Install the supplied mini-bus bar assembly using the two supplied .214-24 X .75 screws as shown in Figure 14-3. Attach the ground lug from the capacitor to the mounting rail, as shown, using the third screw.
- 7** Shorten the two wires that were removed in step 3 (as required) and reconnect the ground ends to the lower side of the mini bus bar.
- 8** Install the +48 volt return wire through the ferrite ring and connect it to the upper side of the mini bus bar as shown in Figure 14-3.
- 9** This completes the ground modification. Remove the bypass ground wire, the ground lug, and the 1/4-20 hex nut from the analog ground bar that was previously installed.

Network hybrid installation

This procedure includes instructions on how to remove two QPC477 BTUs from a QSD39 Network shelf and install four network hybrids (NT4D19AA, NT4D20AA, NT4D21AA, and NT4D22AA). Typically this procedure is done in conjunction with other procedures, such as system upgrades.

CAUTION

Call processing will be interrupted while performing the network hybrid installation procedures. Plan the installation for a time when the impact on customers will be minimal.

Network hybrids must be installed in all QSD39 network shelves in which clock controller cards are to be installed. Most systems contain one QSD39 network shelf (left side) and one QSD40 network shelf (right side) and will require the installation of network hybrids in the QSD39 network shelf 0, group 0 only. However, a few systems contain two QSD39 network shelves (right and left sides), and will require the installation of network hybrids in both network shelf 0, group 0 and network shelf 1, group 0.

Installing the network hybrids consists of

- powering down the QSD39 Network shelf
- removing the power supply and required network cards
- removing two QPC477 BTUs from the shelf
- installing four network hybrids into the shelf
- installing the power supply and network cards
- powering up the QSD39 Network shelf

During this procedure you may need the following tools:

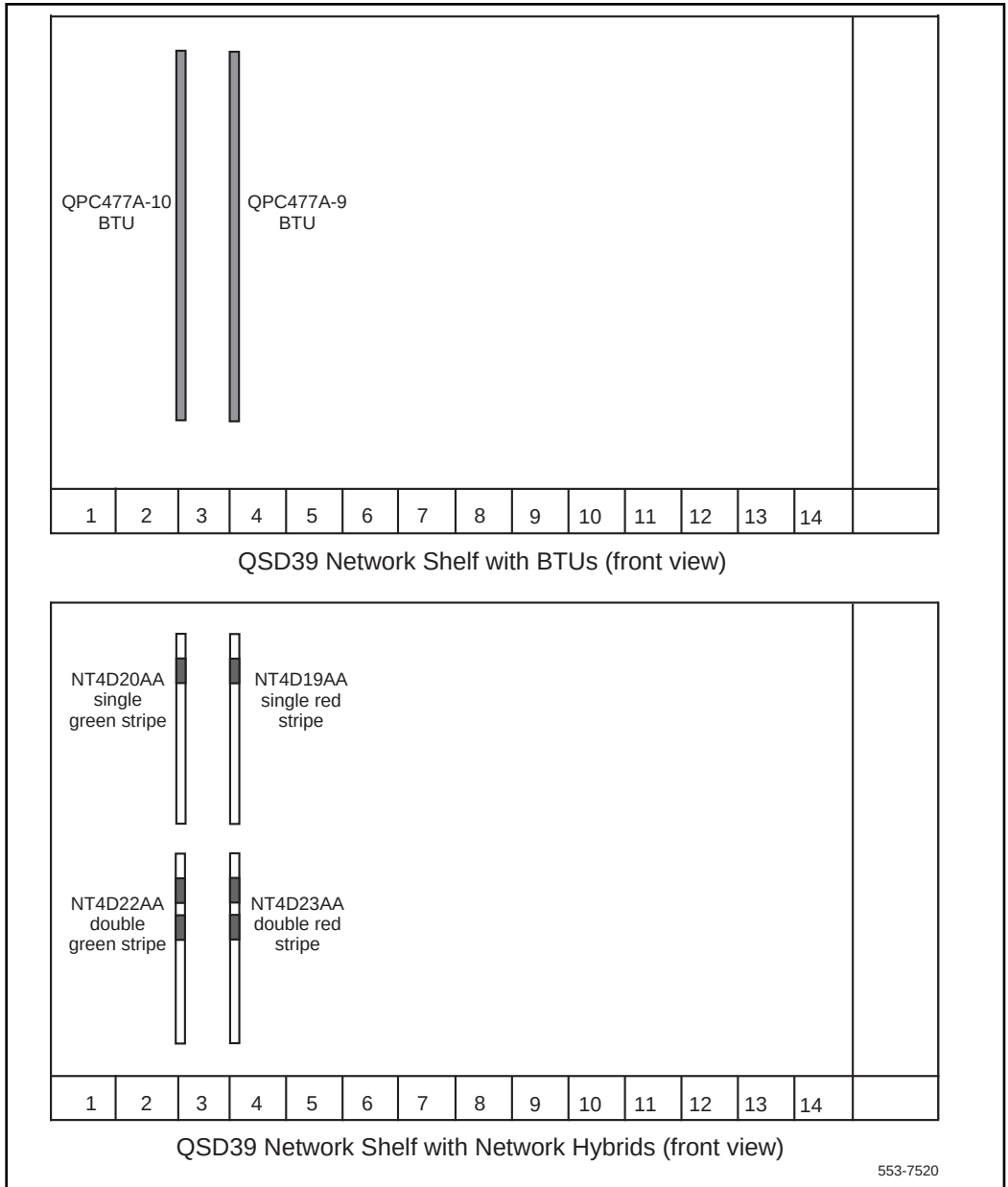
- extraction tool (provided in the installation kit)
- flashlight

Removing the BTUs

To remove the QPC477 BTUs from the QSD39 Network shelf:

- 1** Log into the system.
- 2** In Group 0, software disable the cards in slots 2, 3, and 4.
- 3** In Group 0, software disable the extender cards.
- 4** Shut down power to the network shelf by switching the circuit breaker to OFF.
- 5** Set the ENB/DIS faceplate switch to DIS on the network cards in slots 2, 3 and 4. Tag and disconnect all cables.
- 6** Remove the power supply in slot 1, and the network cards in slots 2, 3, and 4.
- 7** Gently remove each BTU from the shelf (see Figure 15-1).

Figure 15-1
BTU and Network Hybrid Locations



Installing the Network Hybrids

Follow the procedure below to install the network hybrids on the QSD39 Network shelf. Use extreme caution to avoid bending or breaking backplane pins.

Note: During the network hybrid installation, refer to Figure 15-1 for hybrid locations.

- 1 Locate the NT4D20AA Network Hybrid.
- 2 Orient the network hybrid so that the single green stripe is on top and the hybrid connector faces the backplane.
- 3 Align the network hybrid with the top connector in the network shelf between slots 2 and 3. The lower edge of the hybrid should be closest to the metal screw in the middle of the backplane.

CAUTION

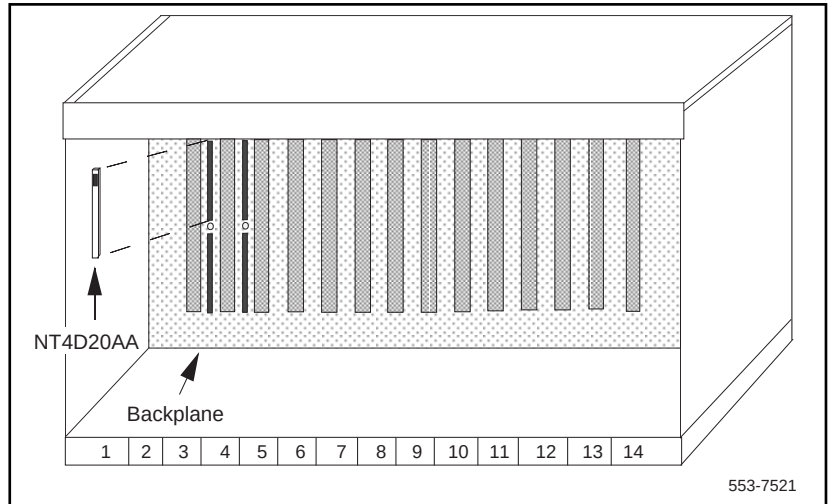
Do not force the network hybrids into the QSD39 Network backplane connectors. Any damage caused to the connector pins will require replacement of the QSD39 Network shelf.

- 4 Carefully insert the network hybrid into the backplane connector (see Figure 15-2).
- 5 Inspect the network hybrid and ensure that there are no empty pins below or above the hybrid. When the hybrid is inserted correctly, continue with step 6.

Note: If the network hybrid was inserted incorrectly, refer to “Using the Extraction Tool” on page 15-7 for instructions on removing the hybrid. Do not use a tool other than the extraction tool included in the installation kit to remove the hybrid. Any damage caused to the backplane connector pins will require replacement of the QSD39 shelf.

- 6 Locate the NT4D19AA Network Hybrid.
- 7 Orient the network hybrid so that the single red stripe is on top and the hybrid connector faces the backplane.

Figure 15-2
Installing the Network Hybrids



- 8 Align the network hybrid with the top connector between slots 3 and 4. The lower edge of the hybrid should be closest to the metal screw in the middle of the backplane.
- 9 Gently insert the network hybrid into the backplane connector.
- 10 Inspect the network hybrid and ensure that there are no empty pins below or above the hybrid. When the hybrid is inserted correctly, continue with step 11.

Note: If the network hybrid was inserted incorrectly, refer to “Using the Extraction Tool” on page 15-7 for instructions on removing the hybrid.

- 11 Locate the NT4D22AA Network Hybrid.
- 12 Orient the network hybrid so that the double green stripe is on top and the hybrid connector faces the backplane.
- 13 Align the network hybrid with the bottom connector between slots 2 and 3. The top edge of the hybrid should be closest to the metal screw in the middle of the backplane.
- 14 Carefully insert the network hybrid into the backplane connector.

- 15 Inspect the hybrid and ensure that there are no empty pins below or above the hybrid. When the hybrid is inserted correctly, continue with step 16.

Note: If the network hybrid was inserted incorrectly, refer to “Using the Extraction Tool” on page 15-7 for instructions on removing the hybrid.

- 16 Locate the NT4D23AA Network Hybrid.
- 17 Orient the hybrid so that the double red stripe is on top and the hybrid connector faces the backplane.
- 18 Align the hybrid with the bottom connector between slots 3 and 4 (see Figure 2). The top edge of the hybrid should be close to the metal screw in the middle of the backplane.
- 19 Carefully insert the network hybrid into the backplane connector.
- 20 Inspect the hybrid and ensure that there are no empty pins below or above the hybrid.

Note: If the network hybrid was inserted incorrectly, refer to “Using the Extraction Tool” on page 15-7 for instructions on removing the hybrid.

When the four network hybrids are installed, use the following instructions to complete the installation.

- 1 Reinstall the power supply in slot 1 and the network cards in slots 2, 3, and 4.
- 2 Reconnect all card cables.
- 3 Set the ENB/DIS faceplate switch on all disabled cards to ENB.
- 4 Turn on power to the shelf by switching the circuit breaker for the network shelf to ON.
- 5 As necessary, software enable the cards in the Network shelf.

The network hybrid installation is complete.

Using the Extraction Tool

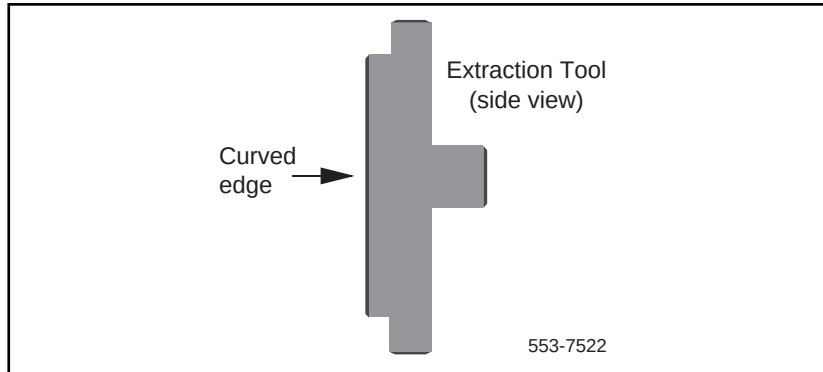
CAUTION

You must use the extraction tool provided in the installation kit to remove the network hybrids from the backplane to avoid bending or breaking backplane pins. Do not improvise with common hand tools.

The following procedure describes how to remove a network hybrid from the QSD39 backplane. If a network hybrid is inserted incorrectly, it must be removed using this tool.

- 1** Hold the extraction tool so that the long flat edge faces the network backplane and the curved edge faces inward toward the network hybrid (see Figure 15-3).
- 2** Align the extraction tool to the left of the hybrid and gently position the curved edge between the hybrid and backplane connector.
- 3** Gradually apply pressure to the extraction tool toward the backplane while gently pulling the network hybrid away from the backplane. A gentle side-to-side rocking motion may be used on the network hybrid if needed.
- 4** Stop applying pressure as soon as the network hybrid comes loose from the backplane.
- 5** Slowly remove the extraction tool and the network hybrid.
- 6** Reinstall the network hybrid.

Figure 15-3
Extraction Tool



Appendix A: Core Module upgrades using NTND33BB/BC/BD Cable Kits

The Core Module upgrade currently ships with NTND33Cx cable kits. If you have NTND33Bx cable kits, you are instructed in the option 81 upgrade procedures to refer to certain procedures in this appendix. After completing the appropriate procedures, you are instructed to return to “Upgrades to Meridian 1 option 81” on page 12-1 and resume with the next step.

Installing NTND33Bx cable kits

The NTND33Cx upgrade cable kits supersede the NTND33Bx cable kits. There are three cable kits in the NTND33Bx series:

- NTND33BB Cable Kit (Group 0) is the only kit needed for single group systems.
- NTND33BC Cable Kit (Groups 1–2) is used with the NTND33BB kit for two and three group systems.
- NTND33BD Cable Kit (Groups 3–4) is used with the NTND33BB and NTND33BC kits for four and five group systems.

The equipment in the cable kits provides the intercabinet cabling between the Core Modules and the existing common equipment cabinet. The intercabinet cabling provides clock controller to junctor connections, CNI to 3PE connections, and PRI to clock controller reference connections (when present).

A P0738866 Label Kit is provided in the upgrade package. The packet contains a pair of preprinted labels for each cable in the three kits.

Note: There are also labels that do not apply to this upgrade. You will not use all of the labels that are provided.

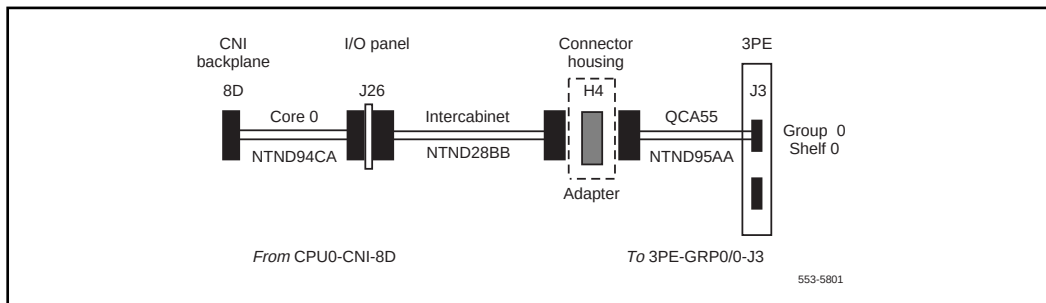
During preparation for the upgrade, there are detailed instructions for labeling the cables as you separate them by kit and by function. (For example, as you label them, keep cables in the NTND33BB kit separate from cables in the NTND33BC kit, and the cables for Core 0 separate from the intercabinet cables.) Using the P0738866 Label Kit, label and install cables for only the groups equipped.

The cable labels indicate the from-to terminations for the cabling path, not the connections for the individual cable. For example, the three following cables will each be labeled CPU0-CNI-8D to 3PE-GRP0/0-J3 (see the example in Figure A-1):

- 1 An NTND94CA cable (from CPU0-CNI-8D) in Core 0 connects to the following:
 - a CNI port at backplane position 8D
 - the inside of the I/O panel at connector J26
- 2 An NTND28BB cable connects to the following:
 - the outside of the I/O panel at connector J26
 - position H4 on the outside of the connector housing at the QCA55 cabinet.
- 3 An NTND95AA cable (to 3PE-GRP0/0-J3) connects to the following:
 - position H4 on the inside of the connector housing
 - faceplate connector J3 on the 3PE card for network group 0, shelf 0

Note: Return to the option 81 upgrade procedures and resume with the next step.

Figure A-1
Cabling path for cables labeled CPU0-CNI-8D to 3PE-GRP0/0-J3



Labelling cables

- 1 For Group 0, label cables from the NTND33BB kit (see Figure A-2 for end-to-end cable paths):
 - Separate the Core 0, Core 1, intercabinet, and QCA55 cabinet cables (see Table A-1).
 - Label each cable as listed in Table A-1. The labels should be identical on both ends of each cable.

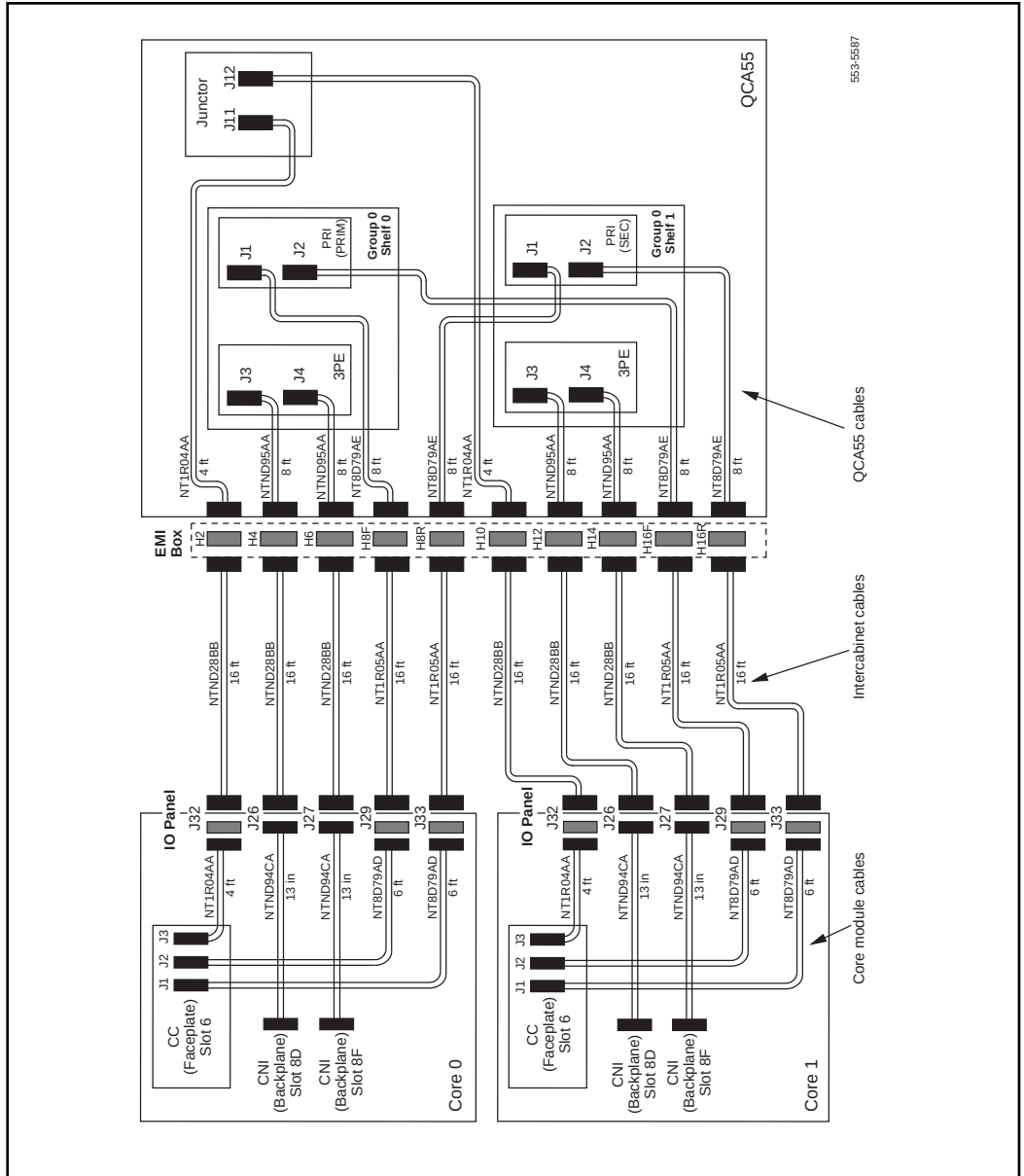
Table A-1
NTND33BB Group 0 cable labels (Part 1 of 2)

Core 0 cables	Label both ends
NT1R04AA	CPU0-CC-J3 to JCTR-J11
NT8D79AD	CPU0-CC-J2 to PRIM PRI-J1
NT8D79AD	CPU0-CC-J1 to SEC PRI-J1
NTND94CA	CPU0-CNI-8D to 3PE-GRP0/0-J3
NTND94CA	CPU0-CNI-8F to 3PE-GRP0/0-J4
Core 1 cables	Label both ends
NT1R04AA	CPU1-CC-J3 to JCTR-J12
NT8D79AD	CPU1-CC-J2 to PRIM PRI-J2
NT8D79AD	CPU1-CC-J1 to SEC PRI-J2
NTND94CA	CPU1-CNI-8D to 3PE-GRP0/1-J3
NTND94CA	CPU1-CNI-8F to 3PE-GRP0/1-J4

Table A-1
NTND33BB Group 0 cable labels (Part 2 of 2)

Intercabinet cables	Label both ends
NTND28BB	CPU0-CC-J3 to JCTR-J11
NTND28BB	CPU1-CC-J3 to JCTR-J12
NTND28BB	CPU0-CNI-8D to 3PE-GRP0/0-J3
NTND28BB	CPU0-CNI-8F to 3PE-GRP0/0-J4
NTND28BB	CPU1-CNI-8D to 3PE-GRP0/1-J3
NTND28BB	CPU1-CNI-8F to 3PE-GRP0/1-J4
NT1R05AA	CPU0-CC-J2 to PRIM PRI-J1
NT1R05AA	CPU0-CC-J1 to SEC PRI-J1
NT1R05AA	CPU1-CC-J2 to PRIM PRI-J2
NT1R05AA	CPU1-CC-J1 to SEC PRI-J2
QCA55 cabinet cables	Label both ends
NT1R04AA	CPU0-CC-J3 to JCTR-J11
NT1R04AA	CPU1-CC-J3 to JCTR-J12
NTND95AA	CPU0-CNI-8D to 3PE-GRP0/0-J3
NTND95AA	CPU0-CNI-8F to 3PE-GRP0/0-J4
NTND95AA	CPU1-CNI-8D to 3PE-GRP0/1-J3
NTND95AA	CPU1-CNI-8F to 3PE-GRP0/1-J4
NT8D79AE	CPU0-CC-J2 to PRIM PRI-J1
NT8D79AE	CPU0-CC-J1 to SEC PRI-J1
NT8D79AE	CPU1-CC-J2 to PRIM PRI-J2
NT8D79AE	CPU1-CC-J1 to SEC PRI-J2

Figure A-2
NTND33BB Group 0 cable paths



- 2 For Group 1 and Group 2 (as equipped), label cables from the NTND33BC kit (see Figure A-3 for end to end cable paths):
 - Separate the Core 0, Core 1, intercabinet, and QCA55 cabinet cables (see Table A-2).
 - Label each cable as listed in Table A-2. The labels should be identical on both ends of each cable.

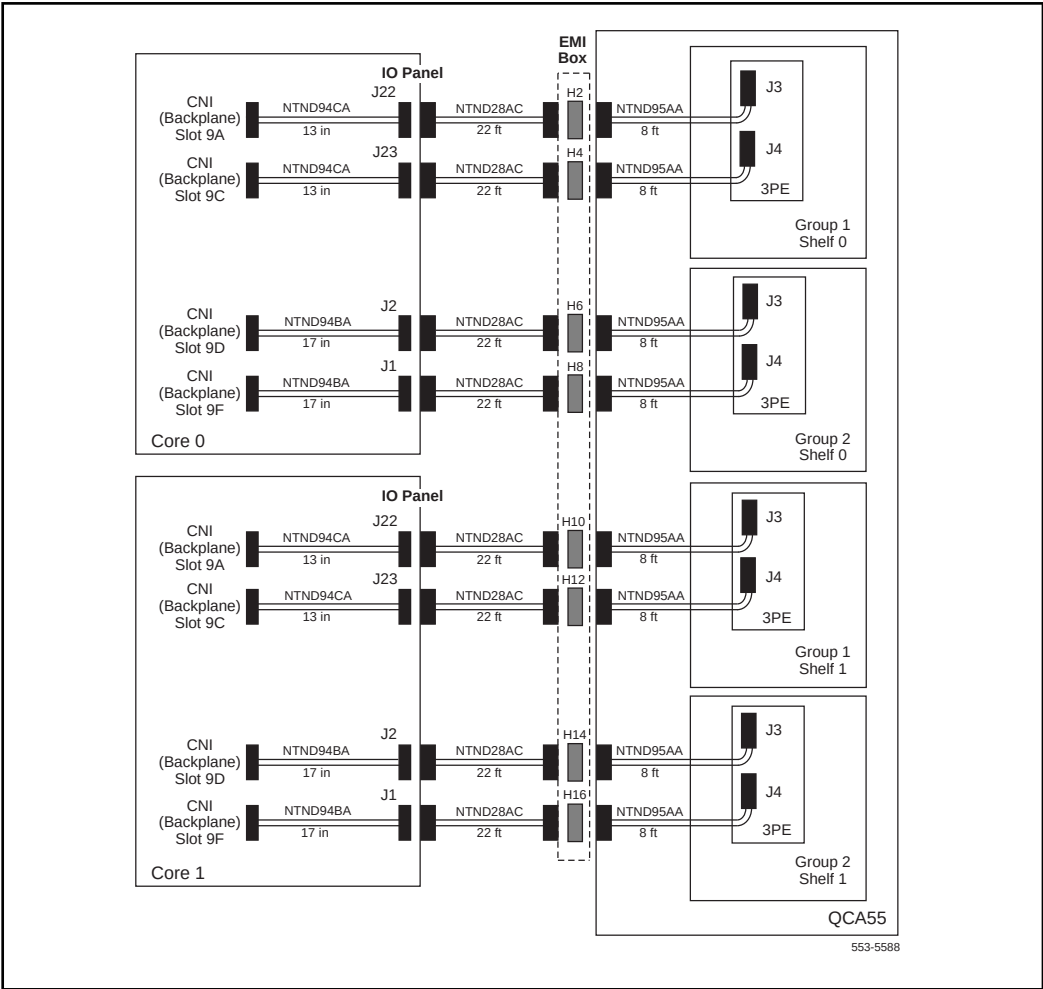
Table A-2
NTND33BC Group 1 and Group 2 cable labels (Part 1 of 2)

Core 0 cables		Label both ends
NTND94CA	CPU0-CNI-9A to 3PE-GRP1/0-J3	
NTND94CA	CPU0-CNI-9C to 3PE-GRP1/0-J4	
NTND94BA	CPU0-CNI-9D to 3PE-GRP2/0-J3	
NTND94BA	CPU0-CNI-9F to 3PE-GRP2/0-J4	
Core 1 cables		Label both ends
NTND94CA	CPU1-CNI-9A to 3PE-GRP1/1-J3	
NTND94CA	CPU1-CNI-9C to 3PE-GRP1/1-J4	
NTND94BA	CPU1-CNI-9D to 3PE-GRP2/1-J3	
NTND94BA	CPU1-CNI-9F to 3PE-GRP2/1-J4	
Intercabinet cables		Label both ends
NTND28BC	CPU0-CNI-9A to 3PE-GRP1/0-J3	
NTND28BC	CPU0-CNI-9C to 3PE-GRP1/0-J4	
NTND28BC	CPU0-CNI-9D to 3PE-GRP2/0-J3	
NTND28BC	CPU0-CNI-9F to 3PE-GRP2/0-J4	
NTND28BC	CPU1-CNI-9A to 3PE-GRP1/1-J3	
NTND28BC	CPU1-CNI-9C to 3PE-GRP1/1-J4	
NTND28BC	CPU1-CNI-9D to 3PE-GRP2/1-J3	
NTND28BC	CPU1-CNI-9F to 3PE-GRP2/1-J4	

Table A-2
NTND33BC Group 1 and Group 2 cable labels (Part 2 of 2)

QCA55 cabinet cables	Label both ends
NTND95AA	CPU0-CNI-9A to 3PE-GRP1/0-J3
NTND95AA	CPU0-CNI-9C to 3PE-GRP1/0-J4
NTND95AA	CPU0-CNI-9D to 3PE-GRP2/0-J3
NTND95AA	CPU0-CNI-9F to 3PE-GRP2/0-J4
NTND95AA	CPU1-CNI-9A to 3PE-GRP1/1-J3
NTND95AA	CPU1-CNI-9C to 3PE-GRP1/1-J4
NTND95AA	CPU1-CNI-9D to 3PE-GRP2/1-J3
NTND95AA	CPU1-CNI-9F to 3PE-GRP2/1-J4

Figure A-3
NTND33BC Group 1 and Group 2 cable paths



- 3 For Group 3 and Group 4 (as equipped), label cables from the NTND33BD kit (see Figure A-4 for end-to-end cable paths):
- Separate the Core 0, Core 1, intercabinet, and QCA108 cabinet cables (see Table A-3).
 - Label each cable as listed in Table A-3. The labels should be identical on both ends of each cable.

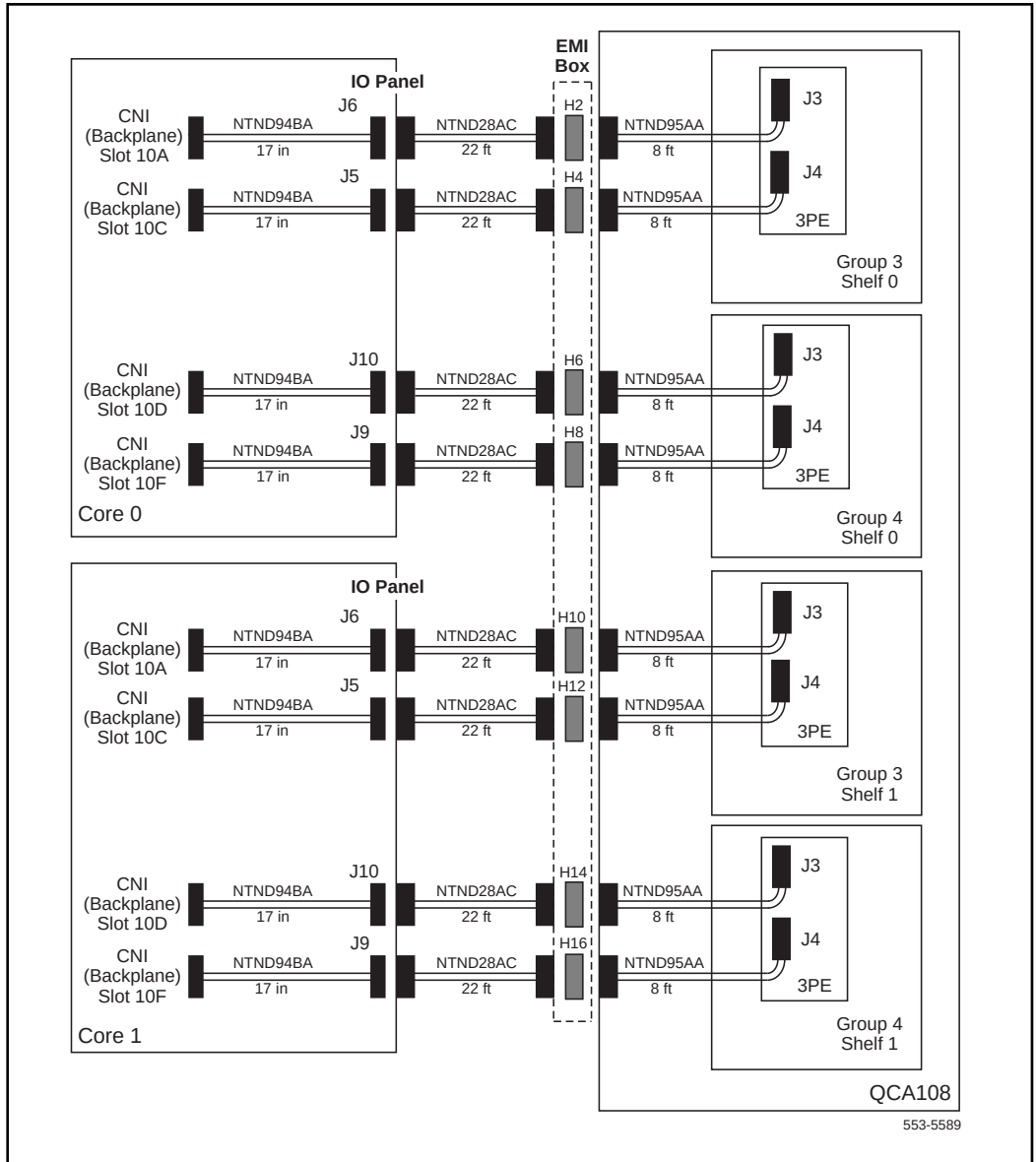
Table A-3
NTND33BD Group 3 and Group 4 cable labels (Part 1 of 2)

Core 0 cables		Label both ends
NTND94BA	CPU0-CNI-10A to 3PE-GRP3/0-J3	
NTND94BA	CPU0-CNI-10C to 3PE-GRP3/0-J4	
NTND94BA	CPU0-CNI-10D to 3PE-GRP4/0-J3	
NTND94BA	CPU0-CNI-10F to 3PE-GRP4/0-J4	
Core 1 cables		Label both ends
NTND94BA	CPU1-CNI-10A to 3PE-GRP3/1-J3	
NTND94BA	CPU1-CNI-10C to 3PE-GRP3/1-J4	
NTND94BA	CPU1-CNI-10D to 3PE-GRP4/1-J3	
NTND94BA	CPU1-CNI-10F to 3PE-GRP4/1-J4	
Intercabinet cables		Label both ends
NTND28BC	CPU0-CNI-10A to 3PE-GRP3/0-J3	
NTND28BC	CPU0-CNI-10C to 3PE-GRP3/0-J4	
NTND28BC	CPU0-CNI-10D to 3PE-GRP4/0-J3	
NTND28BC	CPU0-CNI-10F to 3PE-GRP4/0-J4	
NTND28BC	CPU1-CNI-10A to 3PE-GRP3/1-J3	
NTND28BC	CPU1-CNI-10C to 3PE-GRP3/1-J4	
NTND28BC	CPU1-CNI-10D to 3PE-GRP4/1-J3	
NTND28BC	CPU1-CNI-10F to 3PE-GRP4/1-J4	

Table A-3
NTND33BD Group 3 and Group 4 cable labels (Part 2 of 2)

QCA108 cabinet cables	Label both ends
NTND95AA	CPU0-CNI-10A to 3PE-GRP3/0-J3
NTND95AA	CPU0-CNI-10C to 3PE-GRP3/0-J4
NTND95AA	CPU0-CNI-10D to 3PE-GRP4/0-J3
NTND95AA	CPU0-CNI-10F to 3PE-GRP4/0-J4
NTND95AA	CPU1-CNI-10A to 3PE-GRP3/1-J3
NTND95AA	CPU1-CNI-10C to 3PE-GRP3/1-J4
NTND95AA	CPU1-CNI-10D to 3PE-GRP4/1-J3
NTND95AA	CPU1-CNI-10F to 3PE-GRP4/1-J4

Figure A-4
NTND33BD Group 3 and Group 4 cable paths



Assembling and mounting connector housings

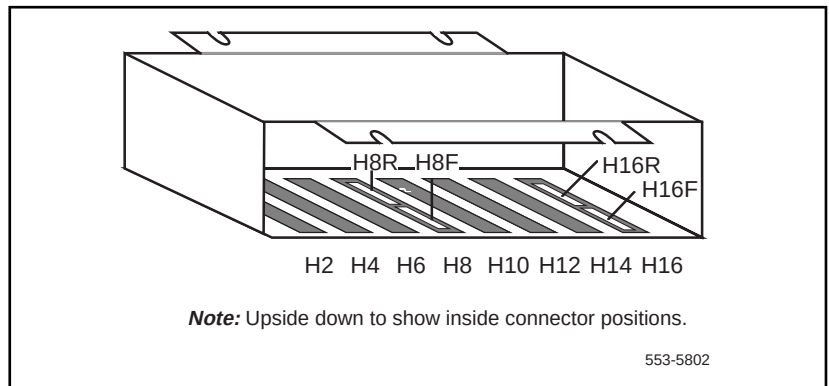
- 1** For Group 0, assemble and mount the connector housing from the NTND33BB kit. Connect the cables listed in Table A-4 to the inside of the connector housing (see Figure A-5):
 - Attach the NT1R04AA and NTND95AA cables to the filter adapters on the housing. Secure the cables with the bail locks.
 - Attach the NT8D79AE cables to the filter adapters on the housing. With A0314862 screw lock kits and captive screws, secure the cables to the filter adapters on the housing.
 - Locate an available and accessible cover plate on top of the QCA55 cabinet closest to the junctor board.
 - Remove the connector housing cover and four screws. Keep the screws for reuse.
 - Orient the connector housing so the strain relief bracket is toward the center of the cabinet. Route the cables through the access on the top of the QCA55 cabinet, and mount the connector housing using the four retained screws.

Table A-4
Group 0 cables to the inside of the connector housing

Cable	Cable label	Position in housing
NT1R04AA	CPU0-CC-J3 to JCTR-J11	H2
NTND95AA	CPU0-CNI-8D to 3PE-GRP0/0-J3	H4
NTND95AA	CPU0-CNI-8F to 3PE-GRP0/0-J4	H6
NT1R04AA	CPU1-CC-J3 to JCTR-J12	H10
NTND95AA	CPU1-CNI-8D to 3PE-GRP0/1-J3	H12
NTND95AA	CPU1-CNI-8F to 3PE-GRP0/1-J4	H14
NT8D79AE	CPU0-CC-J1 to SEC PRI-J1	H8R
NT8D79AE	CPU0-CC-J2 to PRIM PRI-J1	H8F
NT8D79AE	CPU1-CC-J1 to SEC PRI-J2	H16R
NT8D79AE	CPU1-CC-J2 to PRIM PRI-J2	H16F

Note: The 8F and 16F locations are closest to the front of the connector housing, and the 8R and 16R locations are the locations in the center of the housing.

Figure A-5
Group 0 connector housing positions—inside of housing

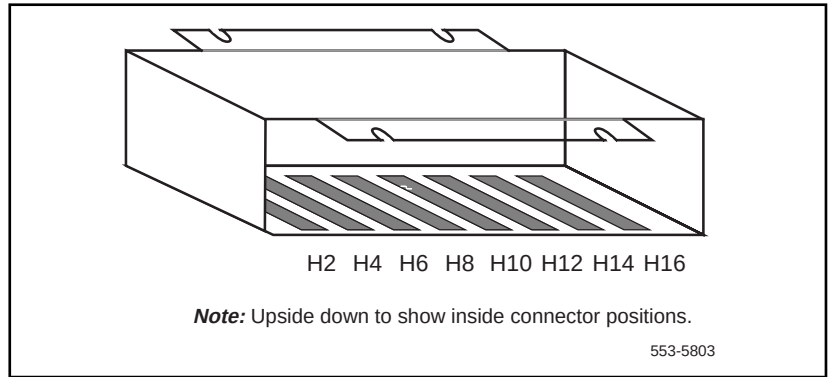


- 2 For Group 1 and Group 2 (as equipped), assemble and mount the connector housing from the NTND33BC kit. Connect the cables listed in Table A-5 to the inside of the connector housing and secure the cables with the bail locks (see Figure A-6):
- Locate an available and accessible cover plate on top of the QCA55 cabinet.
 - Remove the connector housing cover and four screws. Keep the screws for reuse.
 - Orient the connector housing so the strain relief bracket is toward the center of the cabinet. Route the cables through the access on the top of the QCA55 cabinet and mount the connector housing using the four retained screws.

Table A-5
Group 1 and Group 2 cables to the inside of the connector housing

Cable	Cable label	Position in housing
NTND95AA	CPU0-CNI-9A to 3PE-GRP1/0-J3	H2
NTND95AA	CPU0-CNI-9C to 3PE-GRP1/0-J4	H4
NTND95AA	CPU0-CNI-9D to 3PE-GRP2/0-J3	H6
NTND95AA	CPU0-CNI-9F to 3PE-GRP2/0-J4	H8
NTND95AA	CPU1-CNI-9A to 3PE-GRP1/1-J3	H10
NTND95AA	CPU1-CNI-9C to 3PE-GRP1/1-J4	H12
NTND95AA	CPU1-CNI-9D to 3PE-GRP2/1-J3	H14
NTND95AA	CPU1-CNI-9F to 3PE-GRP2/1-J4	H16

Figure A-6
Group 1 and Group 2 (or Group 3 and Group 4) connector housing positions—inside of housing



- 3** For Group 3 and Group 4 (as equipped), assemble and mount the connector housing from the NTND33BD kit. Connect the cables listed in Table A-6 to the inside of the connector housing and secure the cables with the bail locks (refer to Figure A-6):
 - Locate an available and accessible cover plate on top of the QCA108 cabinet.
 - Remove the connector housing cover and four screws. Keep the screws for reuse.
 - Orient the connector housing so the strain relief bracket is toward the center of the cabinet. Route the cables through the access on the top of the QCA108 cabinet and mount the connector housing using the four retained screws.

Table A-6
Group 3 and Group 4 cables to the inside of the connector housing

Cable	Cable label	Position in housing
NTND95AA	CPU0-CNI-10A to 3PE-GRP3/0-J3	H2
NTND95AA	CPU0-CNI-10C to 3PE-GRP3/0-J4	H4
NTND95AA	CPU0-CNI-10D to 3PE-GRP4/0-J3	H6
NTND95AA	CPU0-CNI-10F to 3PE-GRP4/0-J4	H8
NTND95AA	CPU1-CNI-10A to 3PE-GRP3/1-J3	H10
NTND95AA	CPU1-CNI-10C to 3PE-GRP3/1-J4	H12
NTND95AA	CPU1-CNI-10D to 3PE-GRP4/1-J3	H14
NTND95AA	CPU1-CNI-10F to 3PE-GRP4/1-J4	H16

Preparing the Core Module columns

- 1 Install the Core Module columns. Use the following procedures (as required for the system configuration) in *Meridian 1 system installation procedures* (553-3001-210).

Note 1: Instructions for connecting the XN/XT cabinets to the system monitor are provided in this document.

Note 2: Leave an SDI port and system terminal configured on a network shelf in the XN/XT.

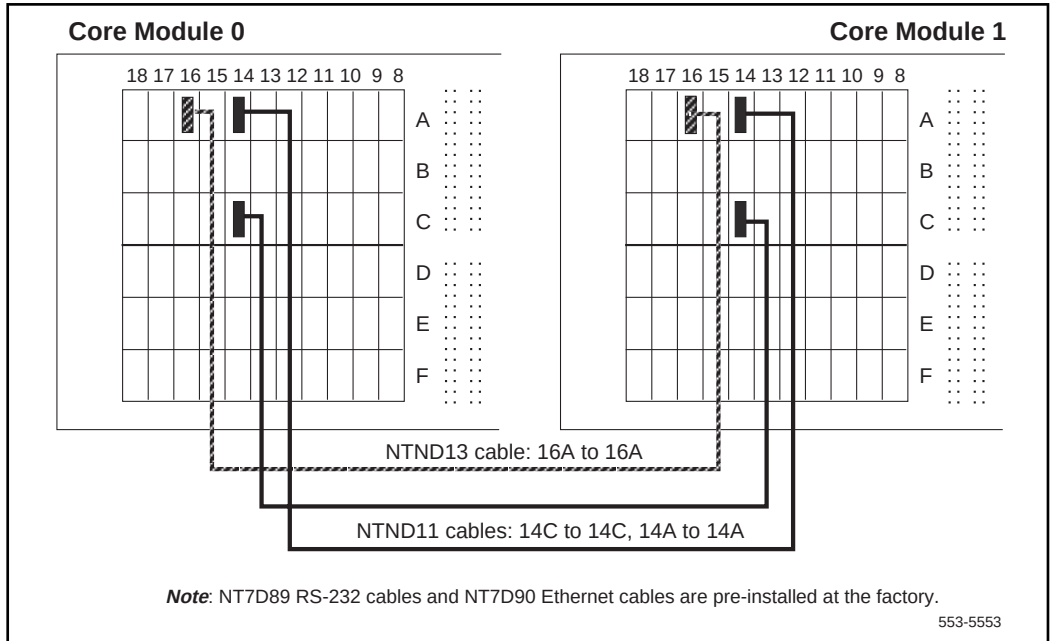
Note 3: Instructions for cabling the Core Modules are provided in this document. Network loops should already be cabled in the XN/XT cabinets.

Note 4: Power-up procedures will be done after the Core Module cables are installed.

- Prepare equipment for installation.
- Place a fourth module on a column (if required).
- Position and level equipment.
- Install overhead cable tray kits (if required).
- Install the module power supply in each module.
- Make sure the system is disconnected from any power source:
 - Set the switch and breakers on all module power supplies or module power distribution units (MPDUs) to OFF.
 - Insert the power supply and hook the locking devices.
- Install a CMDU in each Core Module.
- Install AC or DC power equipment. Refer to *Upgrade engineering* (553-3001-150) for ground wiring.
- Make changes at the MDF to accommodate equipment in the new columns and system monitor connections.
- Install PFTUs (if required).

- Configure the system monitor. Use the tables in *Meridian 1 system installation procedures* (553-3001-210) with the following exceptions:
 - For the master, set SW1 positions 1, 2, and 8 to ON.
 - For slaves, set SW1 positions 1 and 8 to ON.
- Connect system monitor cables with the following exception in Core 0:
- Attach a P0369107 Filter Adapter to the inside of slot J11 on the right I/O panel.
 - Connect the narrow ribbon on the NT8D46AD cable from connector J2 to slot J11 on the right I/O panel.
- Connect a terminal for the CPIO ports.
 - If IPE cards are added in the columns, cable the lines and trunks.
- 2** On the faceplates of the 3PE cards in the Core Modules do the following:
- Connect an NT8D80AZ cable from J4 in Core 0 to J4 in Core 1.
 - Connect another NT8D80AZ cable from J3 in Core 0 to J3 in Core 1.
- 3** In the rear of the Core Modules, remove the I/O panels.
- Note:** If only Group 0 and Group 1 are equipped, you do not need to remove the right I/O panel.
- Remove the eight screws that secure the I/O panels. Keep the screws for reuse.
- Note:** You must use the P0741489 Extraction Tool to disconnect cables from the connectors on the rear of the backplane.
- Using the extraction tool, temporarily disconnect the NT7D90 Ethernet and NT7D89 RS-232 cables from backplane connector positions 16F and 14D, respectively.
 - Remove the I/O panels but keep them on hand for immediate reuse.
- 4** In the rear of the Core Modules, install the following cables between Core 0 and Core 1 (see Figure A-7).

Figure A-7
NT6D60 Core Module (rear)—connections for NTND13 and NTND11 cables



Note: The following cables may already be connected in one of the modules. If so, leave them connected and attach the loose end.

- Connect the NTND13 IOP to IOP SCSI Cable from backplane connector position 16A in Core 0 to backplane connector position 16A in Core 1.
- Connect one NTND11 CP-to-CP Cable from backplane connector position 14C in Core 0 to backplane connector position 14C in Core 1.
- Connect another NTND11 cable from backplane connector position 14A in Core 0 to backplane connector position 14A in Core 1.

- 5 For Group 0, attach adapters and cables from the NTND33BB kit to the inside of the left I/O panel for each Core Module.
 - The inside of the I/O panel faces the backplane. The word LEFT faces the outside of the module. The slot numbers listed below match the designations on the outside of the panel.
 - Mount an A0360683 50-pin adapter at slot J32, pin 1 to the top.
 - Mount an A0369106 9-pin filter adapter at slot J29, pin 1 to the bottom, using the A0314862 screw lock kit.
 - Mount an A0369106 9-pin filter adapter at slot J33, pin 1 to the bottom, using the A0314862 screw lock kit.
 - Connect the NTND94CA CNI cables to the inside of the I/O panels as listed in Table A-7.

Table A-7
Group 0 connections on the left I/O panel: NTND94CA cables

Core 0 cable label	Core 1 cable label	I/O slot	Backplane connector
CPU0-CNI-8F to 3PE-GRP0/0-J4	CPU1-CNI-8F to 3PE-GRP0/1-J4	J27	8F
CPU0-CNI-8D to 3PE-GRP0/0-J3	CPU1-CNI-8D to 3PE-GRP0/1-J3	J26	8D

- Plug an NT1R04AA cable into the adapter on slot J32 and lock the cable in position:
 - In Core 0 the cable is labeled CPU0-CC-J3 to JCTR-J11.
 - In Core 1 the cable is labeled CPU1-CC-J3 to JCTR-J12.
- Attach an A0314862 screw lock kit to the filter adapter in slot J29. Plug an NT8D79AD cable into the adapter and secure it with the screws on the cable:
 - In Core 0 the cable is labeled CPU0-CC-J1 to SEC PRI-J1.
 - In Core 1 the cable is labeled CPU1-CC-J1 to SEC PRI-J2.

- Attach an A0314862 screw lock kit to the filter adapter in slot J33. Plug an NT8D79AD cable into the adapter and secure it with the screws on the cable:
 - In Core 0 the cable is labeled CPU0-CC-J2 to PRIM PRI-J1.
 - In Core 1 the cable is labeled CPU1-CC-J2 to PRIM PRI-J2.
- 6** For Group 1 (if equipped), connect the NTND94CA cables from the NTND33BC kit to the inside of the left I/O panel as listed in Table A-8 for each Core Module.

Table A-8**Group 1 connections on the left I/O panel: NTND94CA cables**

Core 0 cable label	Core 1 cable label	I/O slot	Backplane connector
CPU0-CNI-9C to 3PE-GRP1/0-J4	CPU1-CNI-9C to 3PE-GRP1/1-J4	J23	9C
CPU0-CNI-9A to 3PE-GRP1/0-J3	CPU1-CNI-9A to 3PE-GRP1/1-J3	J22	9A

- 7** Install the left I/O panels in each Core Module and route the cables:
- Feed the cables from the I/O panel through the panel opening. Route the NT1R04AA and NT8D79AD cables to the left of the module. Route other cables to the right.
 - With the panel partly in place, reconnect the NT7D90 and NT7D89 cables to backplane connectors 16F and 14D, respectively.

Note: The Ethernet port is equipped for future use; it cannot currently be used. Attaching an external device to this port may cause service interruptions.

- Install the I/O panel with the eight retained screws.

- Route the following clock controller cables to the front of slot 6 (the cables will be connected to the clock controller cards later in the upgrade):
 - In both Core Modules: NT1R04AA cable
 - In Core 0: NT8D79AD cable labeled CPU0-CC-J2 to PRIM PRI-J1 and NT8D79AD cable labeled CPU0-CC-J1 to SEC PRI-J1
 - In Core 1: NT8D79AD cable labeled CPU1-CC-J2 to PRIM PRI-J2 and NT8D79AD cable labeled CPU1-CC-J1 to SEC PRI-J2
 - Connect the cables to the backplane connector positions indicated on the cable label (refer to Tables A-7 and A-8).
- 8** For Group 2, Group 3, and Group 4 (as equipped), attach adapters and cables from the NTND33BC and NTND33BD kits to the inside of the right I/O panel for each Core Module.

Note: The inside of the I/O panel faces the backplane. The word RIGHT faces the outside of the module. The slot numbers listed below match the designations on the outside of the panel.

- Permanently remove the cable restraint bracket on the inside of the I/O panel. Remove the pan-head screw and lift the bracket away from the lower edge of the J10 opening.
- Attach a filter adapter at slot J11.
- For all equipped groups, connect the NTND94CA cables to the I/O panel as listed in Table A-9.
- Feed the cables from the I/O panel through the panel opening and secure the panel with the eight mounting screws.
- Connect the cables to the backplane connector positions indicated on the cable label and listed in Table A-9.

Table A-9**Group 2, 3, and 4 connections on the right I/O panel: NTND94CA cables**

Core 0 cable labels	Core 1 cable labels	I/O slot	Backplane connector
CPU0-CNI-9F to 3PE-GRP2/0-J4	CPU1-CNI-9F to 3PE-GRP2/1-J4	J1 (group 2)	9F (group 2)
CPU0-CNI-9D to 3PE-GRP2/0-J3	CPU1-CNI-9D to 3PE-GRP2/1-J3	J2 (group 2)	9D (group 2)
CPU0-CNI-10C to 3PE-GRP3/0-J4	CPU1-CNI-10C to 3PE-GRP3/1-J4	J5 (group 3)	10C (group 3)
CPU0-CNI-10A to 3PE-GRP3/0-J3	CPU1-CNI-10A to 3PE-GRP3/1-J3	J6 (group 3)	10A (group 3)
CPU0-CNI-10F to 3PE-GRP4/0-J4	CPU1-CNI-10F to 3PE-GRP4/1-J4	J9 (group 4)	10F (group 4)
CPU0-CNI-10D to 3PE-GRP4/0-J3	CPU1-CNI-10D to 3PE-GRP4/1-J3	J10 (group 4)	10D (group 4)

- 9** To power up the Core Module columns, go to page 16-1 in *Meridian 1 system installation procedures* (553-3001-210). See the notes below for exceptions to the standard power-up procedure.

Note 1: If the clock controller cards were moved to the CPU shelves in the XN/XT, they will be moved to the Core Modules later in the upgrade.

Note 2: Set all faceplate switches to ENB except on the CNI cards. Make sure the CNI cards are set to DIS.

Note 3: After power-up, set the Norm/Maint switch to Maint in Core 1, then in Core 0.

Connecting intercabinet cables

- 1 For Group 0, connect the intercabinet cables from the NTND33BB kit:
 - Mount and screw-lock the intercabinet cables listed in Table A-10 to the Group 0 connector housing on the top of the QCA55 cabinet (see Figure A-8). Using a screwdriver, you can access the rear screw locks through the access hole in the strain relief bracket.

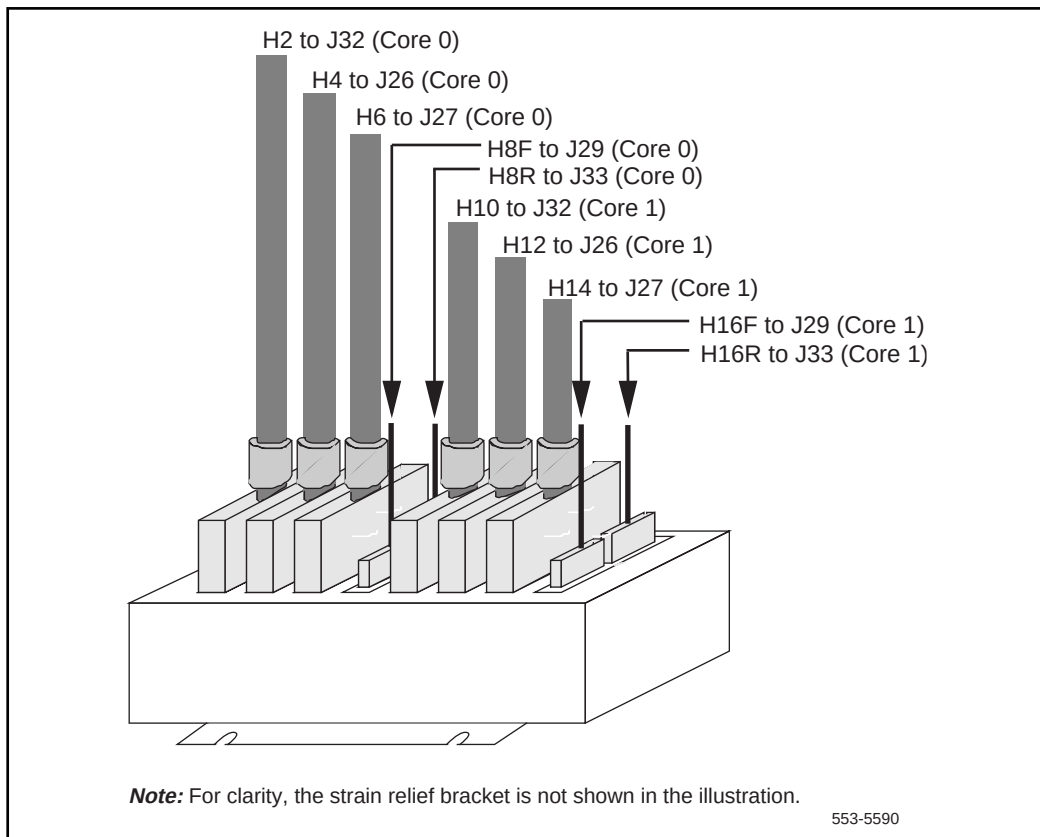
With one cable tie, secure the two cables from position H8 to the strain relief bracket. With another cable tie, secure the two cables from position H16 to the bracket. With one more cable tie, secure the remaining cables to the bracket.

 - Route the cables along the overhead cable racks to the Core Modules. Connect the cables to the outside of the left I/O panels as listed in Table A-10, and secure the cables with the screw-locks.

Table A-10
Group 0 intercabinet cables

Cable	Cable label	Position on housing	I/O panel connector
NTND28BB	CPU0-CC-J3 to JCTR-J11	H2	Core 0—J32
NTND28BB	CPU0-CNI-8D to 3PE-GRP0/0-J3	H4	Core 0—J26
NTND28BB	CPU0-CNI-8F to 3PE-GRP0/0-J4	H6	Core 0—J27
NT1R05AA	CPU0-CC-J1 to SEC PRI-J1	H8	Core 0—J33
NT1R05AA	CPU0-CC-J2 to PRIM PRI-J1	H8	Core 0—J29
NTND28BB	CPU1-CC-J3 to JCTR-J12	H10	Core 1—J32
NTND28BB	CPU1-CNI-8D to 3PE-GRP0/1-J3	H12	Core 1—J26
NTND28BB	CPU1-CNI-8F to 3PE-GRP0/1-J4	H14	Core 1—J27
NT1R05AA	CPU1-CC-J1 to SEC PRI-J2	H16	Core 1—J33
NT1R05AA	CPU1-CC-J2 to PRIM PRI-J2	H16	Core 1—J29

Figure A-8
Group 0 cables from the outside of the connector housing

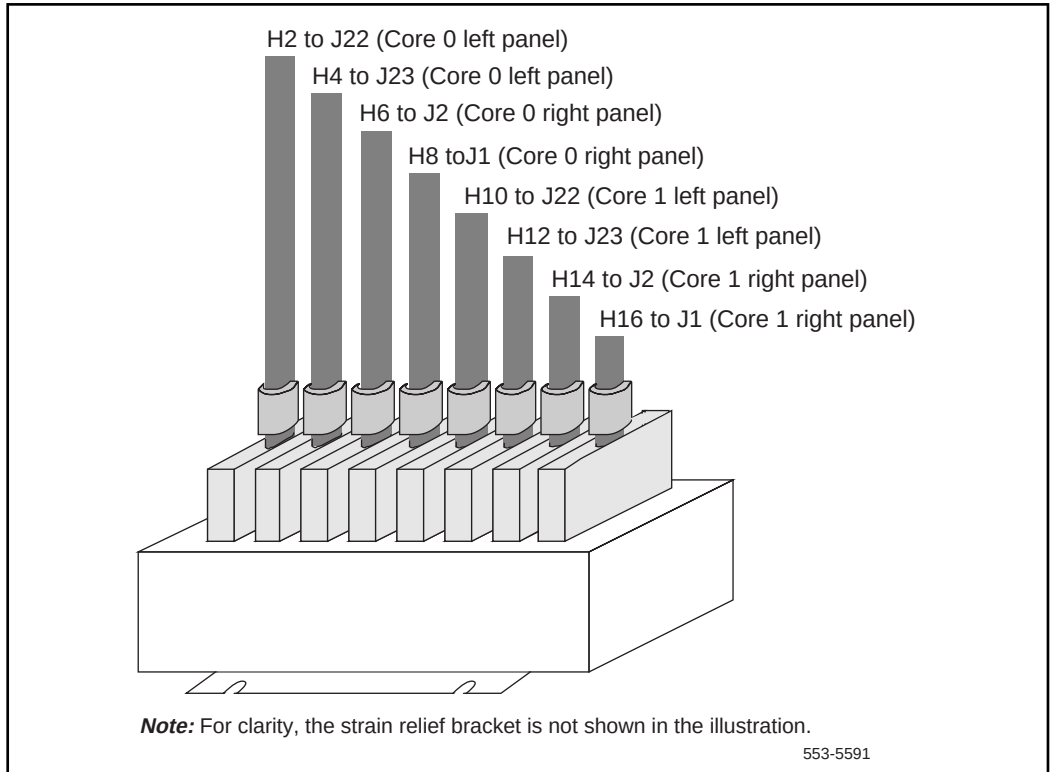


- 2 For Group 1 and Group 2 (as equipped), connect the intercabinet cables from the NTND33BC kit:
 - Mount and screw-lock the intercabinet cables listed in Table A-11 to the connector housing on the top of the QCA55 cabinet (see Figure A-9).
 - Route the cables along the overhead cable racks to the Core Modules. Connect the cables to the outside of the I/O panels, as listed in Table A-11, and secure the cables with the screw-locks.

Table A-11
Groups 1 and 2 intercabinet cables

Cable	Cable label	Position on housing	I/O panel connector
NTND28BC	CPU0-CNI-9A to 3PE-GRP1/0-J3	H2	Core 0—J22 (left panel)
NTND28BC	CPU0-CNI-9C to 3PE-GRP1/0-J4	H4	Core 0—J23 (left panel)
NTND28BC	CPU0-CNI-9D to 3PE-GRP2/0-J3	H6	Core 0—J2 (right panel)
NTND28BC	CPU0-CNI-9F to 3PE-GRP2/0-J4	H8	Core 0—J1 (right panel)
NTND28BC	CPU1-CNI-9A to 3PE-GRP1/1-J3	H10	Core 1—J22 (left panel)
NTND28BC	CPU1-CNI-9C to 3PE-GRP1/1-J4	H12	Core 1—J23 (left panel)
NTND28BC	CPU1-CNI-9D to 3PE-GRP2/1-J3	H14	Core 1—J2 (right panel)
NTND28BC	CPU1-CNI-9F to 3PE-GRP2/1-J4	H16	Core 1—J1 (right panel)

Figure A-9
Groups 1 and 2 cables from the outside of the connector housing



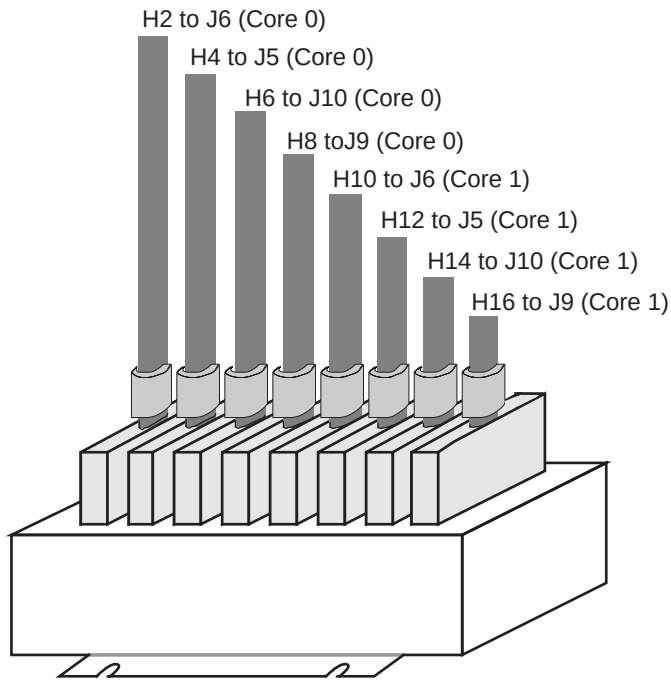
- 3 For Group 3 and Group 4 (as equipped), connect the intercabinet cables from the NTND33BD kit:
- Mount and screw-lock the intercabinet cables listed in Table A-12 to the connector housing on the top of the QCA108 cabinet (see Figure A-10).
 - Route the cables along the overhead cable racks to the Core Modules. Connect the cables to the outside of the right I/O panels, as listed in Table A-12, and secure the cables with the screw-locks.

Table A-12
Group 3 and Group 4 intercabinet cables

Cable	Cable label	Position on housing	I/O panel connector
NTND28BC	CPU0-CNI-10A to 3PE-GRP3/0-J3	H2	Core 0—J6
NTND28BC	CPU0-CNI-10C to 3PE-GRP3/0-J4	H4	Core 0—J5
NTND28BC	CPU0-CNI-10D to 3PE-GRP4/0-J3	H6	Core 0—J10
NTND28BC	CPU0-CNI-10F to 3PE-GRP4/0-J4	H8	Core 0—J9
NTND28BC	CPU1-CNI-10A to 3PE-GRP3/1-J3	H10	Core 1—J6
NTND28BC	CPU1-CNI-10C to 3PE-GRP3/1-J4	H12	Core 1—J5
NTND28BC	CPU1-CNI-10D to 3PE-GRP4/1-J3	H14	Core 1—J10
NTND28BC	CPU1-CNI-10F to 3PE-GRP4/1-J4	H16	Core 1—J9

Note: Return to the option 81 upgrade procedures and resume with the next step.

Figure A-10
Groups 3 and 4 cables from the outside of the connector housing



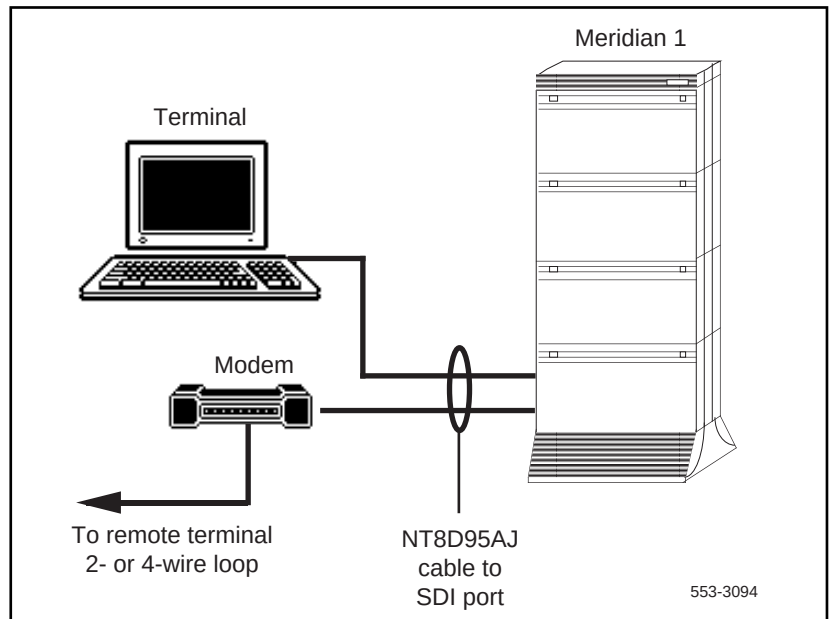
Note: For clarity, the strain relief bracket is not shown in the illustration.
All connections are to the right I/O panel.

553-5592

Appendix B: Terminal and modem connections

During the system upgrade, a terminal must be connected to a serial data interface (SDI) port to provide an I/O interface to the system. When the upgrade is complete, a terminal (for local access) or a modem (for remote access) must remain permanently connected to an SDI port to provide a constant I/O interface to the system (see Figure B-1).

Figure B-1
Terminal connection diagram



When upgrading a dual CPU system, you may want to temporarily install additional terminals for split mode monitoring, or programming, or both.

Note: In options 61 and 71, SDI cards can be temporarily installed in CPU slots during a software conversion. In options 51C, 61C, 81, and 81C, I/O ports on the call processing (CP) cards can be used to monitor CPU operations. These configurations should not be used as the permanent I/O connection for the system because the port is only active when the associated CPU, or CPU, is active.

For a modem connection to the Meridian 1, Bell 103/212 compatible dumb modems are recommended for all systems, except options 51C, 61C, 81, and 81C.

CAUTION

If a Hayes command-set compatible (smart) modem is used at the Meridian 1 end, you *must* select the dumb mode of operation, Command Recognition OFF and Command Echo OFF, before connecting the modem to the SDI port. Refer to the modem instructions to set the mode of operation.

If a printer is connected to an SDI port (locally or remotely), you must disable XON/XOFF flow control, so no characters or signals are sent to the port, to avoid a “ping-pong” effect.

Note: For information specific to options 51C, 61C, 81, and 81C, see “Options 51C, 61C, 81, and 81C terminal and modem connections” on page B-8.

1 Install and cable a system terminal or a modem:

- Unpack the terminal/modem and place it in its assigned location.
- Install the terminal/modem according to the manufacturer’s instructions.
- Connect an NT8D95AJ cable to a matching connector on the terminal/modem.

Note: At a remote location, install and connect a compatible modem and terminal. Connect the NT8D95AJ cable to the modem.

2 Install and cable the SDI card:

- Set the Enb/Dis switch to Dis (down).
- See *Circuit card installation and testing* (553-3001-211) to set the option switches for each port.

See Figure B-2 for switch locations on an NT8D41 SDI Paddle Board. (The paddle board cannot be used in options 71, 81, and 81C.)

See Figure B-3 for switch locations on an NTND02 MSPS Card. (The MSPS card is used in option 21E only.)

- Insert the SDI card into its assigned slot.
- Cable the SDI card:

See Figure B-4 to cable the NT8D41 SDI Paddle Board. (There is no faceplate on the paddle board; Figure B-4 identifies the ports.)

See Figure B-5 to cable an NTND02 MSPS Card.

See Figure B-6 to cable a QPC841 Four-Port SDI Card.

- Set the Enb/Dis switch to Enb (up).

3 Software enable the SDI card:

- Define each SDI port in the Configuration Record (LD 17).
- Enable each SDI port using the appropriate software program for the port application. Typical SDI applications and associated programs include:

Terminal and printer ports LD 37

Call Detail Recording (CDR) ports LD 42

Automatic Call Distribution (ACD) ports LD 48

4 Connect an NT8D95AJ cable from the terminal, or modem, to the assigned SDI port.

Figure B-2
Ports and switches on the NT8D41 SDI Paddle Board

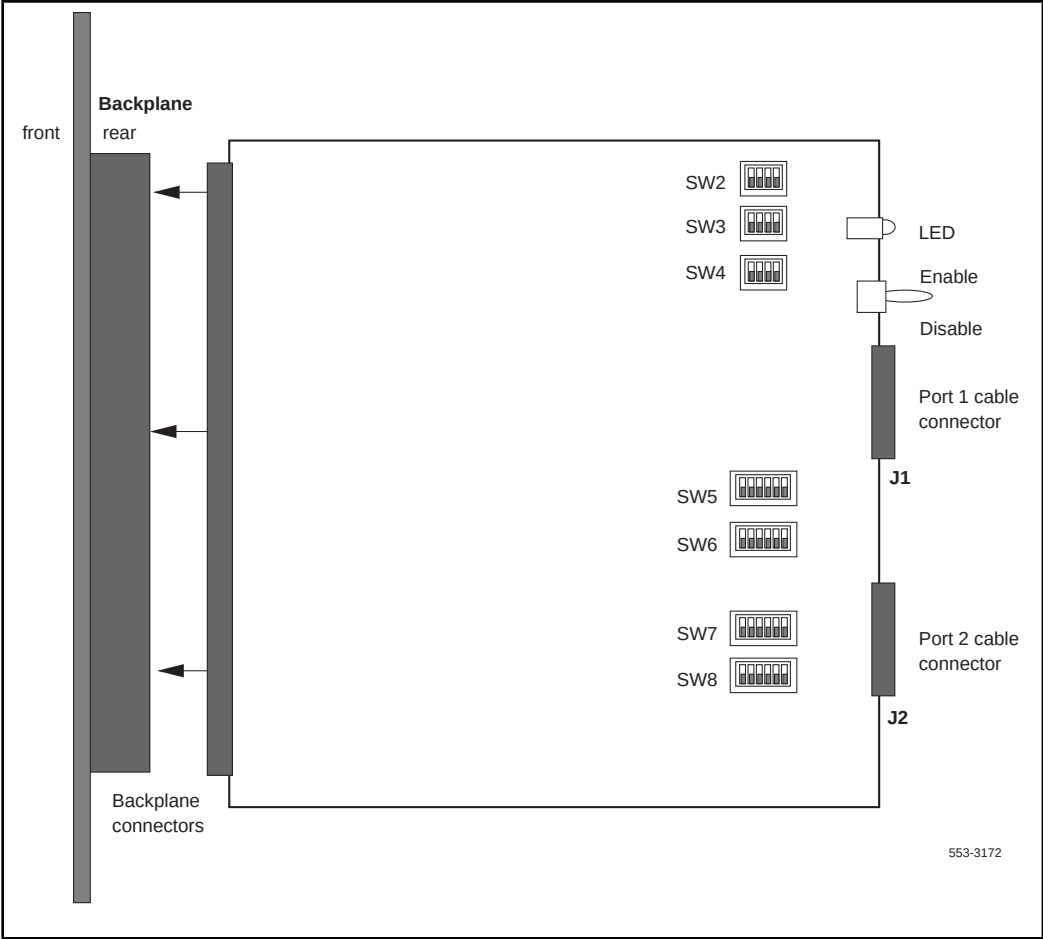


Figure B-3
Switch locations on the NTND02 MSPS Card

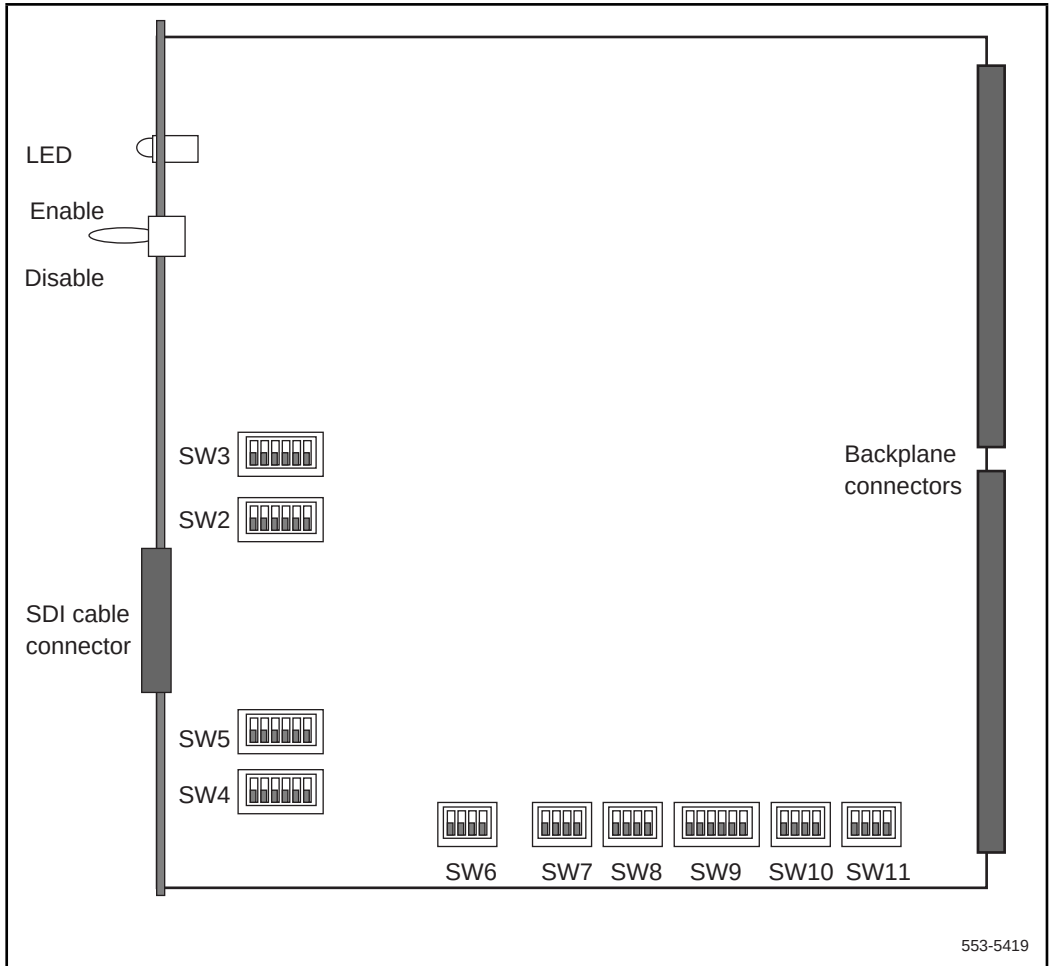


Figure B-4
Cabling diagram for the NT8D41 SDI Paddle Board

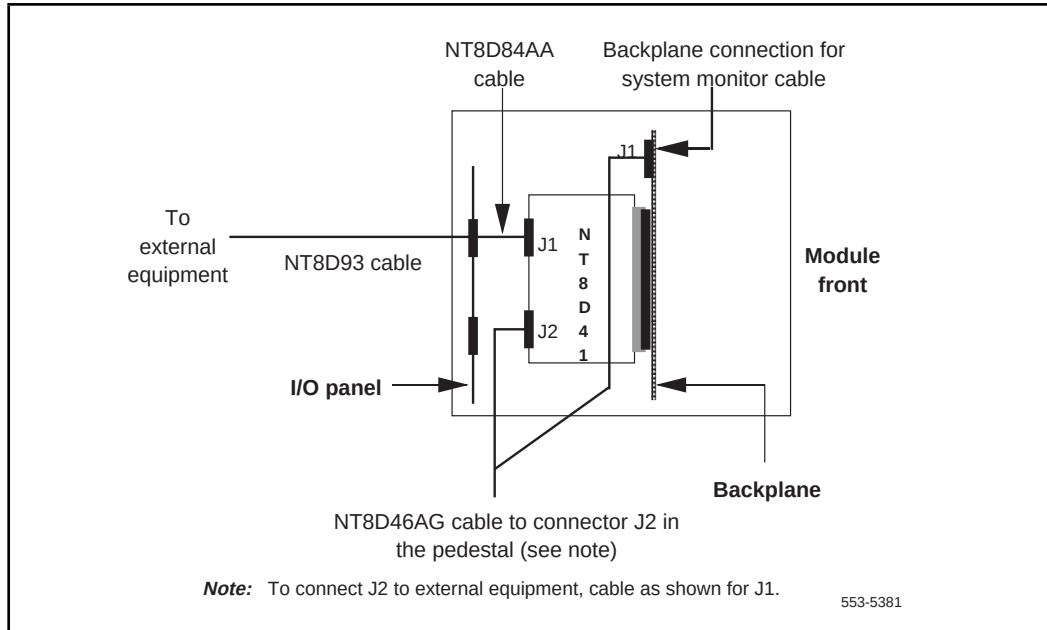


Figure B-5
Cabling diagram for the NTND02 MSPS Card

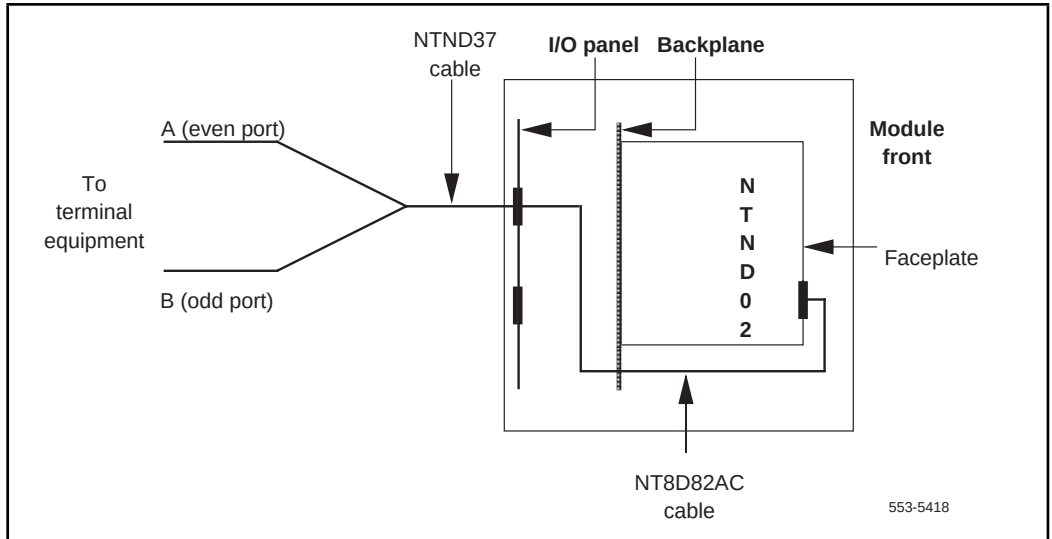
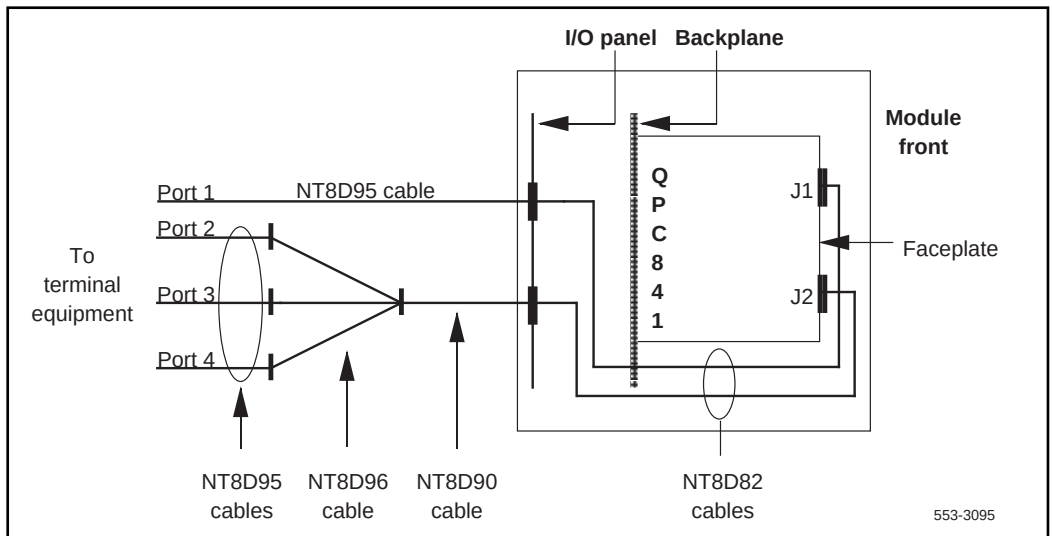


Figure B-6
Cabling diagram for the QPC841 Four-Port SDI Card



Options 51C, 61C, 81, and 81C terminal and modem connections

During the system upgrade and for continuing system operation, a terminal must be connected to an SDI port in a network slot to provide an I/O interface to the active CPU in the system. In addition, a data terminal equipment (DTE) port and a data communication equipment (DCE) port on each NT6D66 or NT9D19 CP Card can be used for direct access to the Core or Core/Network Module that houses the card. Typically, the CPSI ports are preconfigured on I/O addresses four and five.

The CP card ports (CPSI ports) are active only when the CPU associated with the CP card is active. Therefore, the CPSI ports should not be used as the only I/O connection for the system.

When the upgrade is complete, you must leave a terminal or a modem connected to the system. One SDI port in a network slot must be permanently connected to a terminal or modem. On the CPSI ports you can

- disconnect the ports
- leave terminals connected for local monitoring
- connect modems for remote monitoring

The Black Box ABCDE-Switch, which provides up to four-to-one switching, is available from Northern Telecom as part number A0377992. The switch box can be used to connect the SDI and CPSI ports to a terminal or a modem. If used, one switch box must be used for terminals and one for modems.

Options 51C, 61C, 81, and 81C terminal guidelines

During an upgrade, you can connect terminals to the CPSI ports for split mode monitoring, or programming, or both. (Due to the speed of the system messages displayed, personal computers are useful for file capture and review.) Terminals connected to the CPSI ports can be installed as follows:

- one terminal connects to a CPSI port in one CPU (the cable is switched from module to module as needed); one terminal is required in addition to the terminal for the SDI port connection (see Figure B-7)
- one terminal connects to a switch box that connects to a CPSI port in each CPU: one terminal and a switch box are required in addition to the terminal for the SDI port connection (see Figure B-8)
- one terminal connects to a switch box that connects to an SDI port and to a CPSI port in each CPU: one terminal and a switch box are required (see Figure B-9)

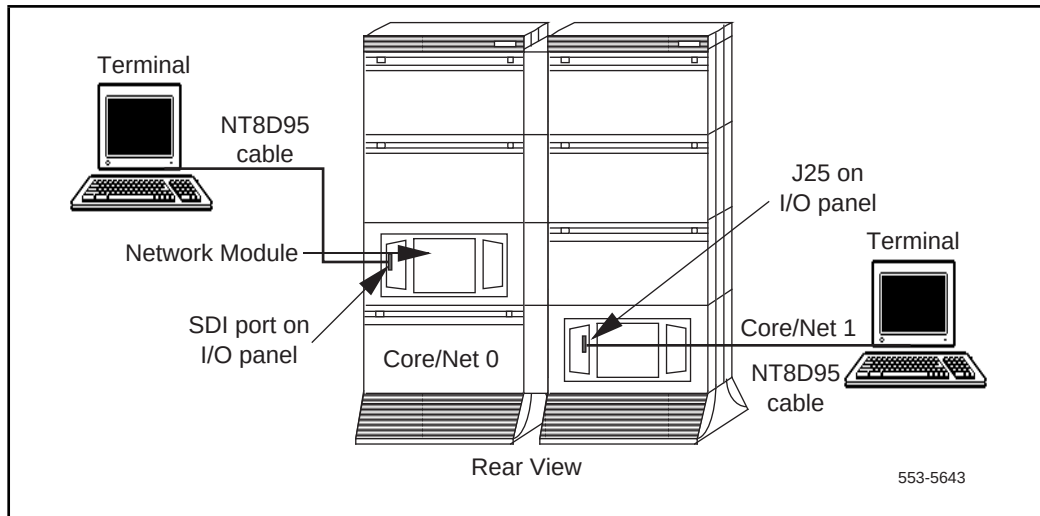
The Option 51C has only one CPU module and requires only one CPSI terminal connection and one SDI port connection. A single terminal with a switch box can be used.

Connecting a terminal to a CPSI port

Use the following procedure to connect a CPSI port directly (no switch box) to a terminal (see Figure B-7):

- Set the terminal to 9600 baud, 7 data, space parity, one stop bit, full duplex, XON.
- Connect an NT8D95 cable to a matching connector on the terminal.
- Connect the NT8D95 cable to J25 on the I/O panel in the rear of the Core or Core/Network Module.
- If you are using only one terminal for both CPSI ports, switch the cable as needed. The terminal connected to the SDI port will always communicate with whichever CPU is active.

Figure B-7
One terminal for the CPSI ports

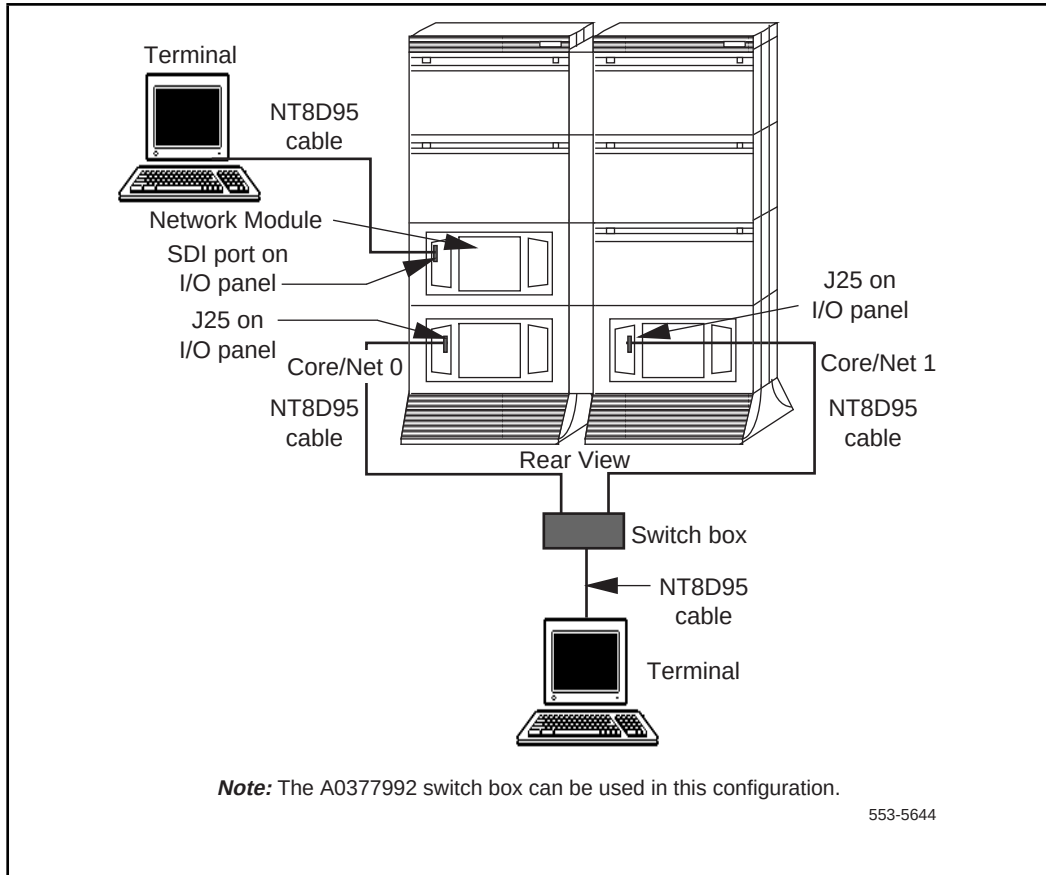


Connecting a switch box and terminal to CPSI ports

Use the following procedure to connect CPSI ports to a switch box and a terminal (see Figure B-8):

- Set the terminal to 9600 baud, 7 data, space parity, one stop bit, full duplex, XON.
- Connect an NT8D95 cable to the terminal and to the switch box.
- Connect NT8D95 cables to a matching connector on the switch box.
If you are using an A0377992 ABCDE box, connect cables as follows:
 - Connect CPU 0 to connector A.
 - Connect CPU 1 to connector B.
- Connect the NT8D95 cables from the switch box to J25 on the I/O panel in the rear of the Core/Network Modules.
- To communicate directly with a CPSI port, switch the cable as needed. The terminal connected to the SDI port will always communicate with whichever CPU is active.

Figure B-8
One terminal and a switch box to two CPSI ports

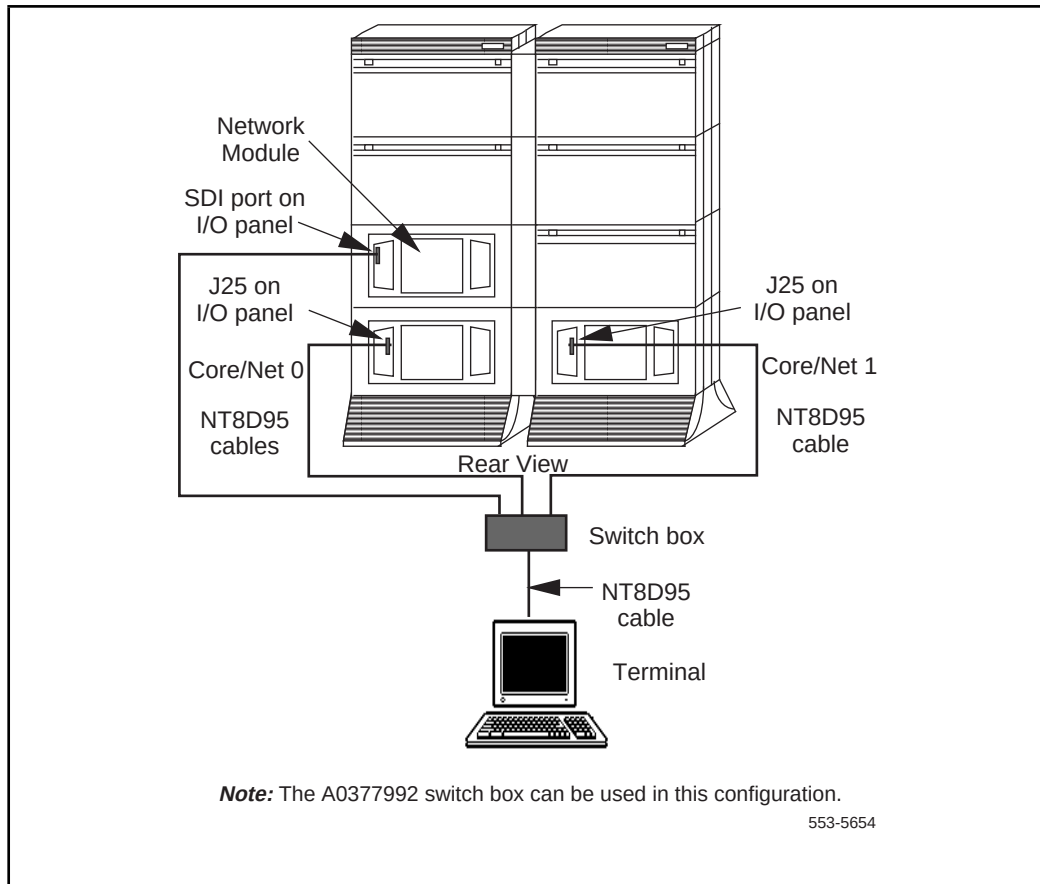


Connecting a switch box and terminal to the SDI and CPSI ports

Use the following procedure to connect CPSI ports to a switch box and a terminal (see Figures B-8 and B-9):

- Set the terminal to 9600 baud, 7 data, space parity, one stop bit, full duplex, XON.
- Connect an NT8D95 cable to the terminal and to the switch box.
- Connect NT8D95 cables to a matching connector on the switch box.
If you are using an A0377992 ABCDE box, connect cables as follows:
 - Connect CPU 0 to connector A.
 - Connect CPU 1 to connector B.
 - Connect the SDI port to connector D (connector C is common).
- Connect NT8D95 cables from the switch box to J25 on the I/O panel in the rear of each Core or Core/Network Module.
- Connect an NT8D95 cable from the switch box to the I/O panel slot for the SDI card.
- To communicate with the system in general, set the switch box to the SDI port. To communicate directly with a CPSI port, switch the cable as needed.

Figure B-9
One terminal and a switch box to the SDI and CPSI ports



Options 51C, 61C, 81, and 81C modem guidelines

You can connect a modem to an SDI port to remotely monitor general system operation. Or you can connect a modem to the CPSI ports for debugging and patch downloading (through your Northern Telecom representative). Or you may want a remote connection to both the SDI and CPSI ports.

At the Meridian 1 end (the local end), modems must be set to dumb mode (command recognition OFF, command echo OFF). Modems at the local end can be connected as follows:

- one modem connects to the SDI port and the cable is switched to each CPSI port as needed (see Figure B-10)
- one modem connects to a switch box that connects to the SDI and CPSI ports (see Figure B-11)

Note: The second method listed here is preferred. Other configurations, such as a separate modem for each port, are possible.

At the remote end, at least one modem (which can be set to smart mode), one terminal, and one RS-232 cable are required in all modem configurations.

Modems at the local end must meet the following required specifications to be compatible with options 51C, 61C, 81, and 81C. Modems that meet the following recommended specifications must also meet the required specifications.

- *Required:* true, not buffered, 9600 baud support (required for remote Northern Telecom technical support)
- *Required:* CCITT V.32 or V.32bis compliance
- *Recommended:* the ability to adjust to lower and higher speeds, depending on line quality, while maintaining 9600 baud at local DTE
- *Recommended:* V.42 error correction
- *Recommended:* V.42 bis data compression

A dispatch or call back modem, normally connected to the SDI port, can be used if it meets the requirements. If you want to use a modem of this type that does not meet the requirements, the modem can only be used in addition to a modem that does meet specifications.

Any modem that meets the required specifications should be compatible with options 51C, 61C, 81, and 81C. The following models have been tested and verified as compatible:

- Hayes V-series ULTRA Smartmodem 9600
- UDS FastTalk V.32/42b
- US Robotics Courier HST Dual Standard V.32bis
- Motorola 28.8 Data/Fax

The UDS FastTalk modem is available through Northern Telecom as part number A0381391 and the Motorola 28.8 Data/Fax modem is available as part number A0638930. Each modem is equipped with a 6-ft power cord for a standard 110 V ac wall socket and a cable that connects to an RJ11C jack. (The A0377992 Black Box ABCDE-Switch can be used with the UDS FastTalk or Motorola 28.8 Data/Fax modem.)

Configuring an A0638930 Motorola 28.8 Data/Fax Modem

Use the following procedure to configure a Motorola 28.8 Data/Fax Model 3400 modem for operation with options 51C, 61C, 81, and 81C.

The modem can be configured:

- for local mode of operation
- for remote mode of operation

Note: After the modem is configured, power down of the modem will not result in loss of the configuration settings. However, by pushing the RESET button on the modem and holding it down until the “MR” light flashes 5 only, and by releasing the RESET button before the next 5 flashes start, will reset the modem to its factory default settings. It will then be necessary to reconfigure the modem to the settings required for operation with Meridian 1 systems.

Installation procedure

- 1 Unpack the modem and read the installation instructions included with the modem.
- 2 Position the modem in its designated space, install its power cord, and plug it into the power receptacle.
- 3 Connect a 25-pin RS-232 cable to the modem and to a terminal.

Local configuration procedure

- 1 Set the terminal with these parameters:
 - 9600 baud
 - 8 data bits
 - 1 stop bit
 - no parity
- 2 Install the communication utility program shipped with the modem or use an appropriate alternate communication utility program such as Procomm, Telix, SmartCom, Bitcom, or CrossTalk.

- 3 Enter the following command string in one line, followed by the carriage return <cr>:

```
AT&F \Q0 &S1 S0=1 S7=60 S2=128 Q1 E0 &W &W1 <cr>
```

After you press the carriage return <cr>, the modem will appear to have stopped functioning. This is normal.

- 4 Power off the modem and connect it to a Call Processor CPSI port in the Meridian 1 system. To do this:
 - Set the power switch to OFF.
 - Connect the NT8D95 cable between the modem and the J25 on the I/O panel at the rear of the Core/Network module.
 - Connect the modem to the telephone jack (RJ11) using the RJ11 telephone cord. If the cord is not supplied, use the NT8D46 cable.
 - Turn the power switch on the modem to ON.

The modem is now configured for local communication with the Meridian 1 system.

Remote configuration procedure

To configure a modem in the remote mode, connect the modem as described above in “Local configuration procedure” and proceed as follows:

- 1 To place the modem in the remote configuration mode:
 - Press and hold the RESET button until the “MR” light flashes 10 times. There is a 3 second pause before each set of five flashes are received. The “AA” lite comes on at the beginning of the last five flashes and remains on.
 - Do not release the RESET button until you receive all 10 flashes, the “MR”, and the “AA” lights are on. The modem is now placed in the remote mode.
- 2 Dial up the modem at 9600 bps.

Note: Dialing up the modem at a baud rate other than 9600 bps will result in configuration errors.

- 3 Enter five equal signs (= = = =) after you received the connection message.
- 4 Press carriage return <cr> after the PASSWORD prompt appears.
- 5 RC ESTABLISHED prompt will appear. Now you can enter the following commands, each followed by the carriage return <cr>:

AT\Q0	<cr>	Disable Computer Flow Control
AT&S1	<cr>	DSR on when ready to accept data
ATS0=1	<cr>	Answer on the first ring
ATS7=60	<cr>	How long to wait for carrier
ATS2=128	<cr>	Escape sequence character
AT*NT	<cr>	Turn AT command set OFF (very important)
ATQ1	<cr>	Response display OFF
AT&W	<cr>	Write to first profile
AT&W1	<cr>	Write to second profile
AT*RQ	<cr>	End remote configuration and save changes
- 6 The modem is now configured for remote communication with the Meridian 1 system.

Configuring an A0381391 UDS FastTalk modem

Use the following procedure to configure a UDS FastTalk modem for operation with options 51C, 61C, 81, and 81C.

Note: With the exception of the smart/dumb mode jumper setting, configuration changes to the modem are made through software. The modem must remain in smart mode (as shipped) until the software configuration is complete.

- ATE turn off local character echo
 - ATS0=2 enable autoanswer on second ring
 - ATDT set for tone dialing (default is pulse dialing)
 - AT&W store changes in profile 0
 - AT&Y use profile 0 at power up
- 1 Disconnect the power cord, RS-232 cable, and any other cables from the modem.
 - 2 Remove the top cover on the modem:
 - Stand the unit on its side.
 - Using a medium-size flat screwdriver, lightly pry the four lock tabs off the locks (located on the bottom of the case) and pull the cover away from the modem as the locks release.
 - 3 Set the modem to smart mode:
 - Locate the option jumper. The jumper is located just to the left of the speaker (when viewed from the front of the modem).
 - Place the jumper on the two pins farthest from the speaker.
 - 4 Connect a 25-pin RS-232 cable to the modem and to a terminal.
 - 5 Set the terminal with these parameters:
 - 9600 baud (no other speeds will work)
 - 8 data bits
 - 1 stop bit
 - no parity

Note: The modem will communicate at 9600 bps *only*; the terminal or computer must be set to 9600 bps also.

- 6** Enter the following commands to set compatible parameters. Follow each command with a carriage return (press the “Return” or “Enter” key):

AT&F	load active profile containing factory settings
ATV0	select normal mode, error control disabled
ATQ0	set serial port flow control
ATV3	form-of-response message = DTE
AT&D2	modem disconnects when DTR signal is lost
AT&S1	select DSR control
ATS0=1	answer after 1 ring
ATS2=128	escape character = ascii 128
ATS7=60	pause 1 second for carrier detection
ATQ1	

After you enter this last command (ATQ1), the modem no longer responds with “OK”. Enter the next command:

AT&W	store active profile

The modem should respond to every command (except the last two commands) with “OK”. If you do not get this response, turn the modem off and on and try again.

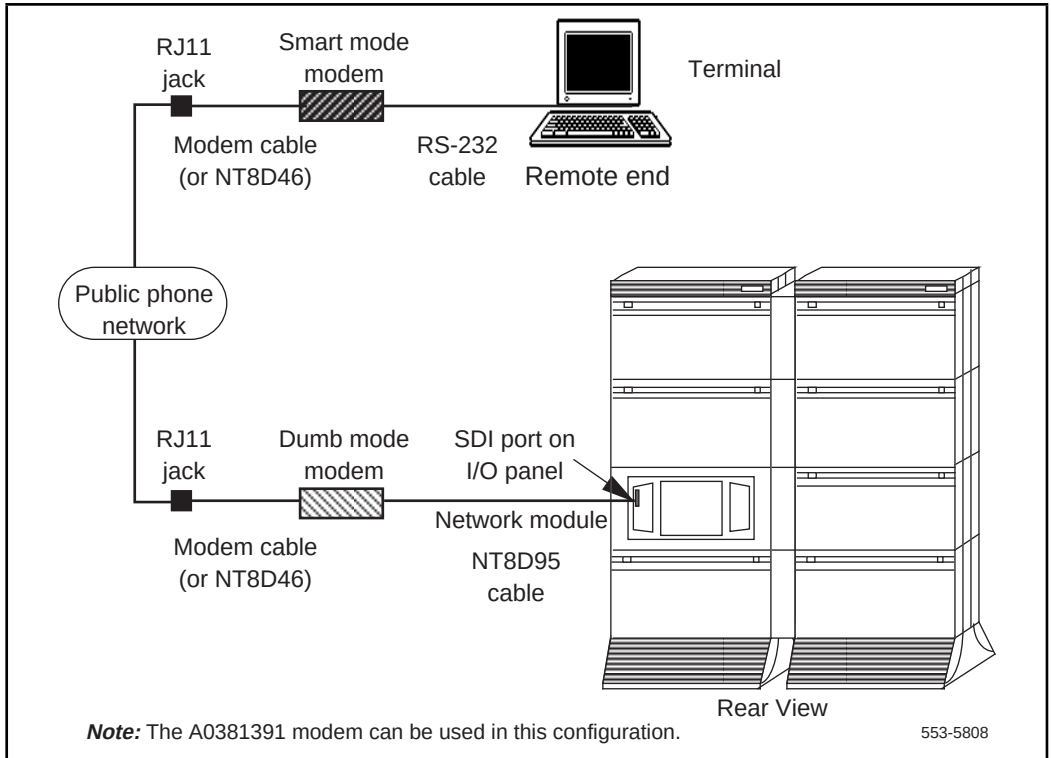
- 7** Disconnect the power cord and serial cable.
- 8** Set the modem to dumb mode:
- Locate the option jumper. The jumper is located just to the left of the speaker (when viewed from the front of the modem).
 - Place the jumper on the two pins closest to the speaker.
- 9** Replace the cover on the modem:
- Align the tabs, locks, and rear guide grooves.
 - Press the cover into place until the locks and the tabs snap together.
- 10** Reconnect the power cord and any other cables that will be used.

Connecting a modem to an SDI port

Use the following procedure to connect an SDI port directly (no switch box) to a modem (see Figure B-10):

- At the remote end, connect an RS-232 cable to the terminal and to the modem.
- At the remote end, connect the cable from the modem to an RJ11 telephone jack. (If a cable is required, connect an NT8D46 cable to the modem and to the RJ11 jack.)
- At the local end, configure the modem:
 - If you are using a Motorola 28.8 Data/Fax modem, follow the instructions in this document. (See “Configuring an A0638930 Motorola 28.8 Data/Fax Modem” on page B-17.)
 - If you are using an UDS FastTalk modem, follow the instructions in this document. (See “Configuring an A0381391 UDS FastTalk modem” on page B-20.)
 - If you are using a different type of modem, follow the manufacturer’s instructions to set the modem for 9600 baud, auto answer, dumb mode, command recognition OFF, command echo OFF.
- At the local end, connect an NT8D95 cable to the SDI port on the I/O panel in the rear of the module and to the modem.
- At the local end, connect the cable from the modem to an RJ11 telephone jack. (If a cable is required, connect an NT8D46 cable to the modem and to the RJ11 jack.)
- To communicate with a CPSI port, switch the cable from the modem to the port as needed:
 - For debugging or monitoring, connect the cable to the *active* CPU at J21 on the I/O panel in the rear of the Core/Network Module.
 - For patch downloading, connect the cable to the *inactive* CPU at J21 on the I/O panel in the rear of the Core or Core/Network Module.

Figure B-10
Modem to SDI port



Connecting a modem to a switch box and CPSI and SDI ports

Use the following procedure to connect SDI and CPSI ports to a switch box and a modem (see Figures B-11 and B-12):

- At the remote end, connect an RS-232 cable to the terminal and to the modem.
- At the remote end, connect the cable from the modem to an RJ11 telephone jack. (If a cable is required, connect an NT8D46 cable to the modem and to the RJ11 jack.)
- At the local end, configure the modem:
 - If you are using a Motorola 28.8 Data/Fax modem, follow the instructions in this document. (See “Configuring an A0638930 Motorola 28.8 Data/Fax Modem” on page B-17.)
 - If you are using an UDS FastTalk modem, follow the instructions in this document. (See “Configuring an A0381391 UDS FastTalk modem” on page B-20.)
 - If you are using a different modem, follow the manufacturer’s instructions to set the modem for 9600 baud, autoanswer, dumb mode, command recognition OFF, command echo OFF.
- At the local end, connect NT8D95 cables to
 - J21 on the I/O panel in the rear of the Core or Core/Network Modules
 - the SDI port on the I/O panel in the rear of the Network module
- At the local end, connect NT8D84 cables to
 - the SDI Paddle Board at the Core/Network backplane to the I/O panel in the rear of the Core/Network Module.
- At the local end, connect NT8D95 cables from the I/O panels to a matching connector on the switch box.

If you are using an A0377992 ABCDE box, connect cables as follows:

- Connect CPU 0 to connector A.
- Connect CPU 1 to connector B.
- Connect the SDI port to connector D (connector C is common).

- At the local end, connect an NT8D95 cable from the switch box to the modem.
- At the local end, connect the cable from the modem to an RJ11 telephone jack. (If a cable is required, connect an NT8D46 cable to the modem and to the RJ11 jack.)
- At the local end, set the switch box as needed to communicate with the CPSI ports:
 - During normal operation, set the switch to the SDI port.
 - For debugging, set the switch to the *active* CPU.
 - For patch downloading, set the switch to the *inactive* CPU.

Figure B-11
Modem to a switch box and SDI and CPSI ports (dual-column systems)

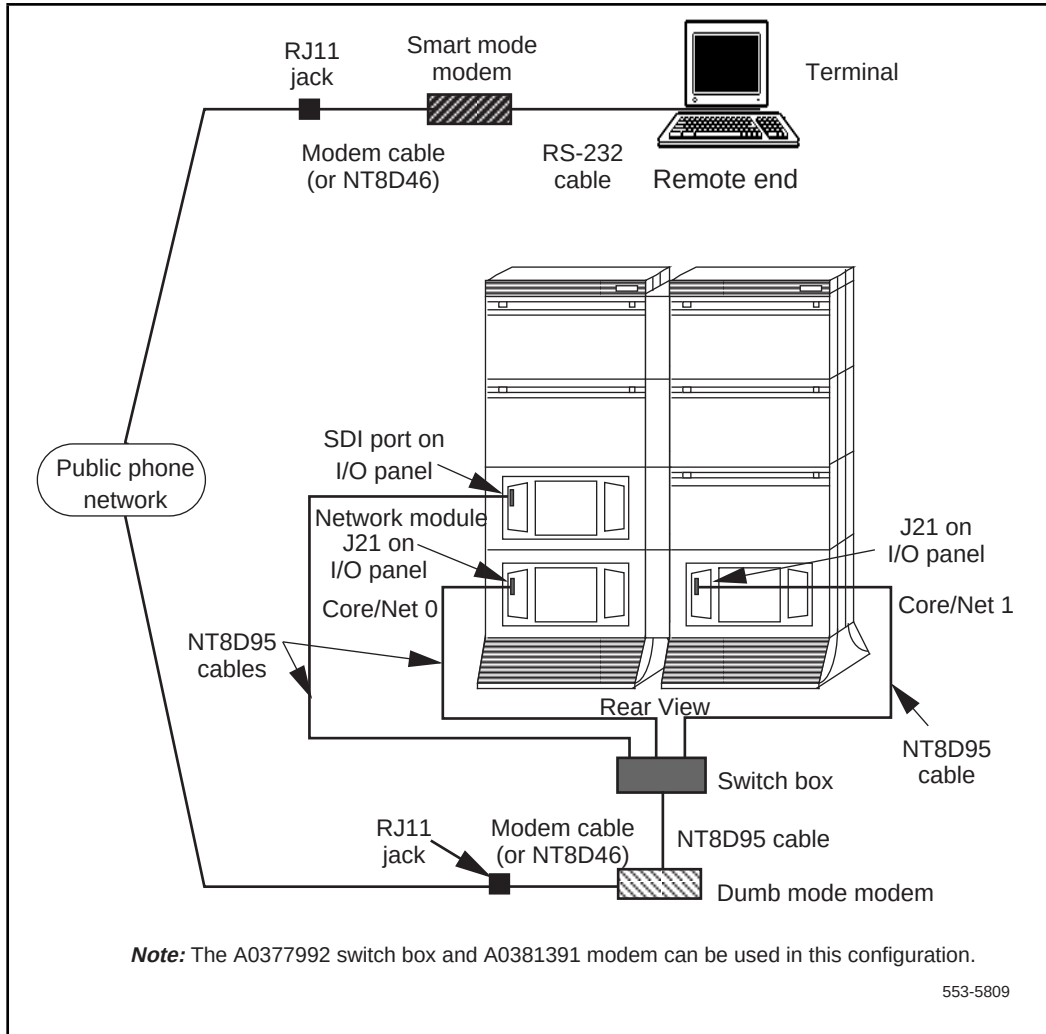
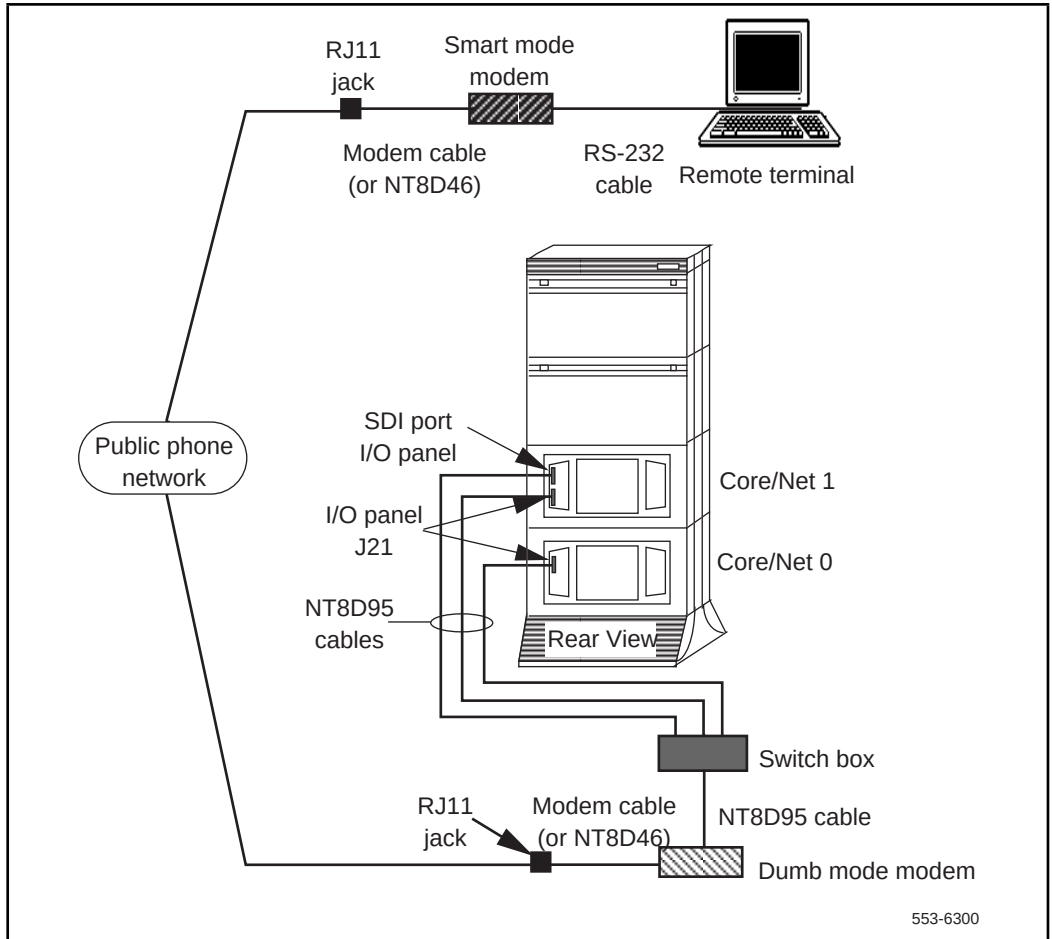


Figure B-12
Modem to a switch box and SDI and CPSI ports (single-column systems)



Appendix C: Troubleshooting

This appendix contains procedures that you can perform if you experience trouble after upgrading a system to an option 51C, 61C, 81 or option 81C. Look up all messages displayed on the terminal in the *X11 input/output guide* (553-3001-400). For further troubleshooting procedures for these and other systems, also refer to these documents:

- *Meridian 1 general maintenance information* (553-3001-500)
- *Meridian 1 fault clearing* (553-3001-510)

Troubleshooting procedures

Find the symptom listed below, and perform the appropriate corrective procedure.

- 1 If the NT6D63 IOP or NT5D20 IOP/CMDU Card fails the self-test, do the following:
 - Replace the card with a spare IOP or IOP/CMDU card.
 - Look for bent pins on the backplane connectors.
 - Replace the card cage.
- 2 If the NT6D66 or NT9D19 CP Card fails the self-test, do the following:
 - Replace the card with a spare CP card.
 - Look for bent pins on the backplane connectors.
 - Replace the card cage.

Note: Contact your Northern Telecom representative for card or card cage replacement information.

- 3 If “IOP Out of Service” appears on the CP card LCD, do the following:
 - Check the cable connections on the rear of the backplane. Make sure backplane connector positions are correct (and no connectors are in row B or E).
 - Look for bent pins on the backplane connectors.
 - Replace the IOP or IOP/CMDU card with a spare IOP or IOP/CMDU card and make sure it completes its power-up tests successfully. Reset the CP card to force it to rehunt the IOP or IOP/CMDU card.
 - If the CP card finds the IOP or IOP/CMDU card, the original IOP or IOP/CMDU card is defective.
 - If the CP card still fails to find the IOP or IOP/CMDU card, replace the card cage.
- 4 If the system points to file corruption (such as “Error in file diskos” type messages) while the software was loading, do the following:
 - Place the A1 disk (provided in the software upgrade package) in the floppy drive on the NT6D64 CMDU or Nt5D20 IOP/CMDU card and reload (sysload) the system. The system will boot from the floppy, which contains the operating system software, and invoke the installation program. When the program installs the software on the hard drive, file-level corruption problems should be eliminated.
 - If the failure persists, because of a hard drive failure for example, replace the CMDU or IOP/CMDU card with a spare CMDU or IOP/CMDU card and try to load the software.

Note: If the database conversion or the data dump failed, contact your Northern Telecom support representative.

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