Meridian Mail Options

Installation Guide

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About this document

This Nortel Publication (NTP) describes the procedures involved when installing the Meridian Mail Voice Messaging system.

How this document is organized

This document is organized into the following parts:

- preparing for Meridian Mail installation
- assembling Meridian Mail
- installing and configuring peripheral devices (administration terminal, printer, and modem)
- configuring the Meridian Mail-PBX link
- starting up and configuring Meridian Mail

It also includes Appendices consisting of the items listed below:

- terminal configurations
- modem configurations
- power and ground testing

Related documents

Information about the features and operating procedures for the Meridian Mail Voice Messaging system is available in the following documents:

- *NTP Contents Overview* 555-7001-100
- *Site and Installation Planning Guide* 555-7041-200
- *System Administration Guide* 555-7001-301
- *System Administration Guide for Multi-Customer Systems* 555-7001-302
- *Options Maintenance Procedures* 555-7011-500
- *Maintenance Messages (SEERs) Reference Manual* 555-7001-510

The following documents for the Meridian 1 also apply:

- *X11 Input/Output* 553-3001-400
- *Master Index of Practices* (related to Meridian 1/SL-1) 553-2xx1-000
- *Circuit Pack Option Settings* 553-2xx1-211
- *Additional Shelf Installation/Removal* 553-2xx1-210
- *Acceptance Test Manual* 553-2xx1-230

Note: From a Meridian Mail perspective, the Meridian 1 and SL-1 switches are the same. For simplicity, only the term “Meridian 1” will be used when referring to these switches.

The exact NTP numbers will depend on the Meridian 1 model. Additional documents may apply depending on the site and the particular Meridian 1 model being used.

Chapter 1: Preparing for installation

As soon as the Meridian Mail system is delivered, make sure that all deliverable items are present by checking the packing slips against the items present. Place the equipment or shelf in its final location before beginning the installation.

Ensure that the local PBX is configured to accommodate the additional Meridian Mail equipment. This may involve upgrading the existing software and power supplies. See *Site and Installation Planning Guide* (NTP 555-7011-200) for details.

Before installing Meridian Mail, fill in the site data forms available in the *Site and Installation Planning Guide* (NTP 555-7011-200) to make sure you have everything you need readily available to you while you are installing your equipment.

Have the following tools at hand before beginning the installation:

Tool	Description
Slotted screwdriver	small, 4.76 mm (3/16-in.)
Carpenter's level	
Phillips screwdriver	small, stubby
Phillips screwdriver	medium
Socket wrenches	6.35, 7.94, and 14.29 mm) (1/4–, 5/16–, and 9/16-inch)
Hammer	
Electro-static discharge (ESD) wrist strap	

Chapter 2: Meridian Mail assembly

Overview

Assembly of Meridian Mail hardware consists of the following procedures (which must be completed in the order given below). When assembly is complete, go to the section which describes installation and configuration of peripheral devices.

Note: Follow only the procedures specific to your Options type.

ST/RT Options

Procedure	See page
Unpack and inspect the hardware	2-3
Install Meridian Mail tiers	2-4
Install Node 2	2-12
Install the disk and tape units	3-1
Install printed circuit packs (PCPs)	5-1
Verify the PCP cabling	6-1
Meridian Mail to ST/RT interface cabling	7-1
Install and configure peripheral devices	8-1
Configure the ST/RT software	9-1
Start up and configure Meridian Mail	10-1
Acceptance testing	10-2

Shelf Options cabinet

Procedure	See page
Unpack and inspect the hardware	2-3
Install Options shelf assembly	2-18
Install Node 2	2-12
Route the power harness	2-21
Install the disk and tape units	3-1
Install printed circuit packs (PCPs)	5-1
Verify the PCP cabling	6-1
Meridian Mail to NT/XT interface cabling	7-1
Install and configure peripheral devices	8-1
Configure the NT/XT software	9-1
Start up and configure Meridian Mail	10-1
Acceptance testing	10-2

Unpacking and inspecting Meridian Mail

Procedure 2-1
Unpacking and inspecting the Meridian Mail hardware

1 Check all items against the order form and the packing slip. Report any errors or omissions to the supplier.

See Appendix A in *Site and Installation Planning* (NTP 555-7041-200) for a list of part numbers.

2 Place the equipment in a safe, dry location in the equipment room.

3 If equipment is mounted on a shipping pallet, follow unpacking instructions provided with the packaging material, and remove equipment from the pallet.

4 Cut any remaining strapping and/or tape. Remove transport protection devices and stretch–wrap film (if provided) from equipment.

Meridian Mail components are carefully packaged for maximum protection against physical damage during shipment. Retain the packaging material in case any equipment needs to be returned.

WARNING
Risk of equipment damage
Wear an antistatic wrist strap when handling components. As an additional safety measure, handle components by the edges and, whenever possible, with the loosened packing material still around the component.

5 Remove the disk unit from its carton and shock packaging, and check for any obviously missing parts or any breakages. Repack carton and store in a safe place until ready to install.

6 Inspect the equipment for the following:

- damaged connectors
- connectors that need to be cleaned of lint, dust, and so on
- defects in the molded plastic covers
- any obvious damage to the equipment
- any loose items remaining in the shipping cartons

Report any damage or defects to the supplier.

7 Using a flashlight, make sure there are no broken pins or shrouds on the backplane connectors.

Installing Meridian Mail tiers

Meridian Mail and phone service will be interrupted for approximately 30 minutes when adding a shelf to an operating system.

A single-node Meridian Mail system may only be installed in a CE cabinet, because PE cabinets do not have the necessary cooling units. If the CE cabinet does not have an available tier location, an existing CE tier must be removed, reinstalled, and reconfigured in a PE cabinet in order to make room for Meridian Mail. Consult the *SL-1 Installation Guide* (NTP 553-2431-210) for more information.

If you are installing a dual-node system (or upgrading your single-node system to a dual-node system), the Meridian Mail units must be placed in the second and third tiers of the cabinet (which may be either a CE or PE cabinet). If the existing Meridian Mail unit is currently in the third tier of the cabinet, it must be removed and reinstalled in the second tier of the cabinet.

DANGER
Risk of personal injury
Make sure an associate is present to help lift or adjust the equipment.

Note: In order to restore service to the customer in a timely manner, all circuit breakers and power may be turned on except for the Meridian Mail expansion shelf. To continue with Meridian Mail installation, use extreme caution around the operating Meridian 1 cabinet.

When you set the CE cabinet breaker to ON, a system reload will occur. See NTP 553-2301-511 for an interpretation of the messages printed by the system during SYSLOAD.

Procedure 2-2
Installing tiers (ST/RT Options)

1 Perform a data dump on the Meridian 1 using overlay program 43 (as described in NTP 553-2301-511) before proceeding.

2 Remove the front and rear cabinet panels and set them aside.

3 Set the CAB INP breaker on the QUX19 power distribution unit (QUX21 unit in a QCA137 PE cabinet) to the OFF position.

4 Set the breaker on the QUX20 or QUX21 unit for the new shelf to the OFF position.

5 Tag and disconnect cables from all connectors A through G at the rear of the cabinet, and remove all existing EMI shields.

The designations on the breakers (PE1 through PE5) correspond to connectors on the power cables at the rear of the cabinet. See Figure 2-1 for ST CE/PE cabinet shelf position assignments, and Figure 2-2 for ST/RT PE cabinet shelf position assignments.

6 Install an expansion QUX20 power distribution unit (if one was not previously installed). This step applies only to cabinets containing common equipment.

Figure 2-1
Rear view of the ST common equipment/peripheral equipment (CE/PE) cabinet

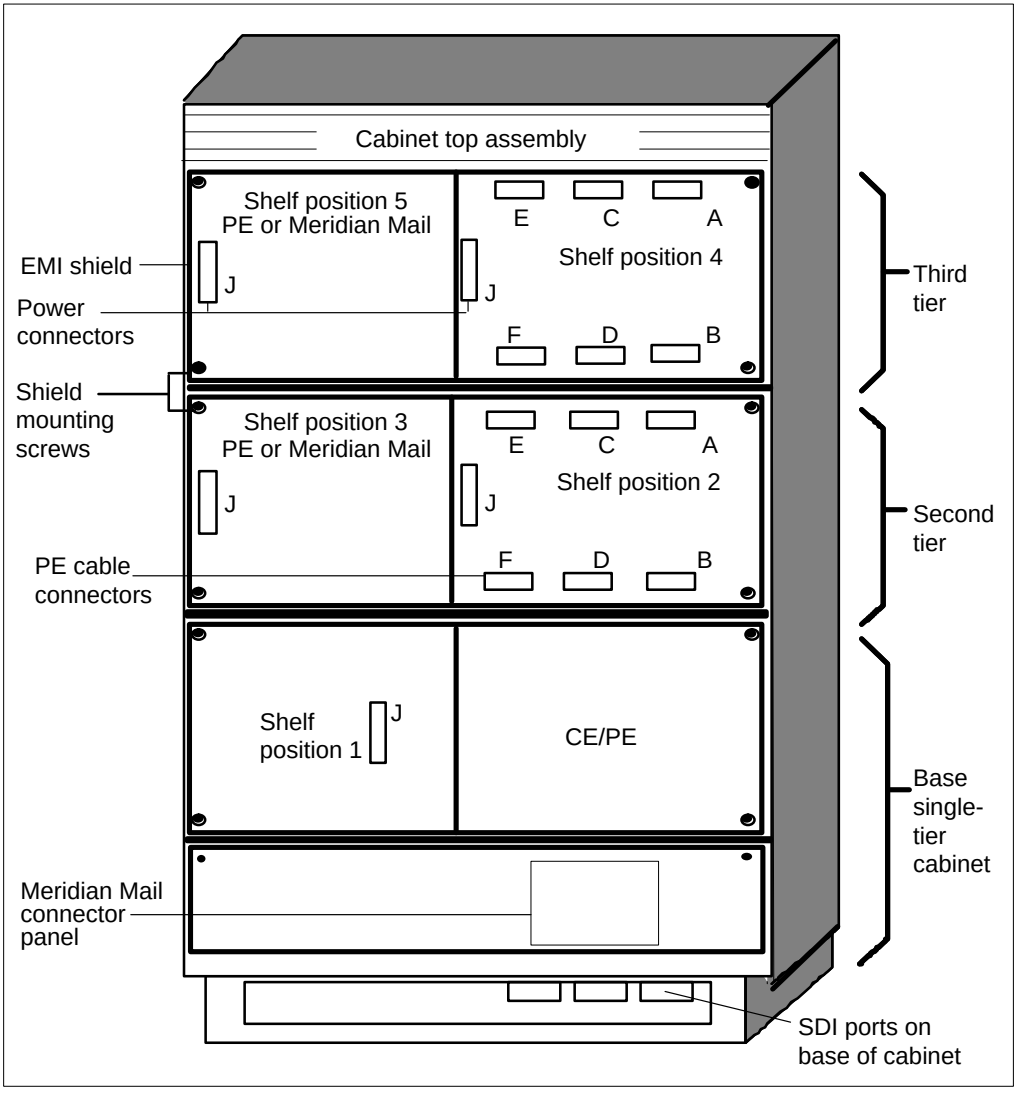
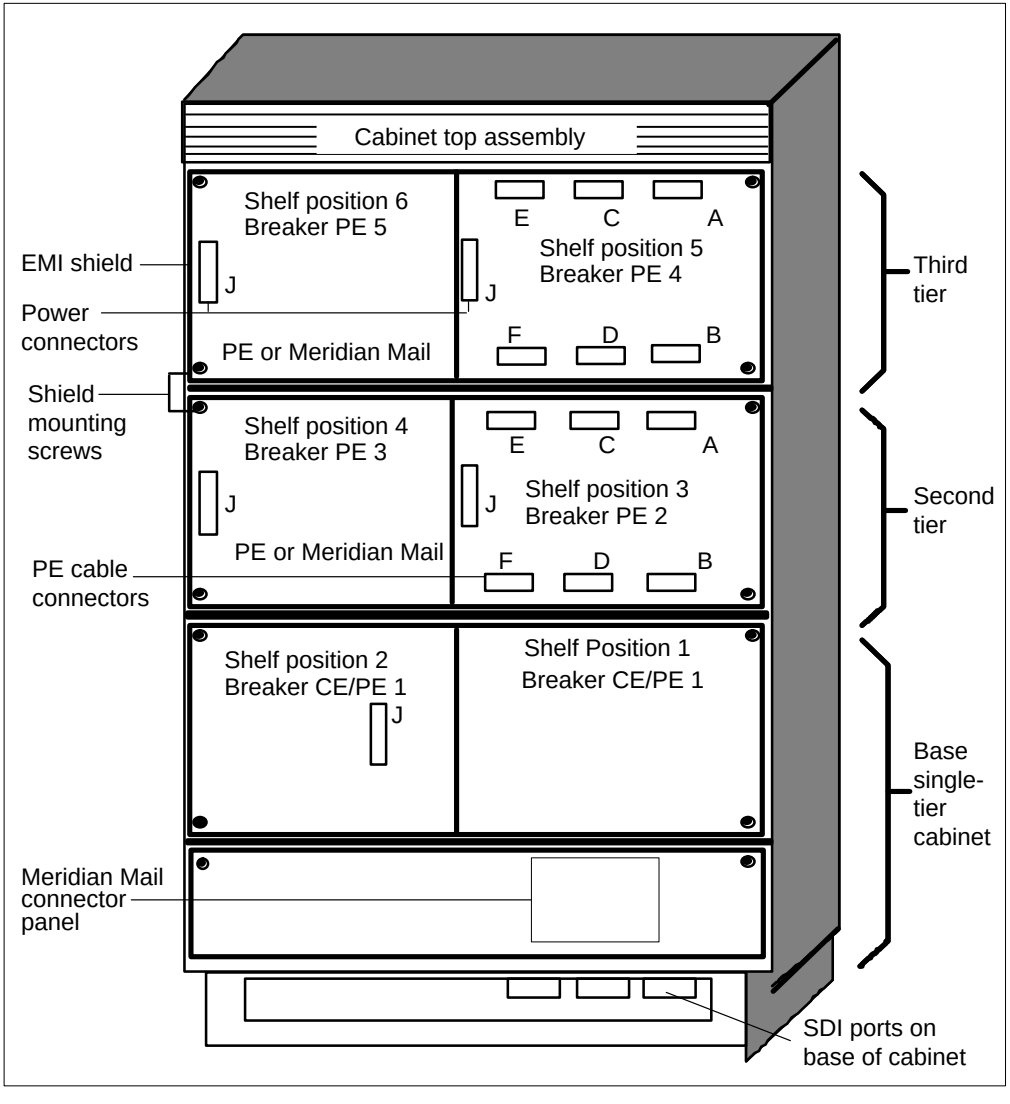


Figure 2-2
Rear view of the ST/RT common equipment/peripheral equipment (CE/PE) cabinet



7 Remove the louvered top assembly from the cabinet by removing the six screws at the top of the assembly (two screws at each end and two at the center).

8 Remove the side panels from each end of the existing top shelf of the cabinet by sliding the panels upward (see Figure 2-3).

9 Remove the four hex screws at each end of the top shelf securing the top panel to the cabinet (Figure 2-3).

CAUTION
Risk of equipment damage
Ensure that the wiring to the thermostat located on the underside of the top panel is not damaged while performing this step.

10 Remove the top panel and place it towards the rear of the cabinet. Ensure that the wiring to the thermostat is routed towards the rear of the cabinet.

11 With the self-tapping screws supplied, secure a joiner plate (using two screws each) to each end of the existing top shelf of the cabinet. Ensure that the two front corner spacers (located in the top of the uprights) are not removed.

12 Reinstall the two cabinet side panels by sliding them down in the grooves located in the uprights at each end of the cabinet. The flange on the side panels should be positioned at the top facing towards the inside of the cabinet.

13 Set the new Meridian Mail shelf on top of the existing shelf, with both ends overlapping the joiner plates.

14 Install a spacer bar (supplied with the tier) between the bottom front rail of the new shelf and the top front rail of the existing top shelf as follows:

a. Tilt the new shelf backwards slightly.

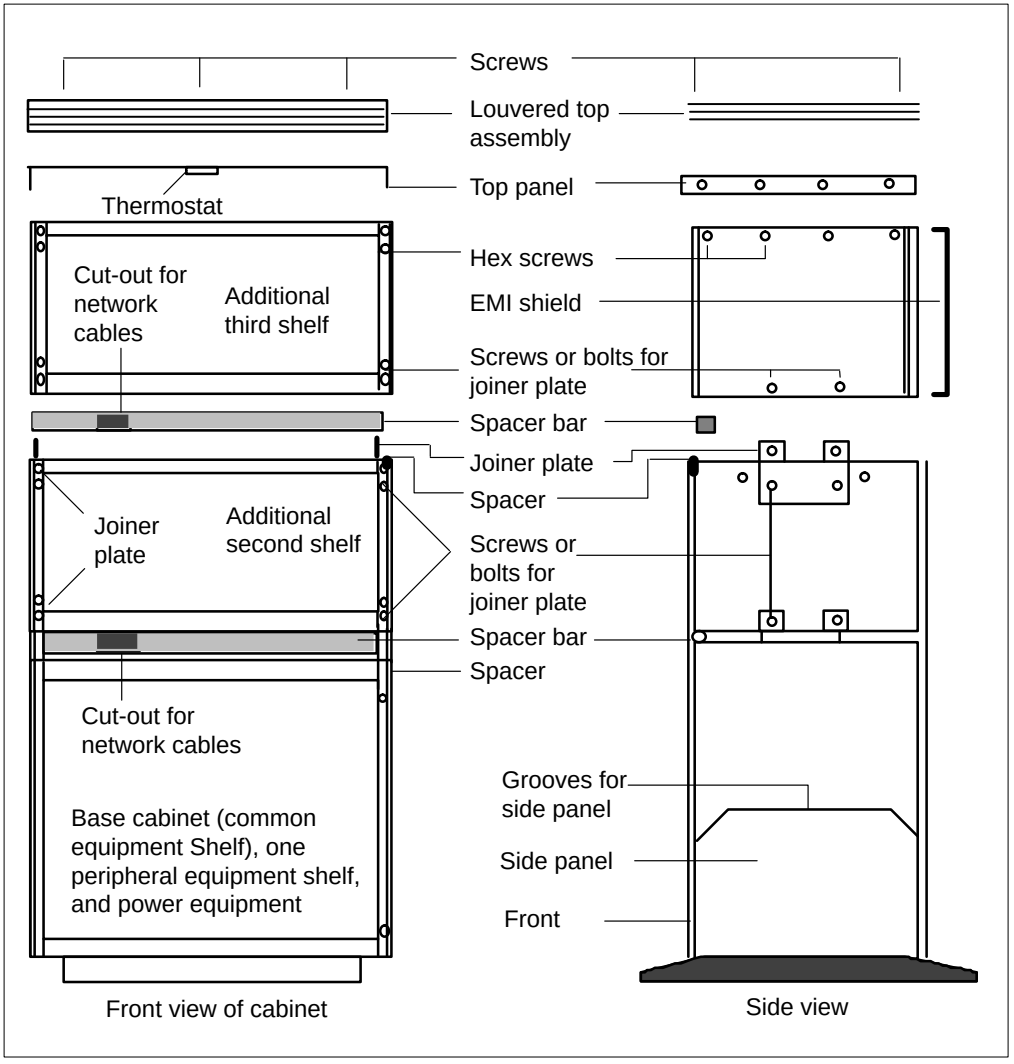
b. Position the spacer bar (with the cut-out on the left and facing outward) in the groove along the top front of the existing shelf.

c. Lower the new shelf onto the spacer bar, fitting the top rail of the bar in the groove on the bottom of the new shelf.

15 Align the new shelf with the existing shelf and secure it to the joiner plates with two screws each.

16 Remove the EMI shield from the new shelf.

Figure 2-3
ST/RT Options shelf assembly—exploded view



17 This step applies only to cabinets equipped with a QCAD277 power cable upgraded with a single-node Meridian Mail ST/RT Options:

Connect the power connector from the QCAD277 power cable to power connector P1 on the Meridian Mail backplane (at connector J in Figure 2-1) according to the shelf position in the cabinet. See Table 2-1 for cable connections.

Table 2-1
QCAD277 cable connection to backplane

Location	QCAD277	Backplane (connector P1)
PE tier 2	connector PE5	position 4
CE tier 2	connector PE5	position 3
PE tier 3	connector PE5	position 6
CE tier 3	connector PE5	position 5

18 If you are installing a dual-node Meridian Mail ST/RT Options, existing cabling should be changed (if necessary) so that a QCAD276 cable is connected to the backplane on the second tier, and a QCAD277 cable is connected to the backplane on the third tier. Backplane connections are shown in Table 2-2.

Table 2-2
QCAD276 and QCAD277 cable connection to backplane

Location	QCAD276	Backplane (connector P1)
PE tier 2	PE3 on QCAD276	position 4
CE tier 2	PE3 on QCAD276	position 3
PE tier 3	PE5 on QCAD277	position 6
CE tier 3	PE5 on QCAD277	position 5

19 If a QCAD277 power cable was not previously installed, connect the other end of the power cable according to Table 2-3 (for single-node Options) or Table 2-4 (for dual-node Options).

Table 2-3
QCAD277 cable connections for single-node Options

QCAD277 power cable	Second tier connections	Third tier connections
Connector P4	J3 (rear of QUAA3 unit)	J4 (rear of QUAA3 unit)
Connector P7	J7 (rear of QUAA3 unit; remove existing plug)	J7 (rear of QUAA3 unit; remove existing plug)
Black leads with ring connectors	GRD2 lug (ground bus, near rear of QUAA3)	GRD2 lug (ground bus, near rear of QUAA3)
White leads with ring connectors	GRD1 lug (ground bus, near rear of QUAA3)	GRD1 lug (ground bus, near rear of QUAA3)
Red lead with spade connector (designated 1)	TB2 terminal 1 “FN”	TB2 terminal 1 “FN”
Red lead with spade connector (designated 4)	TB5 terminal 2 (rear of QUX20 unit)	TB5 terminal 4 (rear of QUX20 unit)
Blue lead with spade connector (designated 5)	TB5 terminal 3 (rear of QUX20 unit)	TB5 terminal 5 (rear of QUX20 unit)

Table 2-4
QCAD276 and QCAD277 cable connections for dual-node Options

QCAD276 power cable	**Second tier connections**
Connector P3	J4 (rear of QUAA3 unit)
Red lead with spade connector (designated 2)	PE2 (rear of QUX20A unit, TB2)
Blue lead with spade connector (designated 3)	PE3 (rear of QUX20A unit, TB2)
Black leads with ring connectors (quantity 2)	GRD2 lug (ground bus, near rear of QUAA3), terminals B and C
White lead with ring connector	GRD1 lug, terminal B
QCAD277 power cable	**Third tier connections**
Connector P4	J3 (rear of QUAA3 unit)
Connector P7	J7 (rear of QUAA3 unit; remove existing plug)
Black leads with ring connectors (quantity 2)	GRD2 lug, terminal E
White lead with ring connector	GRD1 lug, terminal C
Red lead with spade connector (designated 4)	PE4 (rear of QUX20A unit, TB2)
Blue lead with spade connector (designated 5)	PE5 (rear of QUX20A unit, TB2)

20 Reinstall the top panel and secure the top shelf with four hex screws at each end.

21 Install the two shelf side panels by sliding them down in the grooves in the uprights at each end of the new shelf. The flange on the side panels should be positioned at the top, facing the inside of the cabinet.

22 Two QUD24 cooling units are required for a second tier upgrade. Install the units and cabinet louvers according to the instructions in NTP 553-2431-210. Three QUD24 cooling units are required for a third tier upgrade.

23 Reinstall the EMI shields and reconnect any tagged cables that were previously disconnected.

24 Set the CAB INP breaker on the QUX19 unit (CE cabinet) to the ON position.

25 Return to your ST/RT Options installation procedure on page 2-1 for the next step in the installation.

Node 2 installation for ST/RT Options and Options shelf

This section describes the procedures for installing Node 2 for a Meridian Mail Options system. If the original system is running software release 4, also perform the procedures described in the Options Upgrade (release 4 to release 5) section of this document.

The system must be properly “courtesied down” before being taken out of service. For more information on courtes–down procedures, refer to the *System Administration Guide* (NTP 555-7001-30x).

In order to perform the upgrade, you must have one of the following packages along with the proper software conversion tape and document:

- NT9D27AB ST/RT Options (300-Mbyte disk)
- NT9D28AB ST/RT Options (600-Mbyte disk)
- NT6R30AB Options (cantilever mount) (300-Mbyte disk)
- NT6R31AB Options (cantilever mount) (600-Mbyte disk)
- NT6R32AB Options (center mount) (300-Mbyte disk)
- NT6R33AB Options (center mount) (600-Mbyte disk)

Shelf or tier installation

Procedure 2-3
Installing Node 2

1. Install the new shelf or tier according to the appropriate procedure:

   For ST/RT, see “Installing Meridian Mail tiers” elsewhere in this chapter.

   For Options see section “Options shelf assembly installation” later in this chapter.

2. Ensure that the circuit packs are in the locations shown in Figure 2-4 except for the NVP cards (leave the third NVP card in Node one until instructed otherwise).

   Note: As you install or move circuit cards, check that the switch settings are correct. See Chapter 5 for settings.

3. Install the HABC terminator (NT4R10) on the HABC card.

4. Route cables to the I/O box (ST/RT) or to the EMI housing (NT/XT) at the back of the cabinet as shown in Figures 2-4 and 2-6, and described in Table 2-5. Mount the cables using the mounting hardware provided in the upgrade kit.

5 Install the new disk unit into Node 2. Refer to Chapter 3 of this document.

Figure 2-4
Printed circuit packs—dual-node Options configuration

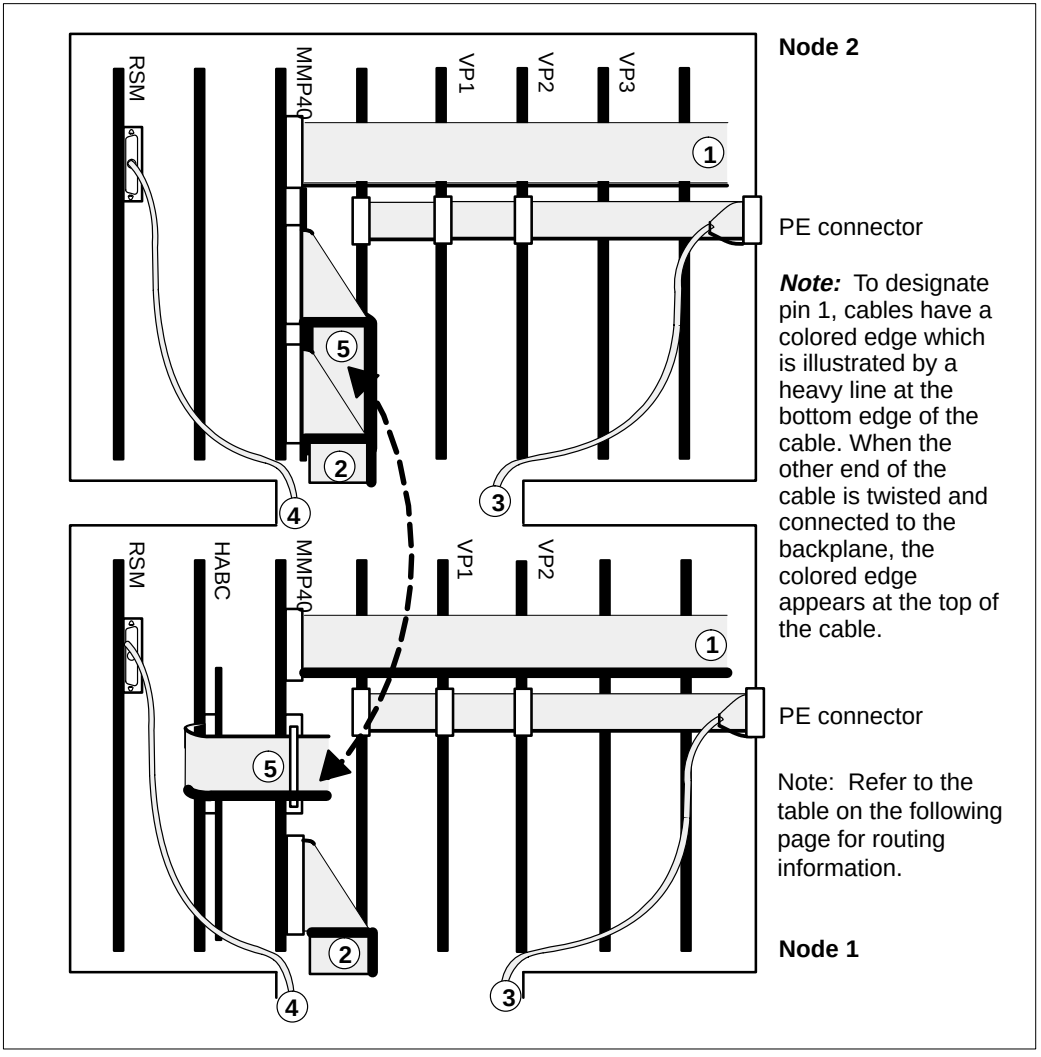


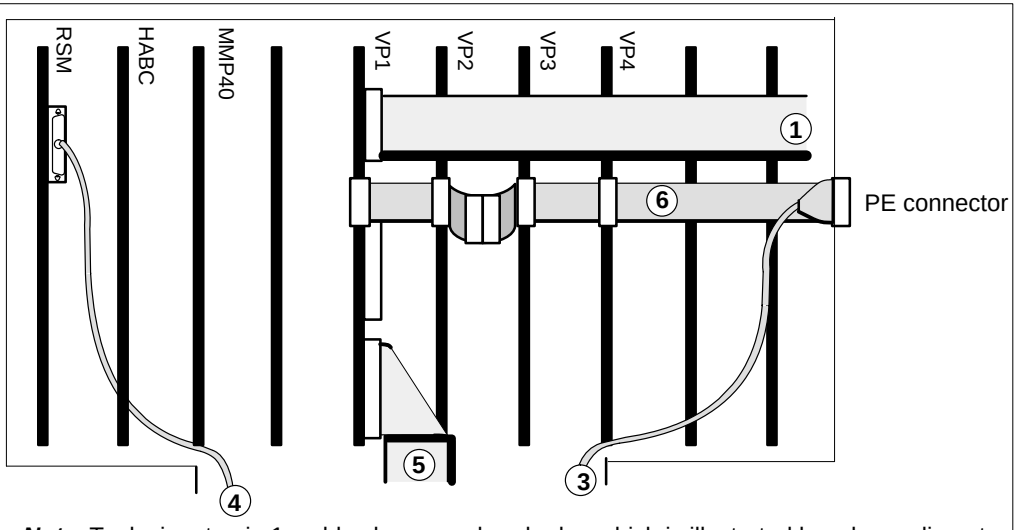
Table 2-5
Dual-node Options cabling detail

	Code	Cable description	Routing information
1*	P0695169 or NT6D4417 (A0618621)	SCSI cable assembly	Route from front of card to the right-hand edge of unit, route to the rear of the shelf. Connect to the J4 connector at the tape controller and on to the J3 connector at the hard disk assembly.
2*	NT6D4419 (A0618623)	Serial communications cable	Route from front of card to exit slot at the bottom of the Meridian Mail faceplate.
***** For the MMP40, the combined CSL/CRT cables each have a brown wire on the inside edge which is intentionally not used.			
3	NT4R61AA (A0363515)	NVP daisychain cable assembly	Route from NVP card #1 to card #2 to card #3 (only two cards in the first node), then to the PE buffer connector at the side of the Meridian Mail faceplate. Next, route from PE buffer connector to exit slot at the bottom of the Meridian Mail faceplate. The NVP cable in the second node passes down through the first node (between the cables and faceplate) and exits with the first node cables.
4	NT4R58AA (A0363517)	RSM cable assembly	Route from front of card to exit slot at the bottom of the Meridian Mail faceplate. The RSM cable in the second node passes down through the first node (between the cables and faceplate) and exits with the first node cables.
5	NT4R57AA (A0363516)	Bus cable assembly	Route from HABC terminator on Node 1 to the front of the MMP40 card on Node 1. Route cable upward to the second node and connect to the MMP40 terminator on Node 2.
–continued–			

Table 2-5 (continued)
Dual-node Options cabling detail

	Code	Cable description	Routing information
6	NT4R61BA (A0627102)	24-Port extension cable (For 24-Port enhancement only)	Remove the daisy chain cable connecting the VP1, VP2, and VP3 cards. Configure and install the VP4 card in its slot. Install the male end of the NT4R61BA extension cable onto the female end of the NT4R61AA cable. Reconnect the daisy chain cable to the four VP cards.
–end–			

Figure 2-5
24-Port Options for dual node system (Using extension cable NT4R61BA)



Note: To designate pin 1, cables have a colored edge which is illustrated by a heavy line at the bottom edge of the cable. When the other end of the cable is twisted and connected to the backplane, the colored edge appears at the top of the cable.

Figure 2-6
ST/RT cable routing to connector panel

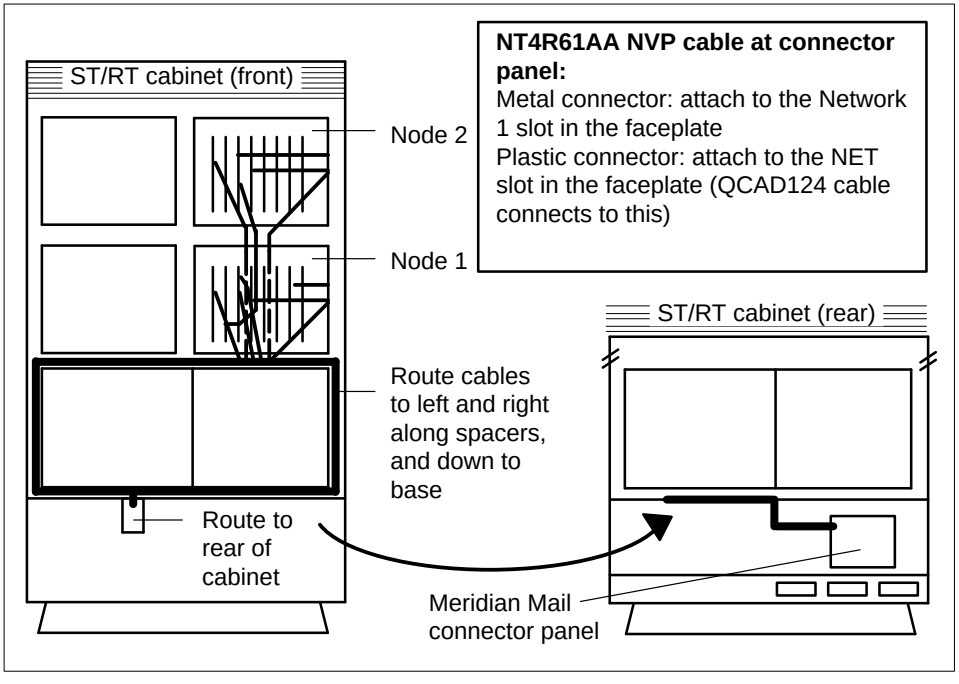
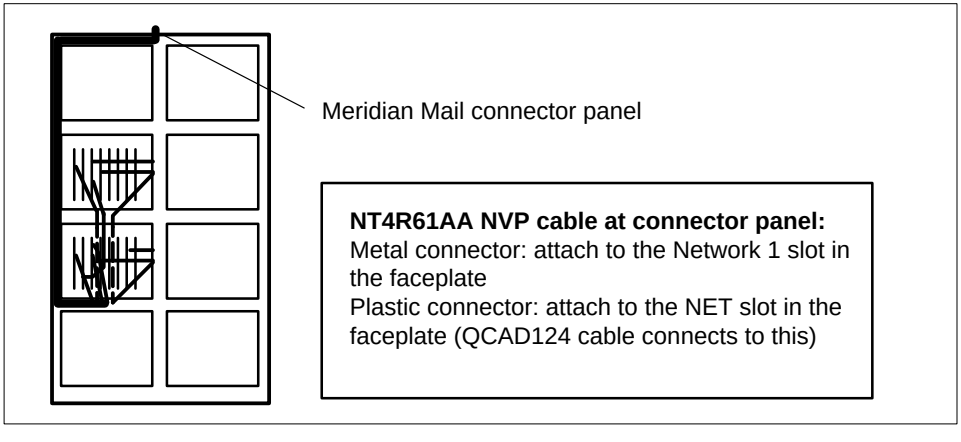


Figure 2-7
Options cable routing to connector panel



Sanity testing

After you have added the new node or nodes to your system, installed power supplies, mass storage units, and printed circuit packs (PCPs), and connected all the PCP cables, you can perform sanity testing on the cabling and new hardware using the following procedure:

Procedure 2-4
Sanity testing

Perform diagnostics on each module as follows:

1 With the console terminal connected to node 1, turn the power on at node 1, and observe the output on the terminal and on the MMP40 hexadecimal display.

The hexadecimal display should follow the normal bootup sequence described in *Options Maintenance Procedures* (NTP 555-7011-500). If it does not, follow the troubleshooting procedures in the "System fails to boot completely" section in the *Options Maintenance Procedures*.

2 For multi-node systems, observe the HABC message displayed early in stage 1 of the diagnostics. This message should indicate that an HABC has been detected.

3 Turn the power off at node 1 and check the results of the diagnostics. If diagnostics failed, refer to *Options Maintenance Procedures* (NTP 555-7011-500).

4 For single node systems, testing is complete. For multi-node systems, continue with step 5.

Multi-node systems only:

5 Power up the system and observe the hexadecimal display on the MMP40 cards in the non-prime nodes.

The displays should advance to ".6".

6 Turn the power off at all nodes.

All testing that can currently be performed is complete. If any node failed the testing, replace the MMP40 card and return to step 5. If the problem is not corrected, refer to the troubleshooting procedures in *Options Maintenance Procedures* (NTP 555-7011-500) to verify the installation.

NVP placement

Procedure 2-5
Placing the NVP cards

1. If the first node has 3 NVP cards, remove the third NVP card from Node 1 and place it in the appropriate slot in Node 2. Hook up the NVP cables at the front of the cards (as shown in Figure 2-4).

   To distinguish between NVP cards, you will have to power down the system and check the dip switches.

2. Route the NVP cable along the spacer and down the side, through the QRF12A power rectifier cutout to the I/O box (ST/RT) or up to the EMI housing (NT/XT) at the top of the cabinet as shown in Figure 2-6 or 2-7. Mount the cable using the mounting hardware provided in the upgrade kit.
3. Install the new Meridian Mail faceplate (P0703427).
4. Mount the NVP loop–sharing connector to the faceplate (at the right side of the faceplate).
5. Install the network loop terminator (QPF23A) if this node is not sharing the loop with any PE shelf.
6. Set the breakers to ON and boot the system.

Options shelf assembly installation

Before installing the Meridian Mail Options, determine the Meridian 1 cabinet location in which the Options is to be installed, and verify that the shelf space allotted is adequate. For further information on space requirements, see *Site and Installation Planning* (NTP 555-7011-200).

Shut off power to the entire cabinet prior to continuing Meridian Mail Options installation.

CAUTION
Risk of equipment damage
See the appropriate Meridian 1 cabinet guidelines for the proper power-off sequence. Ensure that –52 V is not present at the cabinet main power terminal block.

Procedure 2-6
Installing the Options shelf assembly

1. Install the fan unit (QUD20 for cantilever mount or QUD5 for center mount) and the power distribution unit (QBL21 for Cantilever or QBL10 for center mount) if provided (see Figure 2-9, 2-10, 2-11, or 2-12). Fasten the units into place using the screws provided.
2. Slide the option shelf assembly into the cabinet, and fasten it using the four #10 self–tapping screws provided.
3. Locate the 12-position power connector (P1) on the Meridian Mail backplane (see Figure 2-8).
4. Plug the PO700727 or PO700728 shelf power harness into P1.
5. Route the harness through the shelf's side panel opening.

Figure 2-8
P1 backplane connector (rear view, Options shelf)

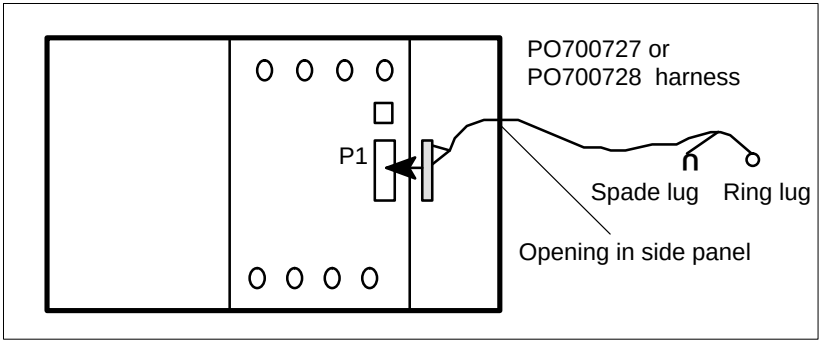


Figure 2-9
Fan installation, front view of Options (cantilever mount) shelf

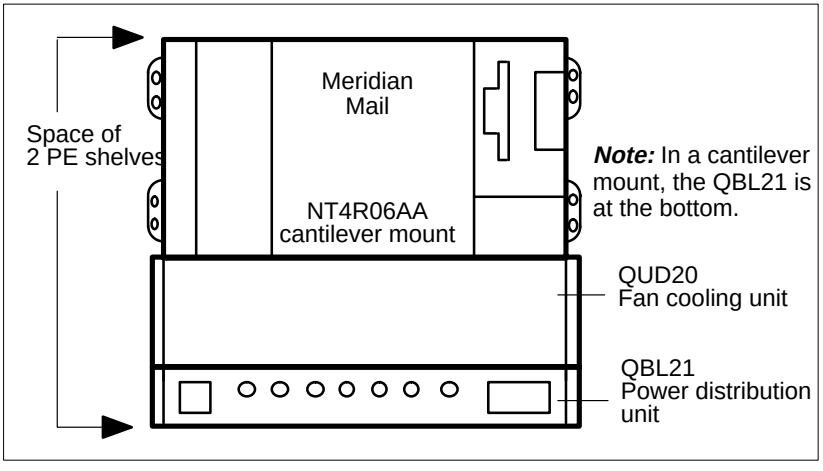


Figure 2-10
Fan installation, front view of Options (center mount) shelf

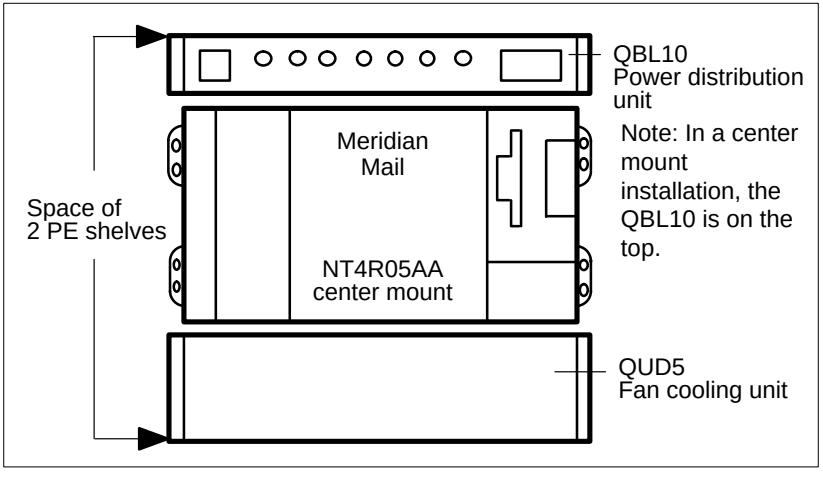


Figure 2-11
Fan installation (front view, cantilever mount Options shelf)

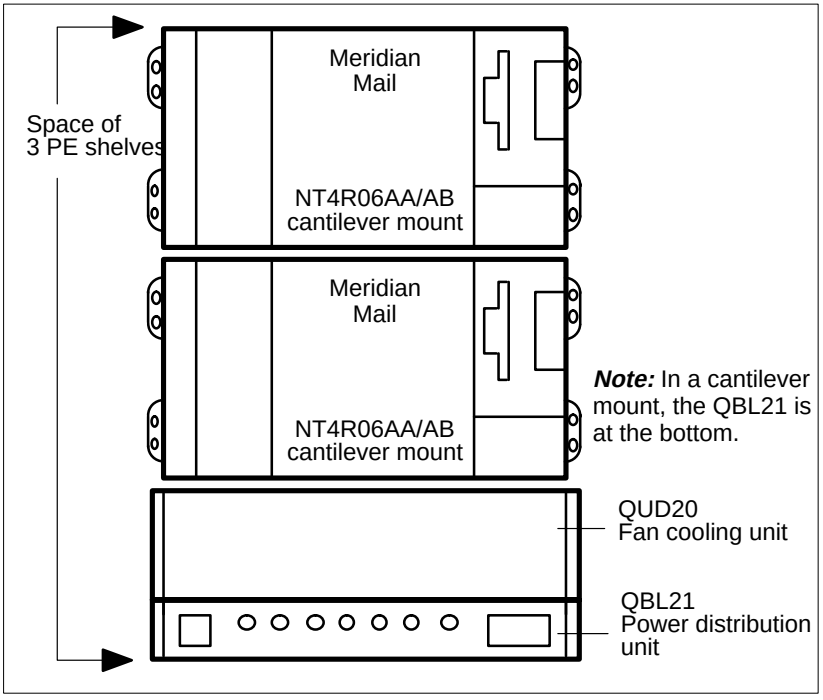
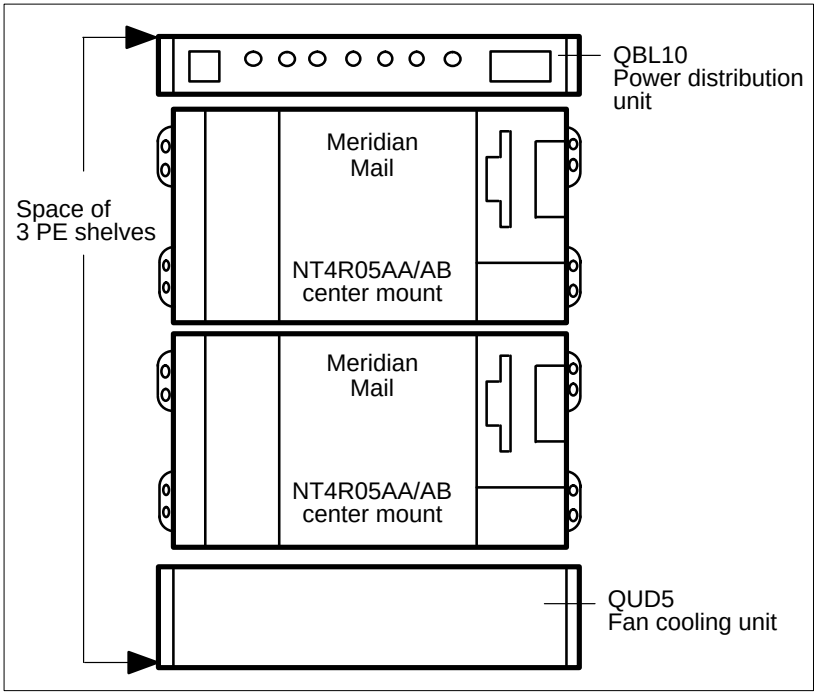


Figure 2-12
Fan installation (front view, center mount Options shelf)



Installing the power harness

This section describes how to install and route the power harness for the Shelf Options cabinet. To install the power harness on the ST/RT, refer back to the installation of a tier beginning on page 2-4.

Placement of the fan and power distribution units determines the length of the power harness required. Figures 2-13 and 2-14 illustrate the use of short and long harnesses for a single-node system, and Figure 2-15 illustrates harness routing for a dual-node system.

If you are installing (or upgrading to) a dual-node Options, the following notes apply:

- Have a QBL21 or QBL10 power distribution unit available. If you are upgrading from a single-node system and the power distribution unit is being used by more than Meridian Mail, a new unit is required for the new Meridian Mail node.

- Place a QUD20 cooling unit so that no Meridian Mail node can be separated from the cooling unit by more than one shelf.
- When installing the second node, use the “next available terminal” or the second choice terminal as specified in the power harness connection tables (Tables 2-6, 2-7, and 2-8).

Figure 2-13
Short harness routing example

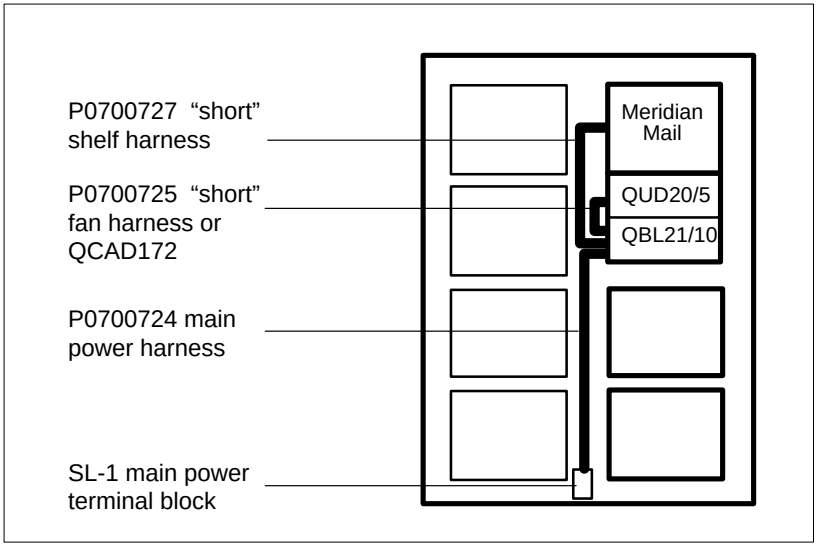


Figure 2-14
Long harness routing example

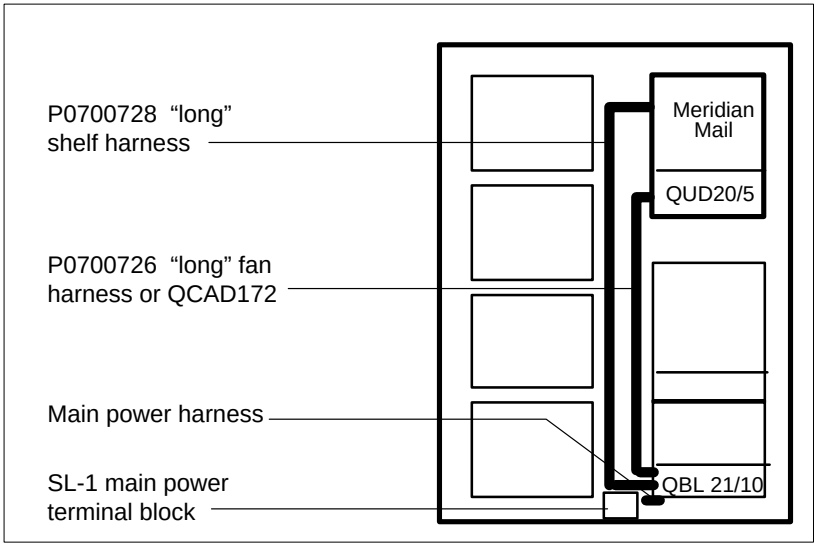
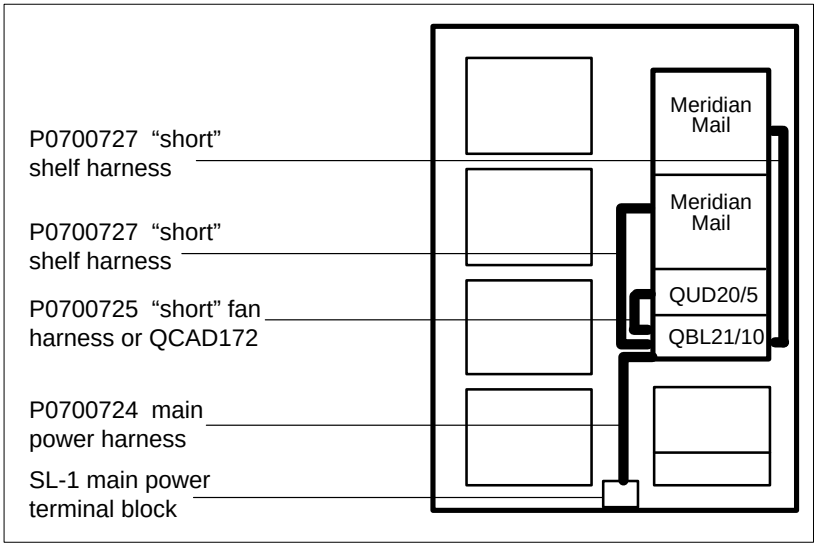


Figure 2-15
Dual-node Options harness routing example



Procedure 2-7
Installing the power harness

1 If you installed the QBL21 or QBL10 power distribution unit in the previous section, connect it to the Meridian 1 –52 V power terminal block using the main power harness (PO700724). Connection details are shown in Table 2-6.

Table 2-6
Main power harness connection

From Meridian 1	Signal	To QBL21/10
TBC - 8	–52 V	SW1A-B (see Note)
TBC - 4	–52 V	SW1B-B (see Note)
TBC - 2	Ground	Meridian 1 ground bar
TBC - 6	Ground	Meridian 1 ground bar
For PE expansion		
TBC - 4	–52 V	SW1A-B (see Note)
TBC - 3	–52 V	SW1B-B (see Note)
TBC - 1	Ground	Meridian 1 ground bar
TBC - 2	Ground	Meridian 1 ground bar

Note: On the QBL10, the terminal block for the main circuit breaker may be designated differently.

2 If you installed the QUD20 cooling unit in the previous section, connect it to the QBL210/10 power unit using the fan power harness (PO700725 or PO700726). Connection details are shown in Table 2-7.

Table 2-7
Fan power harness connection

From	Signal	To
QBL21/10 TB3-1	–52 V	QUD20 power plug (see Note)
Meridian 1 ground bar	–52 V	QUD20/5 power plug

Note: The terminal may be designated differently. If TB3-1 is not available, try TB3-2 or the next available terminal.

3 Connect the shelf power harness (PO700727 or PO700728) from the shelf to the QBL21/10 power unit using the connections in Table 2-8.

Table 2-8
Shelf power harness connection

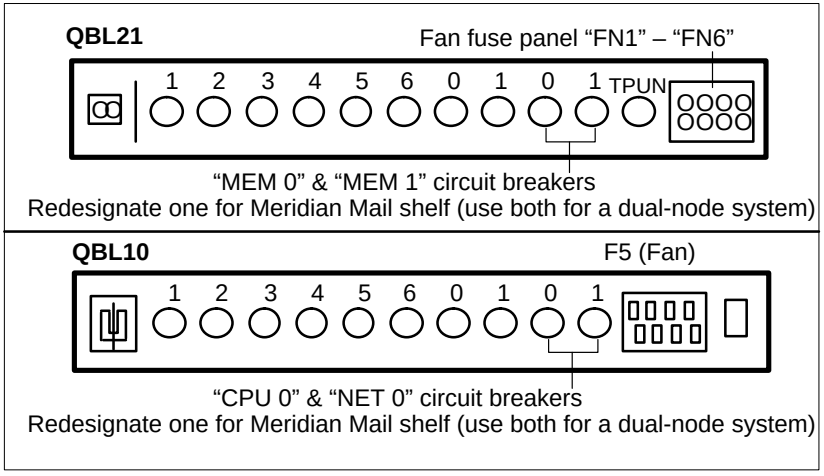
From PO700727/8	Signal	To
Harness LGB - 5	Ground	Meridian 1 ground bar
Harness 7B2 - 3	–52 V	QBL21/10 TB2-3 or 4 (see Note)

Note: On the QBL10, the terminal block may be designated differently.

4 Dress and secure extra wire harness lengths using tie wraps.

5 Re-label the appropriate circuit breaker on the QBL21/10 power distribution unit corresponding to the Meridian Mail shelf unit (“MEM 0” or “MEM 1”; “CPU 0” or “NET 0”). See Figure 2-16.

Figure 2-16
Power distribution units



6 Make sure the proper 3-amerep fuse for the QUD20/5 fan unit is installed at the proper fuse location, “FN1” through “FN6” (corresponding to the terminal chosen in step 2 of this procedure).

7 On the Meridian 1 cabinet, ensure that all wire and terminal block safety covers are properly assembled and that all cables and hardware are reinstalled if removed.

8 Return to your Options installation procedure for the next step in the installation.

AC power and grounding

1 Connect one end of a 6 AWG wire to an approved building ground using at least two fastening devices, and insulate the connections with electrical tape.

2 Connect the other end of the 6 AWG building ground wire to the BLDG GRD lug at the rear of the cabinet.

3 Place a warning tag (WARNING - TELEPHONE SYSTEM GROUND CONNECTION - DO NOT DISCONNECT) on the connection at the ground source.

4 Measure the resistance between the ground pin on the power plug and the ground terminal on the power outlet.

The resistance should be zero ohms. If the resistance is greater than .5 ohms, check the power outlet ground and safety ground connections.

5 Ensure that all cabinet breaker switches are set to OFF.

6 Plug the AC cable into the customer-provided outlet.

Chapter 3: Installation of disk and tape units

This chapter tells you how to install disk and tape drives. You will need to install drives in each module of the system.

Meridian Mail Options supports the following disk drive capacities:

- 300–Mbytes
- 600–Mbytes
- 1.0–Gbytes

and the following tape drive capacities:

- 250–Mbytes
- 2.5–GBytes

The disk and tape drive models, and assembly numbers are shown in Table 3-1.

Table 3-1
Disk and tape assemblies

Assembly number/ common product code	Title of assembly	Models included	Individual product codes
NT6D47BA / A0393283	300-Mbyte Hard disk unit	Maxtor LXT340SY	A0351371
		Seagate ST3390N	A0602257
		ST4376N	
NT6D47DA / A0398354	300-Mbyte disk and 250-Mbyte tape unit	Seagate ST5660	A0616840
		Seagate ST3390N	A0602257
		Maxtor LXT340Sy	A0351371
NT6D48AA / A0365883	600-Mbyte Hard disk module	Maxtor XT8760S	A0354197
NT6D48DA / A0398355	1.0-Gbyte disk and 250-Mbyte tape unit	DEC DSP3105 or DSP3107	A0383809
		Seagate ST11200N	
		Maxtor MXT1240	
		Seagate ST31230N	A0616792
		DEC DSP3107	
NT6D48BA / A0393284	1.2-Gbyte Hard disk unit	DEC DSP3105 or DESP3107	A0383809
		Seagate ST11200N	
		Seagate MXT11200N	
		DEC DSP3107	A0616792
		Seagate ST31230N	
NT6D48EA / A0629940	1.2-Gbyte disk and 2.5-Gbyte tape drive unit	Seagate ST31230N	A0616792
NT4R28AC	Sub Assy, 250-Mbyte Tape drive, MSU	Archive	
NT4R28BA / A0629941	Sub Assy, 2.5-Gbyte-Tape drive, MSU	Tandberg	

Overview of disk drives

You must verify jumper settings before installing drives. Disk drive jumper settings are shown in Figure 3-3 to Figure 3-10.

Note: Diagrams of the disk drives are for reference only. They are not drawn to scale and do not include details of the disks that are not relevant to the procedure described.

Disk installation

The following steps describe the installation of the disk unit. Disk units are shipped separately from the Meridian Mail unit.

CAUTION
Risk of equipment damage
Use extreme care and wear a grounding strap when installing the disk unit. It is susceptible to damage from rough or improper handling.

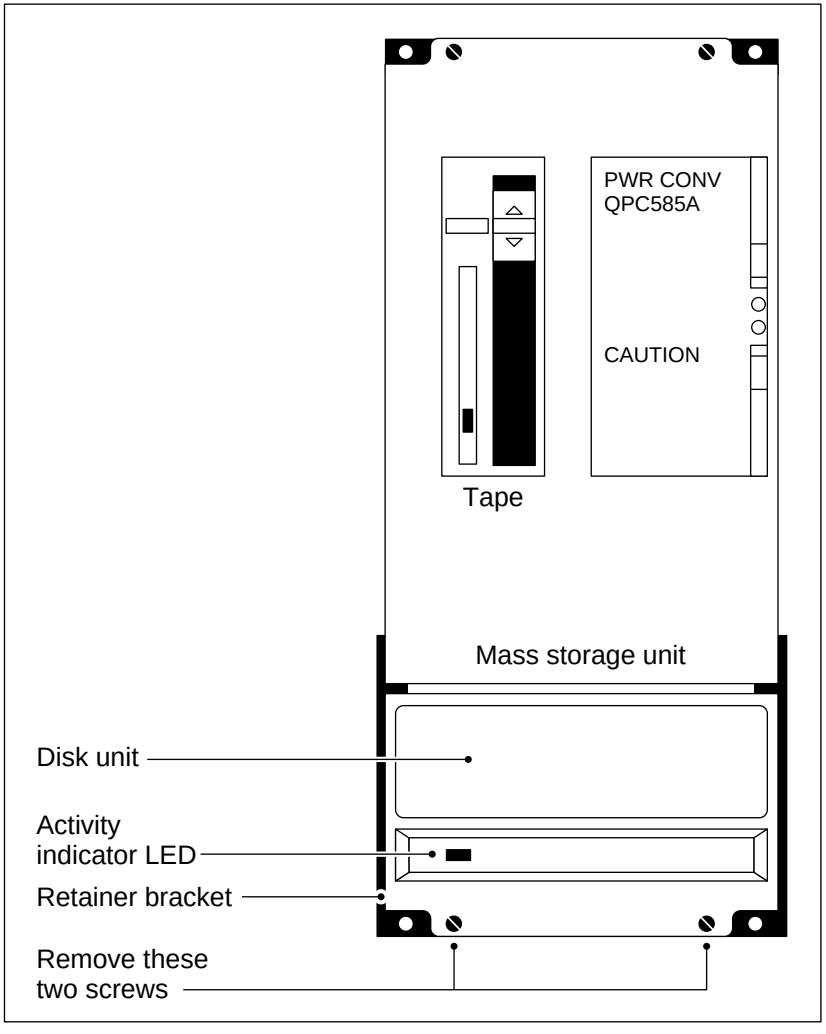
Procedure 3-1
Installing the disk

1 Unpack disk units from their shipping cartons, and confirm the jumpers on the disk unit according to Figure 3-3 to Figure 3-9.

Note: There are slight variations on these disk drives, so your disk drive may not look exactly like the ones pictured here (even though the model number is the same).

2 Locate the opening for the first disk unit on the mass storage unit (see Figure 3-1).

Figure 3-1
Disk unit location (Option, ST/RT Option)



3 Remove the disk retainer bracket attached to the bottom of the mass storage shelf. Set the two screws and the bracket aside.

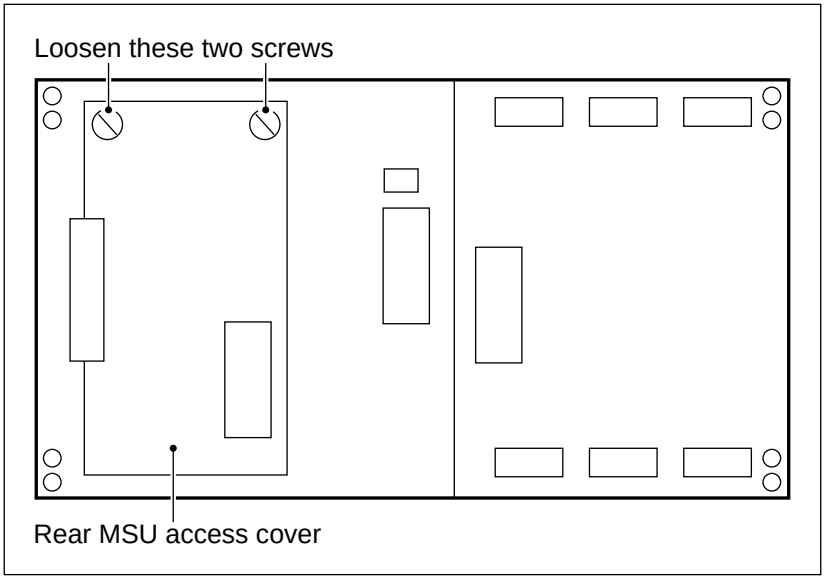
4 Carefully insert the appropriate disk into the opening. The disk will rest on its base when sliding into position.

Note: Disk units are labelled with the node number they are configured for. Be sure to install the correct disk in each node.

5 The disk is fully inserted into the opening when the disk bezel is in contact with the sheet metal of the mass storage unit. Reinstall the disk retainer bracket previously removed.

6 Move to the rear of the shelf/cabinet, and locate the rear mass storage unit access cover (see Figure 3-23-11).

Figure 3-2
Rear MSU cover location (Option, ST/RT Option)



7 Loosen, but do not remove, the two screws at the top of the rear mass storage unit access cover.

8 Lift the cover away from the rear shield and set it aside.

9 Locate the small computer systems interface (SCSI) data cable and the DC power harness (connector J1 from the QPC585 unit) for the disk unit.

10 Attach the data and power cables to the proper connectors on the disk.

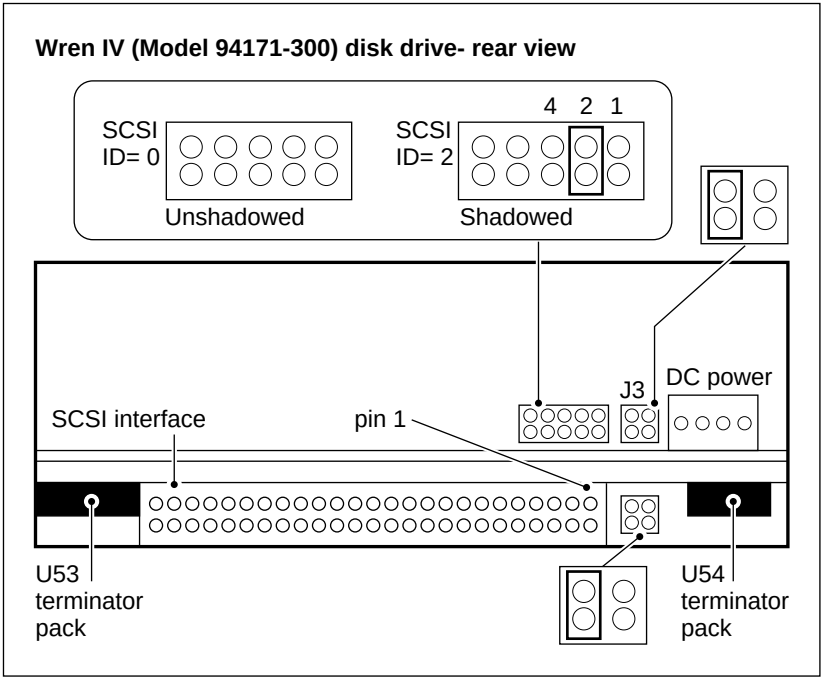
Ensure that the SCSI connector is inserted the right way. The colored trace on the cable should be aligned with pin 1 on the disk unit (as shown in the diagrams).

Note: The SCSI data cable is pre-folded at the factory for proper routing and orientation to the disk unit. Do not unfold the cable.

11 After ensuring that all of the cables are properly installed and that no other components have been disturbed, reattach the rear access cover (and power converter unit for additional disk installations), and tighten the screws.

Disk drive illustrations

Figure 3-3
300-Mbyte Seagate ST4376N disk drive connectors and jumper settings



Note: The Seagate ST4376N is also known as the Wren IV or Seagate 94171 disk drive.

Figure 3-4
300-Mbyte Seagate ST3390N disk drive connectors and jumper settings

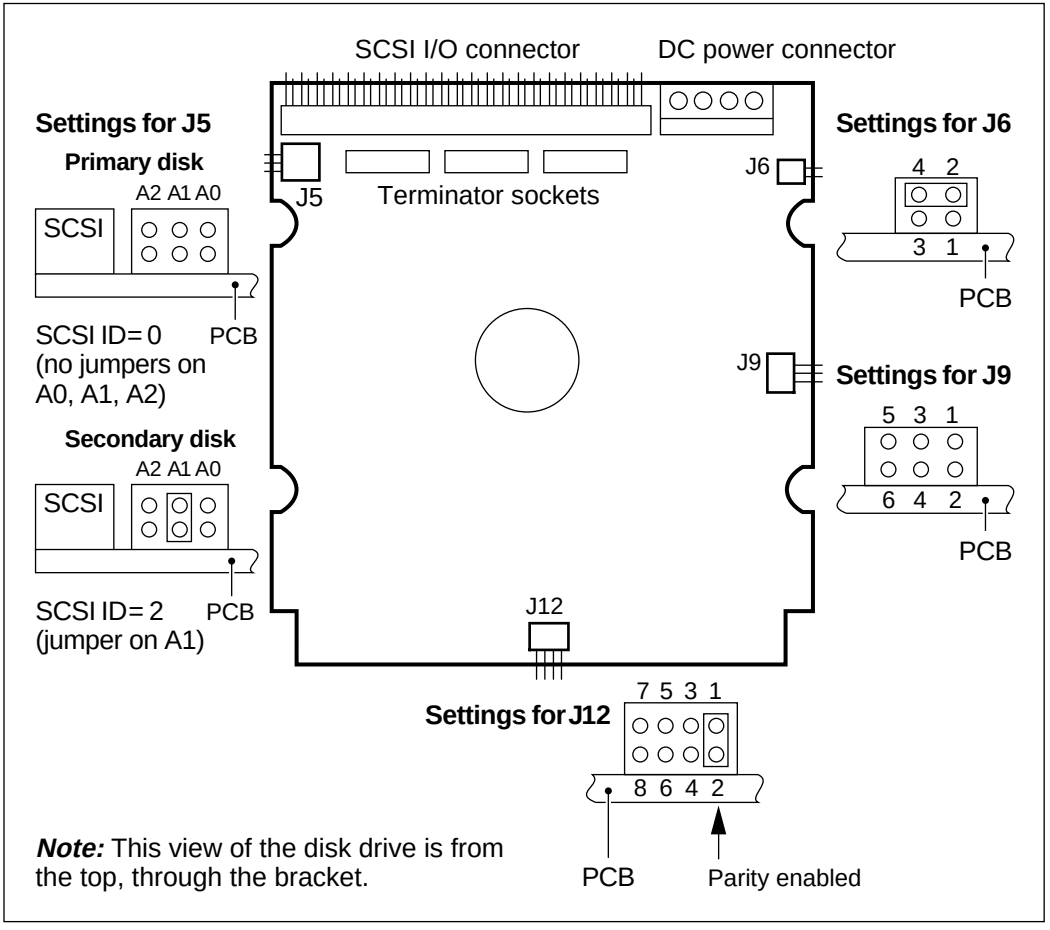
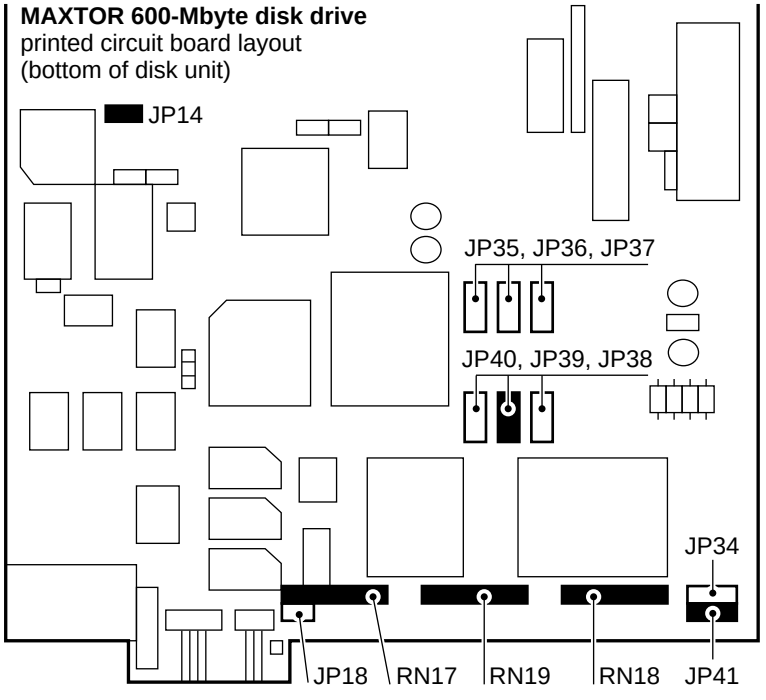


Figure 3-5
600-Mbyte Maxtor XT8760S disk drive (unshadowed systems only)

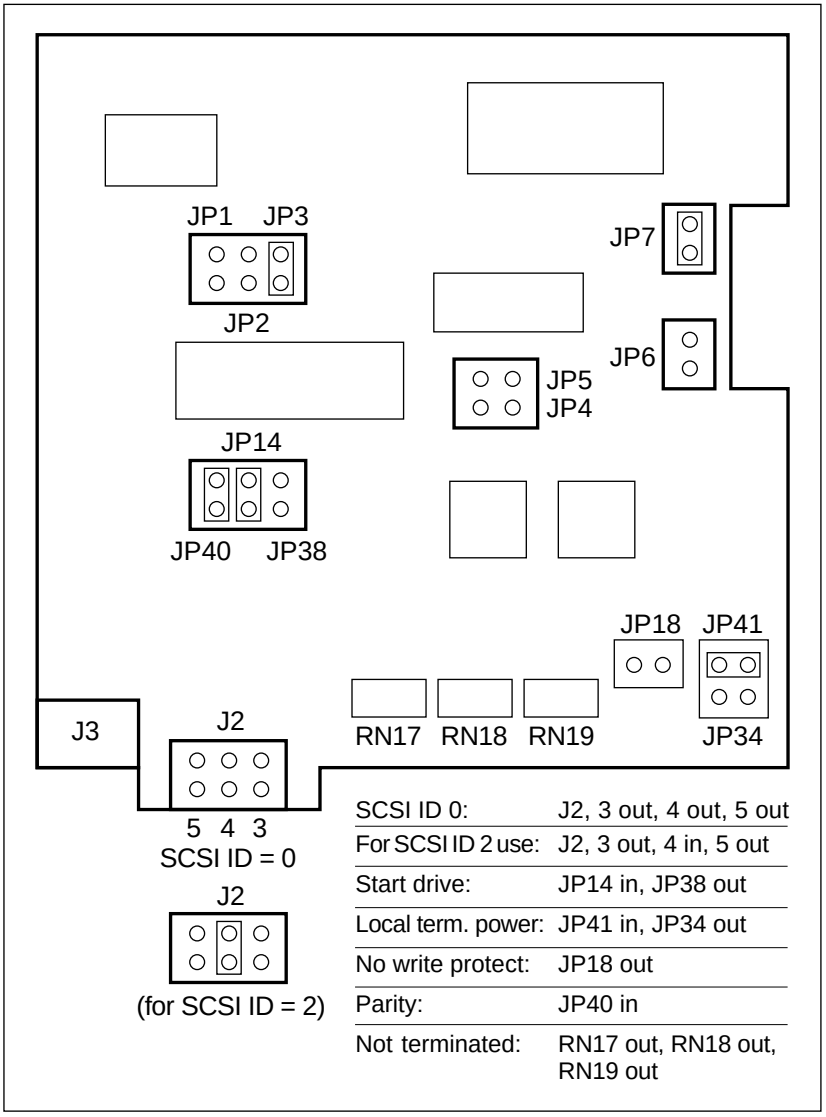


SCSI ID 0:	JP37 out, JP36 out, JP35 out (unshadowed)
Start drive:	JP14 in, JP38 out
Local term. power:	JP41 in, JP34 out
No write protect:	JP18 out
No parity:	JP40 out
Terminators removed (all nodes):	RN17 out, RN18 out, RN19 out

jumper in

jumper out

Figure 3-6
Maxtor/Sequel XT8760SH disk drive connectors and jumper settings



SCSI ID 0:	J2, 3 out, 4 out, 5 out
For SCSI ID 2 use:	J2, 3 out, 4 in, 5 out
Start drive:	JP14 in, JP38 out
Local term. power:	JP41 in, JP34 out
No write protect:	JP18 out
Parity:	JP40 in
Not terminated:	RN17 out, RN18 out, RN19 out

Figure 3-7
DSP3107L disk drive connectors and jumper settings

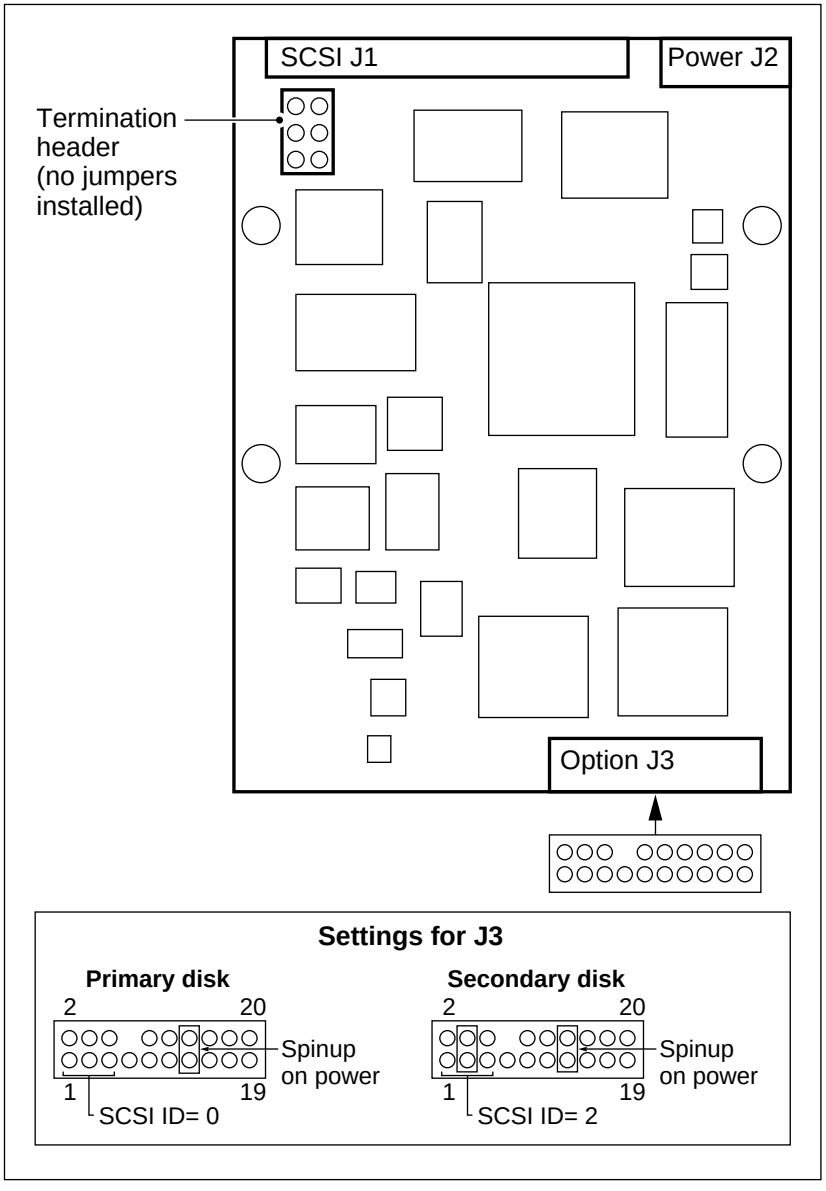


Figure 3-8
1.0-Gbyte Maxtor MXT1240 disk drive connectors and jumper settings

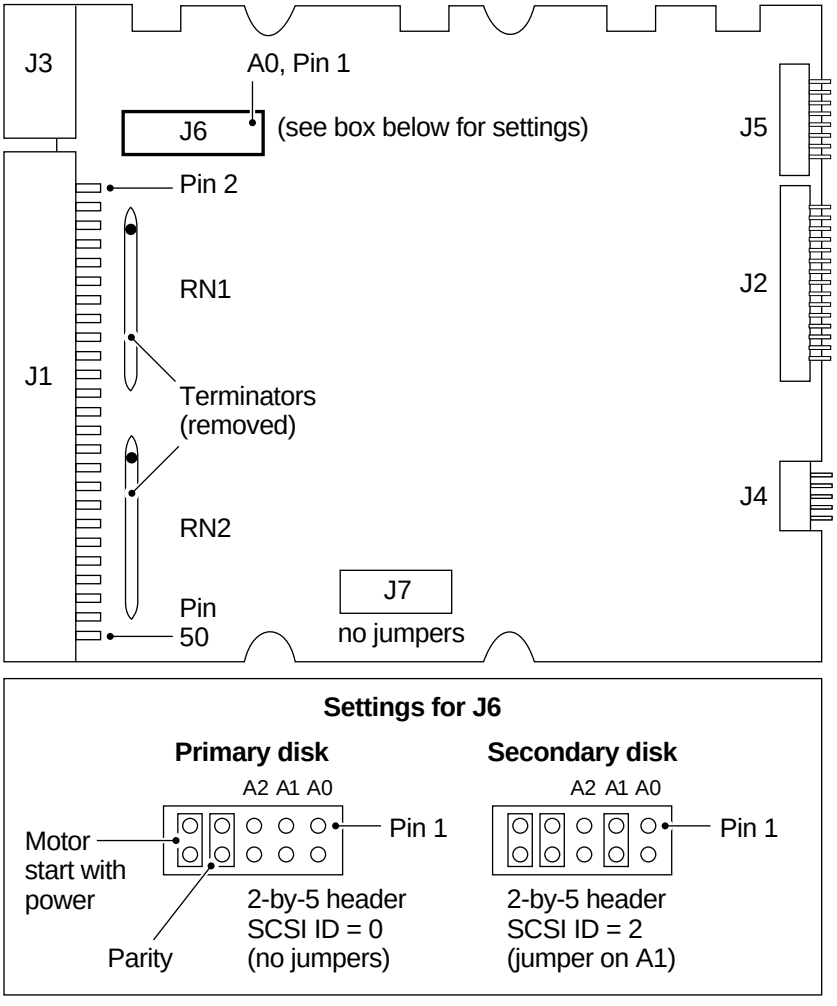
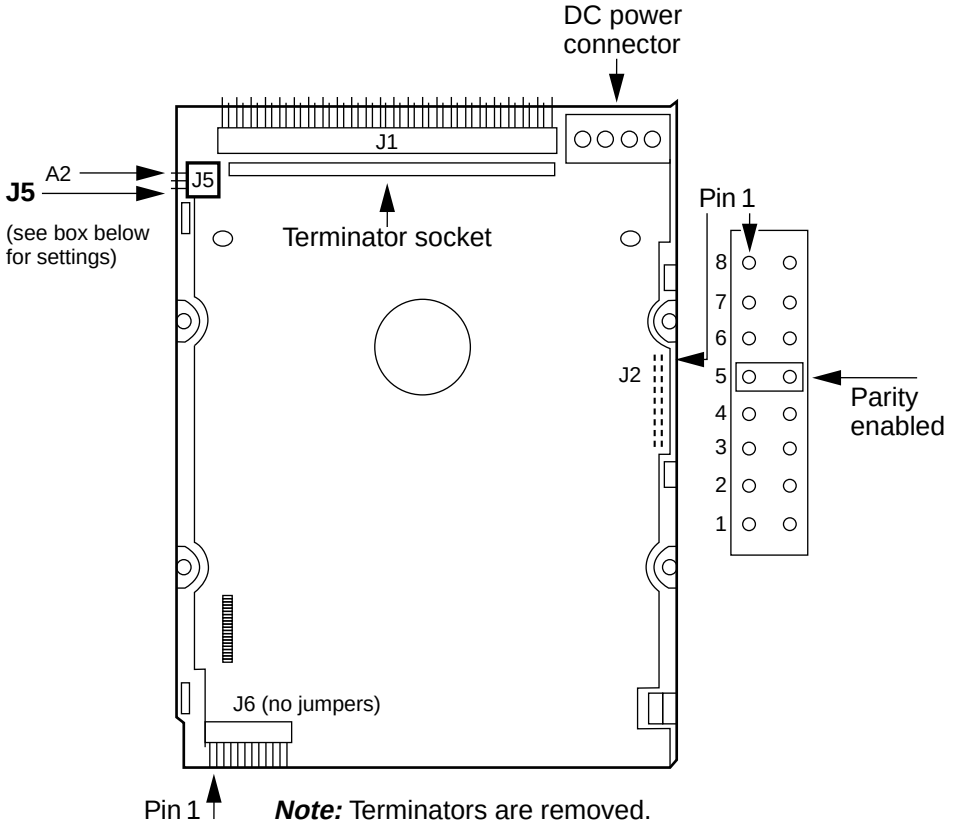
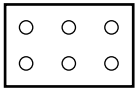


Figure 3-9
1.0-Gbyte Seagate ST11200N disk drive connectors and jumper settings



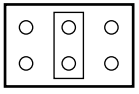
Settings for J5

Primary disk
A2 A1 A0



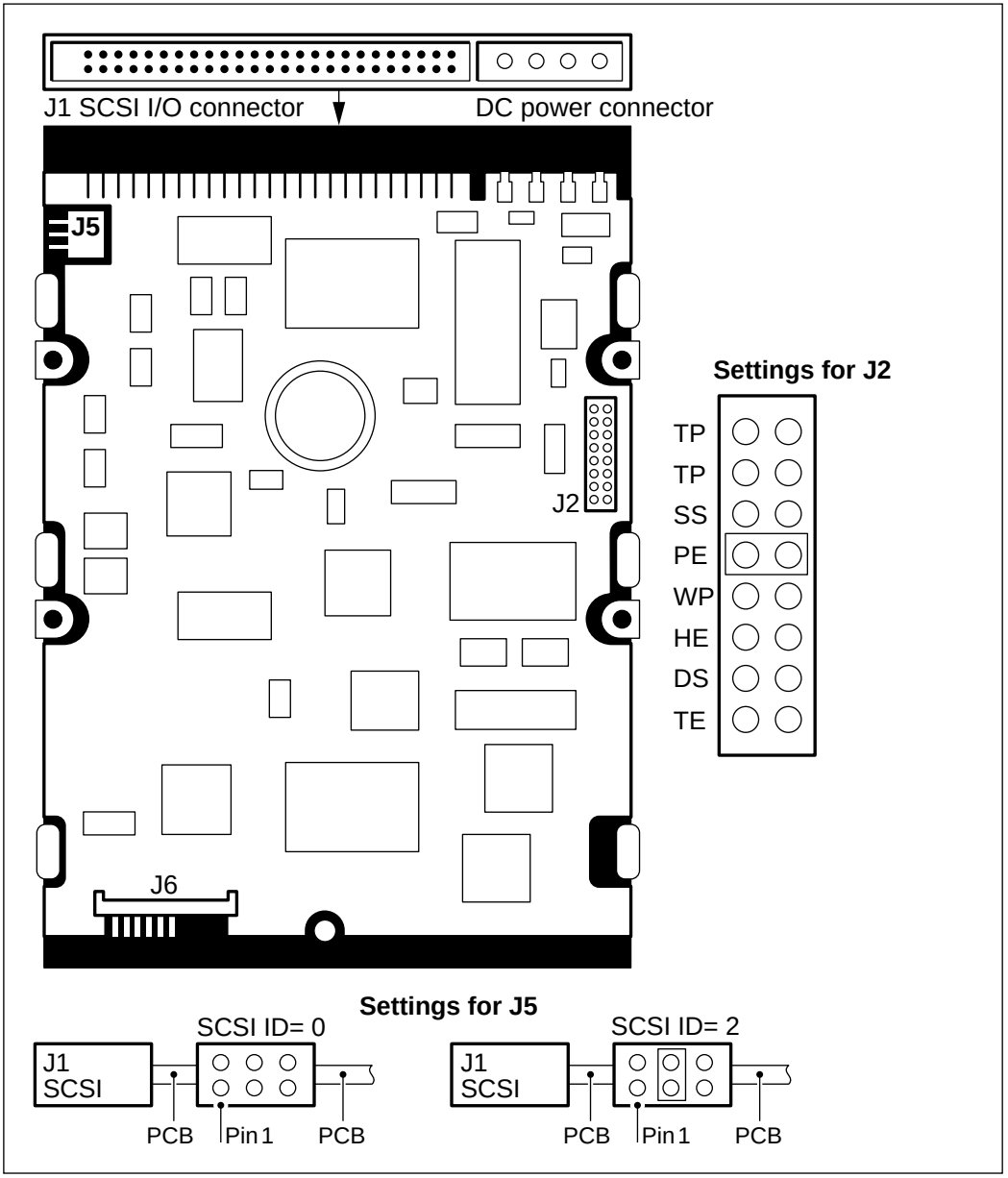
2-by-3 header
SCSI ID=0
(no jumpers)

Secondary disk
A2 A1 A0



2-by-3 header
SCSI ID=2
(jumper on A1)

Figure 3-10
Seagate Hawk (ST31230N & ST32430N) disk drive connectors & jumper settings



Overview of tape drives

The tape unit used with Meridian Mail Options is either the high density Tandberg tape drive (NT4R28BA) or the Archive tape drive (NT4R28AC).

Northern Telecom will ship the customer the appropriate backup tape with the tape drive assembly. The following table lists some of the backup tapes:

Table 3-2
Backup tapes

CPC code	Description
A0369779	DC6150 backup tape
A0368760	DC6250 backup tape
A0630697	2.5–Gb Magnus backup tape

WARNING
Risk of data errors
If you are using the DC6250 media, you should not revert back to the DC6150 media as this may cause data errors when reading from the tape.

The procedures in this section describe the following:

- how to remove the mass storage unit (MSU) from the Meridian Mail Options system
- how to install the mass storage unit (MSU) into the Meridian Mail Options system. This procedure involves the following:
  - — setting the SCSI ID on the tape drive
  - — the actual installation of the tape drive

Removal of mass storage unit

Procedure 3-2
Removing the mass storage unit

1. Power off the Meridian Mail shelf by switching the circuit breaker to the off position.
2. Unscrew the three screws at the front of the mass storage unit (MSU).
3. Remove the power converter pack (QPC585).

4 Unplug the SCSI interface cable from the controller at the rear of the MSU.

5 Unplug the two power harness cables from the tape unit and controller at the rear of the MSU.

6 Slowly remove the MSU.

Installation of mass storage unit

Procedure 3-3
Setting the SCSI ID for the tape drive

1 Locate the header beside the SCSI connector.

Archive—this is the 3-by-6 header (see Figures 3-11 and 3-12).

Tandberg—this is the 2-by-10 (see Figures 3-13 and 3-14 for the header location).

2 Set the SCSI ID to 1.

Archive—this involves removing any jumpers on the header in positions ID1 and ID2 and inserting a jumper on the header in position ID0 as shown in the figures (3-11 and 3-12).

Tandberg—this involves inserting jumpers on the header in position 0 and Parity as shown in the figures (3-13 and 3-14).

3 Ensure that the tape drive terminator resistor packs are removed as indicated in the figures.

4 Verify the other jumpers as shown (see Figures 3-11, 3-12, 3-13 and 3-14).

Procedure 3-4
Installing the mass storage unit

1 Make sure the power is off for Meridian Mail.

2 Check that the jumper settings are correct as per Figures 3-11, 3-12, 3-13 and 3-14.

3 Make sure no SCSI bus terminator is mounted on the tape drive. (See Figures 3-11, 3-12, 3-13 and 3-14.)

4 Slowly inset the mass storage unit (MSU).

5 At the rear side, connect the SCSI interface cable with the red stripe in pin #1, and connect the harness cable into the power connector (12 V, 5 V, and ground) of the tape.

Note: There are two power harness cables. One is extra. Secure it for safety.

6 Make sure the MSU is mounted securely. Tighten mounting and screws.

7 Insert power converter pack (QPC585).

Note: Only DC6150 or DC6250 tapes can be used for backup with the Archive tape drive.

Figure 3-11
Archive tape drive

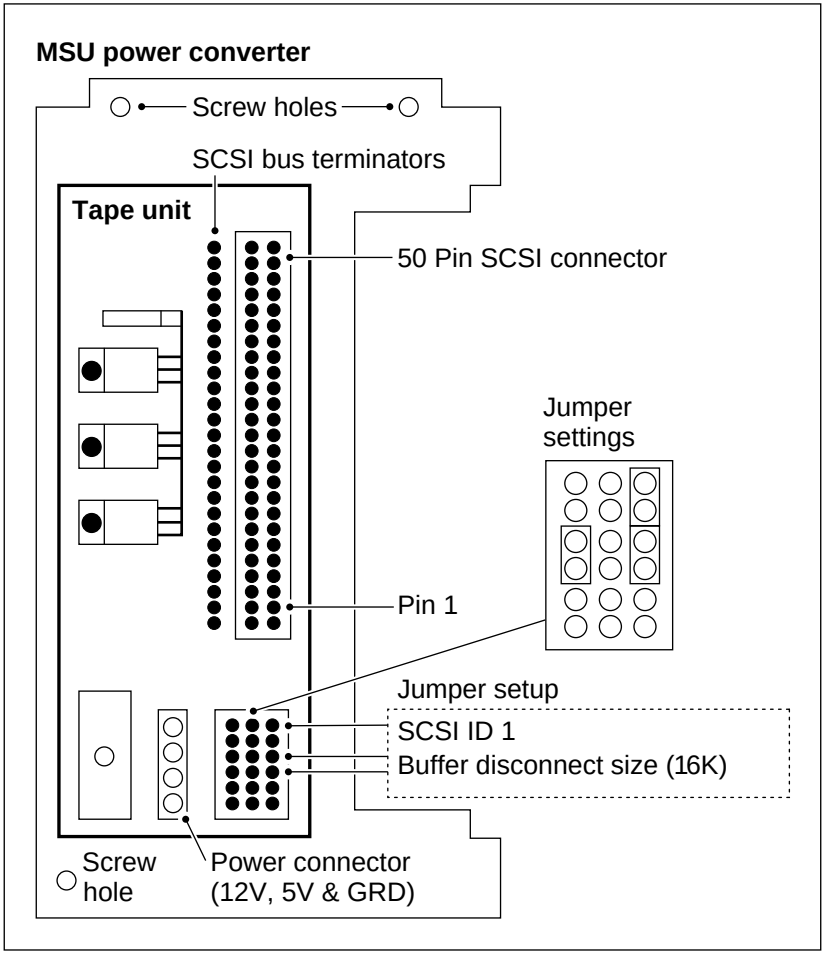


Figure 3-12
Archive tape drive jumper settings

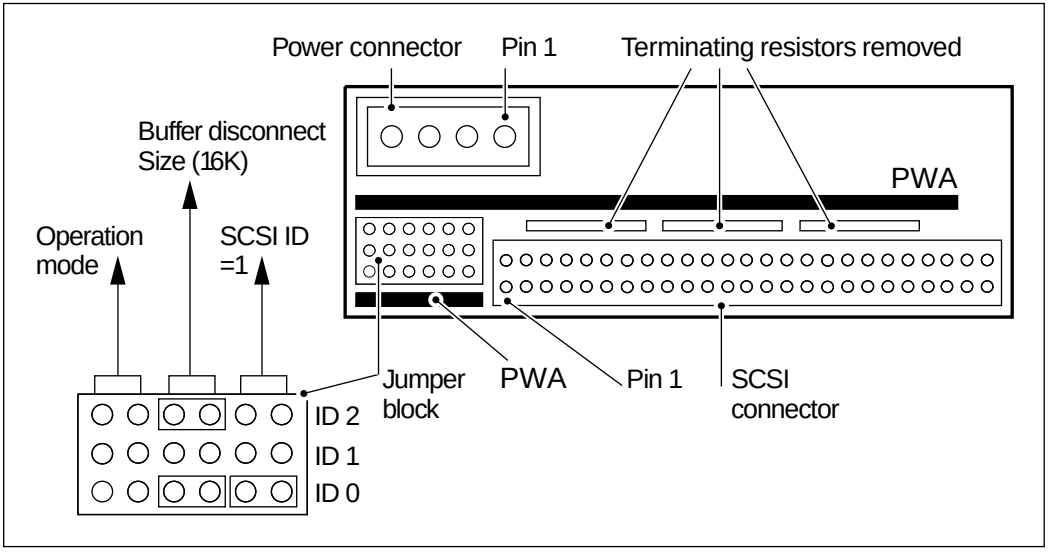
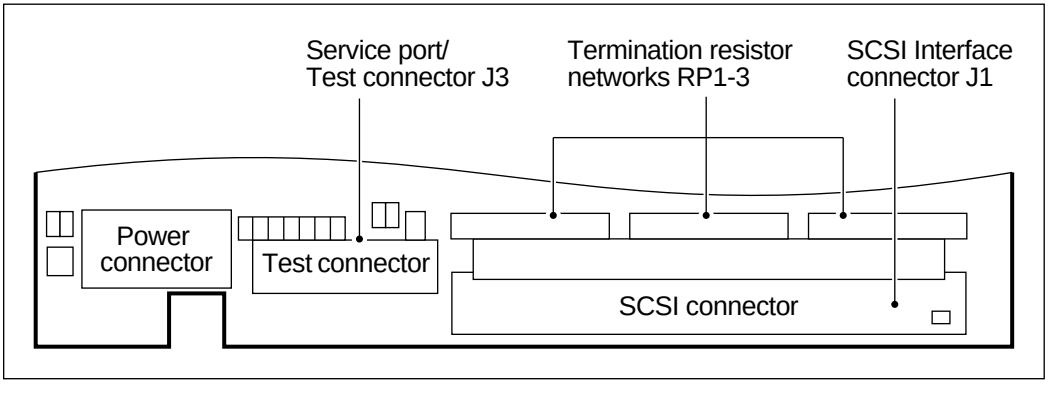
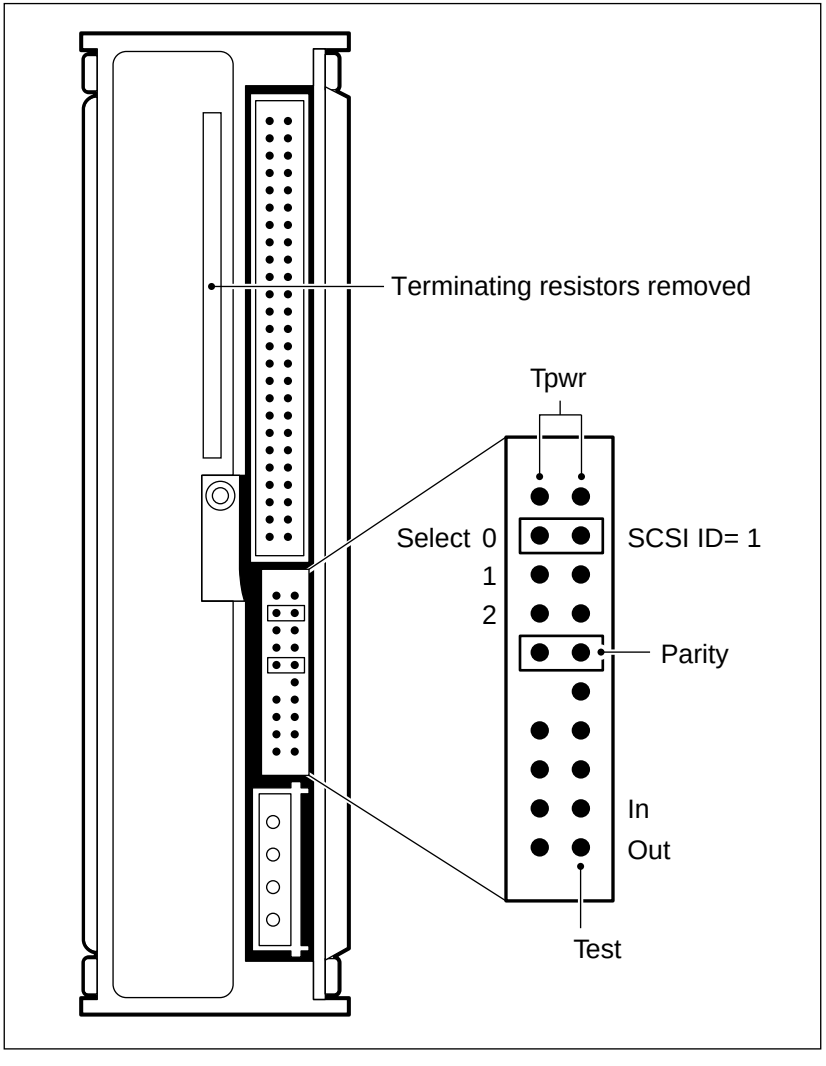


Figure 3-13
Front view of Tandberg tape drive connectors



Note: Terminator resistors are removed.

Figure 3-14
Tandberg tape drive connectors and jumper settings



Chapter 4: Platform migration and release conversion

If you are migrating from or converting from an existing Meridian Mail system, then any hardware installation or modification will have to be performed as part of the software installation. The *System Installation and Modification Guide* (NTP 555-7001-215) discusses all the necessary steps for software (system) installation, platform migration, and hardware modification. When necessary, the *System Installation and Modification Guide* will refer back to this manual for hardware installation information.

Before beginning the system installation and modification procedures, unpack and inspect the new hardware. Then refer to the *System Installation and Modification Guide* to begin the platform migration and release conversion.

> ***Note:*** If you are also expanding your system (adding nodes), then you still need to start with the *System Installation and Modification Guide* to perform the platform migration and release conversion for the existing system.

ATTENTION
To reduce system stress

To reduce stress on the system, use the RESET button on the faceplate of the MMP40 card to reboot the system instead of powering the cabinet off and on. Reset Node 1 first, then Nodes 2 through 5 in sequence, as applicable.

However, if there is a question regarding the state of the system after the system reset, power the system off completely, then power back on to reboot.

Upgrading to MMP40

The following table shows the equipment that needs to be replaced when upgrading to an MMP40 node:

Table 4-1
MMP40 equipment upgrade

Equipment	Replace with
ESBC card	MMP40 card
SCSI card	Do not replace *
2-Mbyte/2.5-Mbyte memory card	Do not replace *
SCSI cable (NT6D4409)	SCSI cable (NT6D4417)
CSL/SMDI cable (NT6D4410)	CSL/SMDI cable (NT6D4419)
CRT cable (NT6D4405)	Combined with CSL/SMDI cable
Null modem cable (NTND82AA/AB) from MMP40 to A/B switch box	Straight RS232 cable (NTND91AA/AB)
Designator strip	Install the appropriate designator strip over the existing strip as follows: For ST/RT platform – A0803254 For NT/XT platform – A0803255
*The SCSI card and the 2–2.5–Mbyte memory card functions have been replaced by the MMP40 card, so these slots are left blank.	

CAUTION
Risk of equipment damage

When replacing the ESBC (68K card) board in card slot 3 with an MMP40 board, the board and RS232-Y cable (NT6D4419) will not fit properly into the card slot without the RS–232-Y cable rubbing against the NVP card in card slot 4.

By leaving the card slot to the right of the MMP40 card empty, the cable does not interfere with installation or removal of boards.

CAUTION
Risk of an unsupported configuration
You cannot install an MMP40 card in some voice nodes and an ESBC card in other voice nodes. Nor can you install an MMP40 card in the prime node and leave the voice nodes as ESBC cards. This sort of mixed configuration is not supported. Similarly, you cannot install an ESBC card in the primary node and then install an MMP40 card in the voice nodes.

You must also replace the null modem cable (NTND82AA/AB) between the MMP40 and the A/B switch box with a straight RS232 cable (NTND91AA/AB). Refer to Figure 8-1 for proper cable configuration.

The ESBC configuration *will not* support Meridian Mail 9.0 or later. To upgrade from Meridian Mail release 8.0 or earlier, you must perform the MMP40 hardware upgrade.

Chapter 5: Installing printed circuit packs

The following printed circuit packs (PCPs) are used in Meridian Mail MMP40 configurations:

- Meridian Mail Processor 68040 (MMP40)
- RS-232 service module (RSM)
- High availability bus controller (HABC)

See Table 5-1 for the node and slot locations, and the NT product code for each of the PCPs. In addition, refer to Figure 5-1 for a diagramatic illustration.

Table 5-1
Printed circuit packs

Node	PCP	Slot	NT Code
All	MMP40 - Meridian Mail Processor 68040	MMP40	NT4R45AA
	RSM - RS-232 Service Module	VP/RSM	NT4R03AA / AB
1	HABC - High Availability Bus Controller (multinode system only)	HABC	NT4R08AA

ATTENTION
Reducing system stress

To reduce stress on the system, use the RESET button on the faceplate of the MMP40 card to reboot the system instead of powering the cabinet off and on. Reset Node 1 first, then Nodes 2 through 5 in sequence, as applicable.

However, if there is a question regarding the state of the system after the system reset, power the system off completely, then power back on to reboot.

WARNING
Risk of equipment damage

Use extreme care and wear a grounding strap when installing the disk unit. It is susceptible to damage from rough or improper handling.

Procedure 5-1
Installing PCPs

1. Locate the PCP cover on the Meridian Mail unit (see Figure 5-1).
2. Remove the two top screws that fasten the cover to the shelf and set them aside.
3. Loosen, but do not remove, the two bottom screws of the cover.
4. Lift the cover away from the shelf and set it aside.
5. Install power converter packs securely in their proper locations (if they are not already installed). See Figure 5-1.

   The QPC691 provides the power to the Meridian Mail circuit packs.

   The QPC585 provides the mass storage unit power. Ensure that it has the proper shielding if it is being inserted next to the tape drive.
6. Use Table 5-2 to verify the switch and jumper settings for each PCP.
7. Check the designation strip at the bottom rail of the shelf that identifies the locations of each pack.

   Circuit pack locations depend on system size. See Figure 5-2.

Figure 5-1
PCP cover location (Option, ST/RT Option)

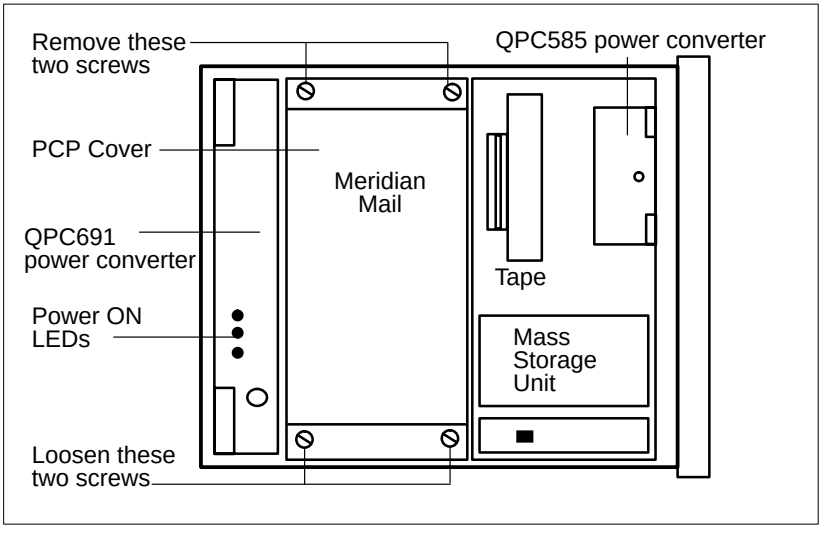


Table 5-2
PCP switch settings and locations

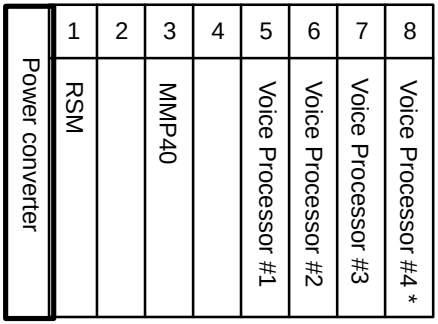
Printed circuit pack	Switch locations	Switch setting information
MMP40	Figure 5-3, Page 5-5	Table 5-3, Page 5-5
HABC	Figure 5-4, Page 5-7	Table 5-4, Page 5-7
NVP	Figure 5-5, Page 5-9	Tables 5-5 to 5-8, Pages 5-10 to 5-14
RS-232 service module (RSM)	Figure 5-6, Page 5-15	Tables 5-9, Page 5-16

Figure 5-2
PCP positions (Option or ST/RT Option)

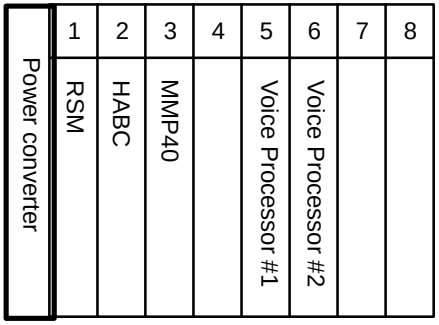
Meridian Mail Option or ST/RT Option

Single-node system or node 2 of a dual-node system

Note: For 24-port cabling, Voice Processor #4 is located in slot 2.



Dual-node system; Node 1



*NVP4 applies to 24-port cabling on a dua– node system only. See Chapter 6, “Verifying PCP Cabling,” for additional information.

Meridian Mail Processor 68040 (MMP40)

The MMP40 contains an MC68040 microprocessor, 16–Mbytes of memory, a SCSI interface, two programmable serial ports, and a BootROM that includes system diagnostics.

Figure 5-3 shows the locations of the switches whose settings are listed in Table 5-3.

> ***Note:*** In a multinode system, the MMP40 pack in the last node needs a terminator, NT4R11AA. The terminator is installed on the largest (middle) connector at the front of the pack. The bus cable runs from the HABC in node 1 to the MMP40 card in each node, and ends on the terminator daughterboard on the MMP40 in the last node.

Figure 5-3
MMP40 switch locations

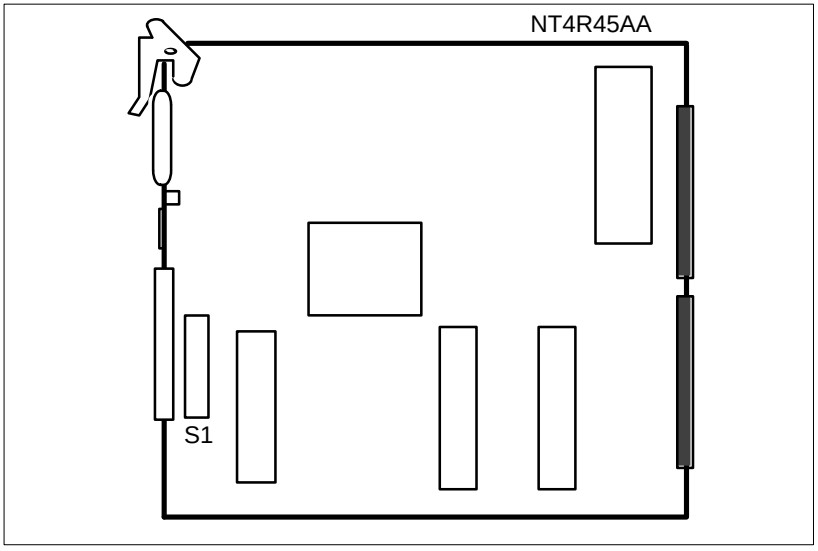


Table 5-3
MMP40 switch settings

Switch settings		1	2	3	4	5	6	7	8
S1	Single node system:								
	Node 1	On	On	On	On	On	On	On	On
	Multiple node system:								
	Node 1	On	On	Off	On	On	On	On	On
	Node 2	Off	Off	Off	On	On	On	On	On
	Node 3	On	Off	Off	On	Off	On	On	On
	Node 4	Off	Off	Off	On	Off	On	On	On
	Node 5	On	Off	Off	On	On	Off	On	On

High availability bus controller

The high availability bus controller (HABC) board is used in place of a 2-Mbyte RAM board in the first node of a multinode system. See Figure 5-4 for switch locations and Table 5-4 for the settings.

Figure 5-4
HABC switch locations

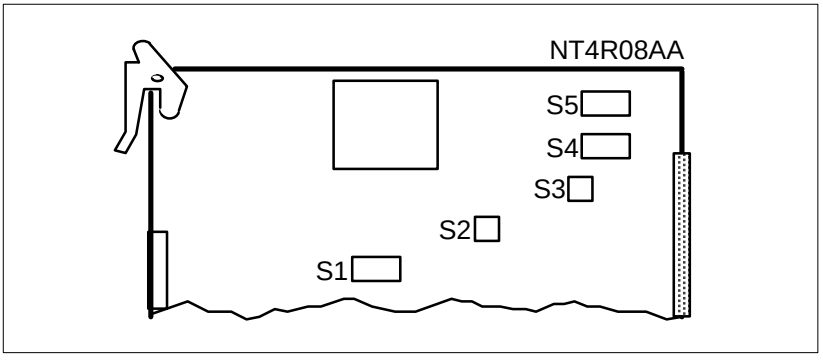


Table 5-4
HABC switch settings

S1-1 = Off	S2-1 = On	S3-1 = Off	S4-1 = Off	S5-1 = Off
S1-2 = Off	S2-2 = On	S3-2 = On	S4-2 = Off	S5-2 = Off
S1-3 = Off	S2-3 = On	S3-3 = On	S4-3 = Off	S5-3 = On
S1-4 = Off	S2-4 = On	S3-4 = Off	S4-4 = Off	S5-4 = On
S1-5 = Off			S4-5 = Off	S5-5 = Off
S1-6 = Off			S4-6 = Off	S5-6 = Off
S1-7 = Off			S4-7 = Off	S5-7 = Off
S1-8 = Off			S4-8 = Off	S5-8 = Off

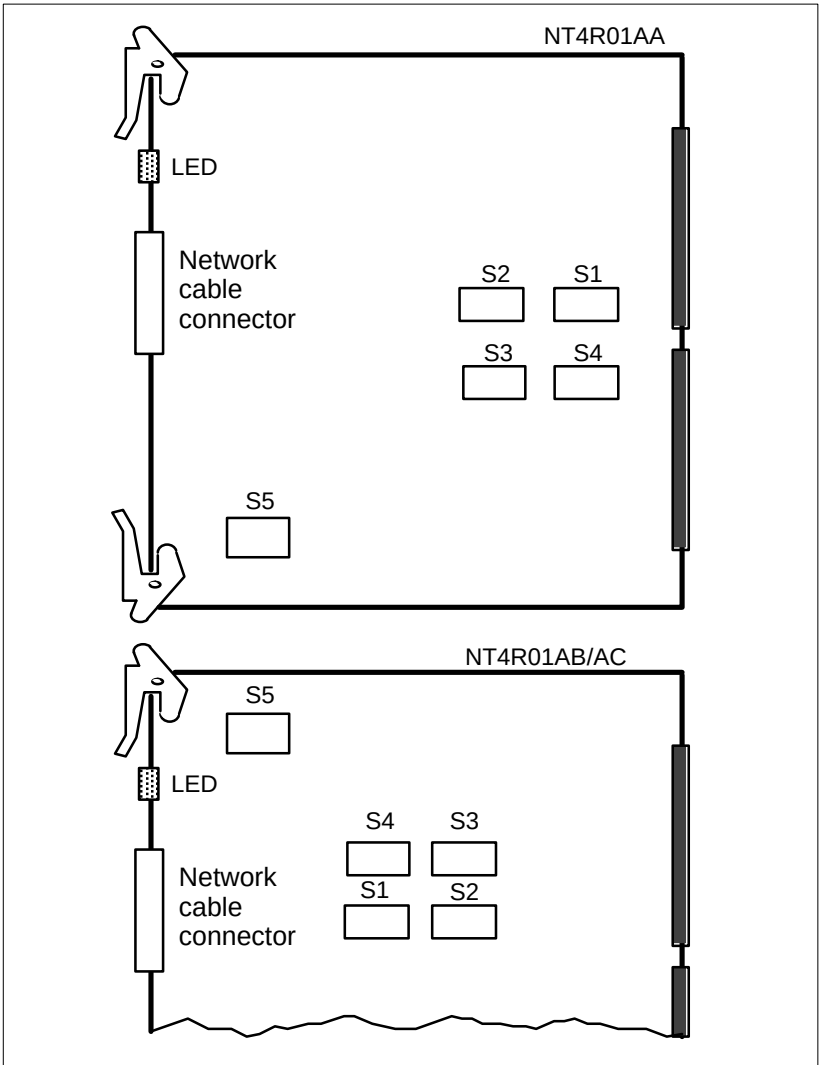
On = Closed
Off = Open

Network voice processor

The network voice processor (NVP) card provides four channels of voice processing. Each channel has DTMF reception and built-in digital network loop interface. These functions are provided by two digital signal processors (DSPs) and additional logic.

Figure 5-5 shows the locations of the switches, and Table 5-5, 5-6, and 5-7 show the switch settings. There are three versions of the NVP card which differ slightly in configuration and layout. The differences are explained in the text that follows.

Figure 5-5
NVP switch locations



Note: Switch locations depend on the revision level of the board. Two versions are illustrated above.

Table 5-5
NVP switch settings (switches 1 to 4)

Switch	NVP 1	NVP 2	NVP 3	NVP 4
S1-1	On	On	On	On
S1-2	On	On	On	On
S1-3	On	On	On	On
S1-4	Off	Off	Off	Off
S2-1	On	On	On	On
S2-2	On	On	On	On
S2-3	On	On	On	On
S2-4	On	On	On	On
S2-5	On	On	On	On
S2-6	On	On	On	Off
S2-7	On	Off	Off	On
S2-8	Off	On	Off	On
S3-1	On	On	On	On
S3-2	Off	Off	Off	Off
S3-3	Off	Off	Off	Off
S3-4	On	On	On	On
S3-5	Off	Off	On	On
S3-6	Off	On	Off	On
S4-1	Off	Off	Off	Off
S4-2	Off	Off	Off	On
S4-3	Off	On	On	Off
S4-4	On	Off	On	Off
S4-5	Off	Off	Off	Off

On = Closed
Off = Open
See below for setting of switch 5

Switches 5-1 through 5-6

The setting of switches 5-1 through 5-6 are based on the configuration of the PE shelf which is programmed in the Meridian 1 database. On the PBX side, the PE shelf should be programmed for double–density cards. On the Meridian Mail side, the PE shelf can be programmed to house single–density cards (four channels). The NVP card is physically housed in the Meridian Mail shelf, but the Meridian 1 sees the NVP card as a line card on the PE shelf. The switch settings on the NVP card must correspond with the TN number used by the Meridian 1.

The NVP card switch settings can be set as the address of any slot in the Meridian 1 PE shelf (from 1 to 10). Switches 5-1 through 5-4 are used to set the card slot numbers (see Table 5-6). Each Meridian Mail node running Release 8.0 or later software can be configured to have a maximum of four NVP cards. Prior to Release 8.0, each node can be configured to have a maximum of three NVP cards.

> ***Note:*** Node 1 will never have more than one NVP card. Table 5-7 shows the settings for switches 5-5 and 5-6.

Table 5-6
NVP switch settings (switches 5-1 through 5-4)

Card slot	S5-1	S5-2	S5-2	S5-4
1	Off	On	On	On
2	On	Off	On	On
3	Off	Off	On	On
4	On	On	Off	On
5	Off	On	Off	On
6	On	Off	Off	On
7	Off	Off	Off	On
8	On	On	On	Off
9	Off	On	On	Off
10	On	Off	On	Off

Table 5-7
NVP switch settings (switches 5-5 and 5-6)

Single density configuration

Shelf	Unit	S5-5	S5-6
0	0–3	On	On
1	0–3	Off	On
2	0–3	On	Off
3	0–3	Off	Off

In the single density configuration, each TN (loop, shelf, card) has four units (from 0 through 3). The NVP card has four voice channels, so each NVP card has its own shelf number.

Double density configuration

Shelf #	Unit	S5-5	S5-6
0	0–3	On	On
0	4–7	Off	On
1	0–3	On	Off
1	4–7	Off	Off

In the double density configuration, each TN (loop, shelf, card) has eight units (from 0 through 7). The NVP card has only four voice channels, so two NVP cards can be given the same shelf number but different units.

To determine which configuration to use, you will need to look at Overlay 22 of the Meridian 1 (refer to Chapter 8 for reviewing overlays on the Meridian 1). If your density parameter in Overlay 22 is TERM, use single density. If it is TERD or TERQ, use double density or quadruple density respectively.

Switch 5-7 setting

Switch 7 determines if the card is sharing a loop with a PE shelf. When OFF, the card is in loop-back mode and is not sharing its loop with a PE shelf. If the card's TN is shared with the PE shelf, this switch must be set to ON.

> ***Note:*** If the card is sharing a loop, the Meridian Mail Agent will take up a card position on the PE shelf.

Switch 5-8 setting

Switch 8 determines if the card is sharing a loop with a node. When set to OFF, this NVP card is selected as the primary card for the node. Only one card can be designated as the prime NVP, for which card 1 is recommended.

Single tier ST Option

Sharing a loop with the first tier buffer is not recommended, but if the system has only a single tier with Meridian Mail and it has to share a loop with the buffer which is in dual–loop mode, the NVP cards must be configured as double density. (See Table 5-7.)

Switch 5-9 setting (NT4R01AB and NT4R01AC only)

This switch controls the loop–sharing mode with other voice nodes and only affects the “prime” NVP card designated through Switch 5-8 on each voice node. When two voice nodes are sharing the loop (that is, they come from a shared node), switch 5-9 of the prime NVP card on one voice node is set to ON and that of the prime NVP card on the other voice node(s) is set to OFF. For the non-prime NVP cards on both voice nodes, the switch settings may be left at ON; however, it should not affect loop sharing.

If the network connection comes directly from the QPC414, switch 5-9 should be set to OFF.

Switch 5-10 setting (NT4R01AB and NT4R01AC only)

Switch 5-10 is reserved for future expansion, and its setting has no impact on the system.

Table 5-8 contains a form which you may find useful for determining the switch settings for NVP switches 5-1 through 5-10.

Table 5-8
Determining NVP switch 5 settings

Corresponding Meridian 1 TN				NVP location			TN value				Density		Mode			
Loop	Shelf	Card	Unit	Node	NVP	DNs	1	2	3	4	5	6	7	8	9	10
Example																
10	**0**	**4**	**0**	**1**	**1**	**7000 –7003**	**Example**									

RS-232 service module

The RS–232 service module (RSM) circuit pack provides four RS-232 ports as well as a battery-backed clock. See Figure 5-6 for switch locations and Table 5-9 for the settings.

Figure 5-6
RSM switch locations

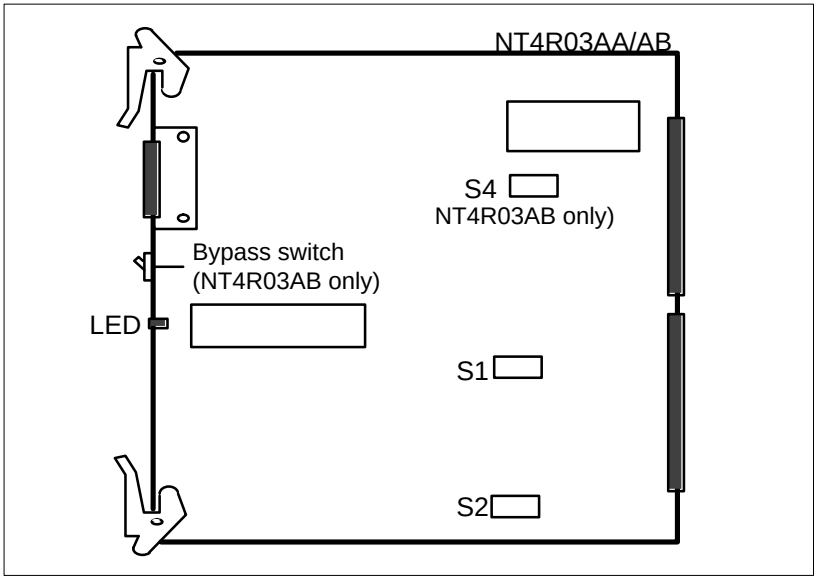


Table 5-9
RSM switch settings

NT4R03AA/AB	NT4R03AA/AB	NT4R03AB only
S1-1 = On	S2-1 = On	S4-1 = On
S1-2 = Off	S2-2 = On	S4-2 = On
S1-3 = Off	S2-3 = On	S4-3 = On
S1-4 = Off	S2-4 = On	S4-4 = On
S1-5 = On	S2-5 = On	S4-5 = On
S1-6 = Off	S2-6 = Off	S4-6 = On
S1-7 = Off	S2-7 = On	S4-7 = On
S1-8 = On	S2-8 = On	S4-8 = On

Chapter 6: Verifying PCP cabling

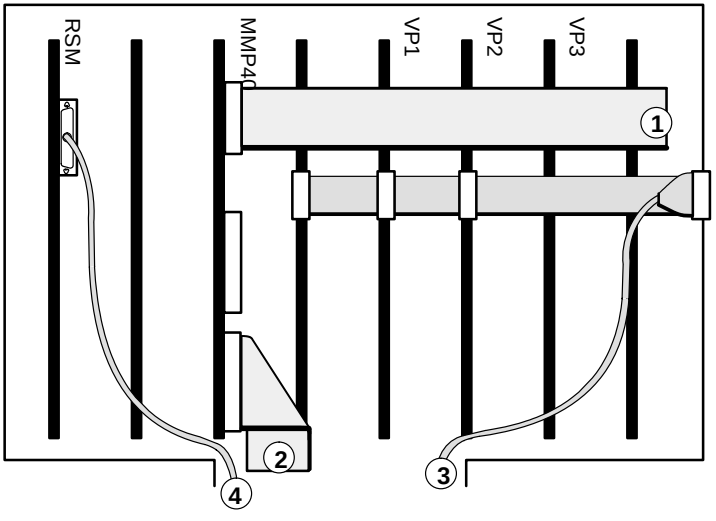
Printed circuit pack (PCP) cabling should all be in place when the system is installed, but it is sometimes necessary to move cables. This section provides a complete reference to the cabling involved.

> ***Note:*** If an RSM cable is to be added at a later date (for addition of a new feature, such as Networking), follow the procedure described in chptaer 8, "Installing and Configuring Peripheral Devices."

Single-node Option or ST/RT Option

Figure 6-1 illustrates the cables at the circuit packs, and Table 6-1 describes how they are routed. Figures 6-5 and 6-6 show full-cabinet views to illustrate internal cable routing to the connector panel, which is shown in detail in Figure 6-7 (ST/RT) or Figure 6-8 (Options).

Figure 6-1
Single-node Options or ST/RT Options MMP40 system



PE connector

Note: To designate pin 1, cables have a colored edge which is illustrated by a heavy line at the bottom edge of the cable. When the other end of the cable is twisted and connected to the backplane, the colored edge appears at the top of the cable.

Table 6-1
Single-node Options cabling detail (reference Figure 6-1)

	Code	Cable description	Routing information
1	NT6D4417 (A0618621)	SCSI cable	From front of card to right-hand edge of unit, route to rear of the shelf. Connect to the J4 connector at the tape controller and on to the J3 connector at the hard disk assembly.
2*	NT6D4419 (A0618623)	Serial communications cable	Route from front of card to exit slot at the bottom of the Meridian Mail faceplate.
* The combined CSL/CRT cables each have a brown wire on the inside edge that is intentionally not used.			

–continued–

Table 6-1
Single-node Options cabling detail (reference Figure 6-1) – continued

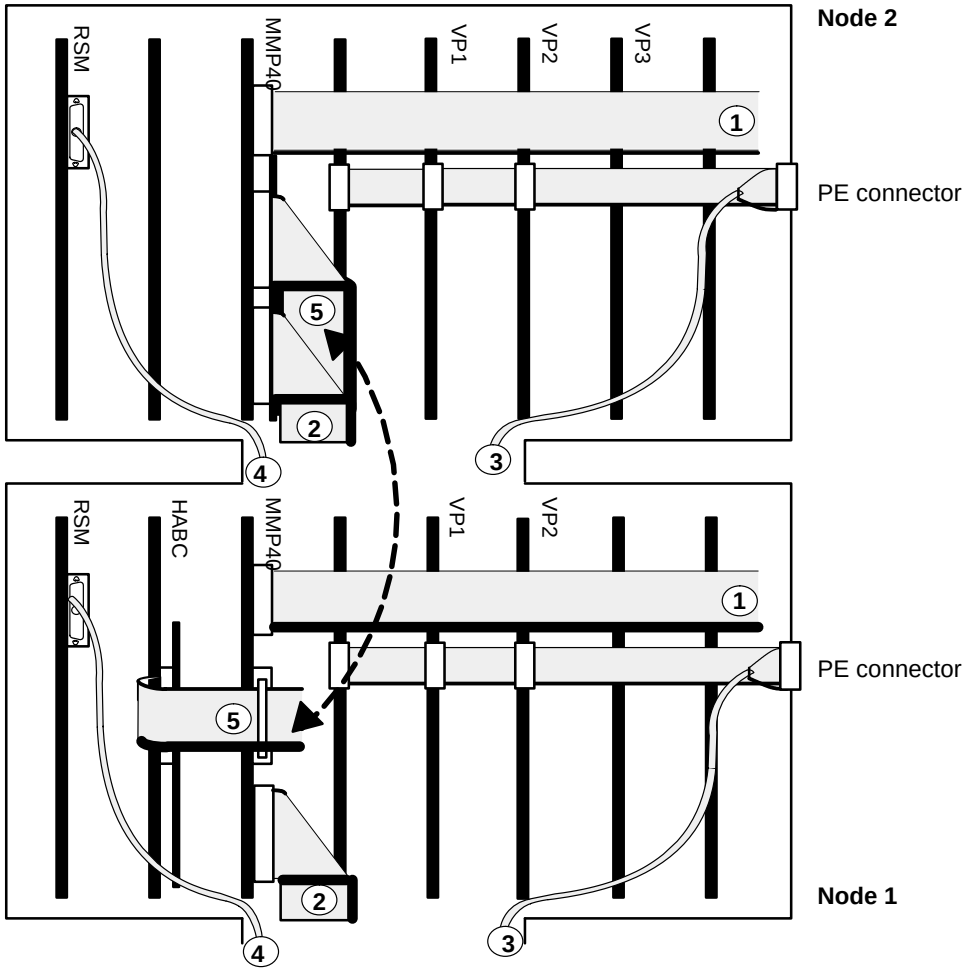
	Code	Cable description	Routing information
3	NT4R61AA (A0363515)	NVP daisychain cable assembly	Route from NVP card #1 to card #2 to card #3, then to the PE buffer connector at the side of the Meridian Mail faceplate. From PE buffer connector to exit slot at the bottom of the Meridian Mail faceplate.
4	NT4R58AA (A0363517)	RSM cable assembly	Route from front of card to exit slot at the bottom of the Meridian Mail faceplate.
–end–			

Two-node Options or ST/RT Options

Figure 6-2 illustrates the cables at the circuit packs, and Table 6-2 describes how they are routed. Figures 6-5 and 6-6 show full-cabinet views to illustrate internal cable routing to the connector panel, which is shown in detail in Figure 6-7 (ST/RT) or Figure 6-8 (Option).

The port capacity on an Options dual–node system can be expanded to 24 ports through the addition of a fourth Voice Processor card and the appropriate extension cable (NT4R61BA). Figure 6-3 illustrates the cabling of Node 2, and Table 6-2 describes how the cables are routed. See Figure 6-4 for an illustration of the extension cable.

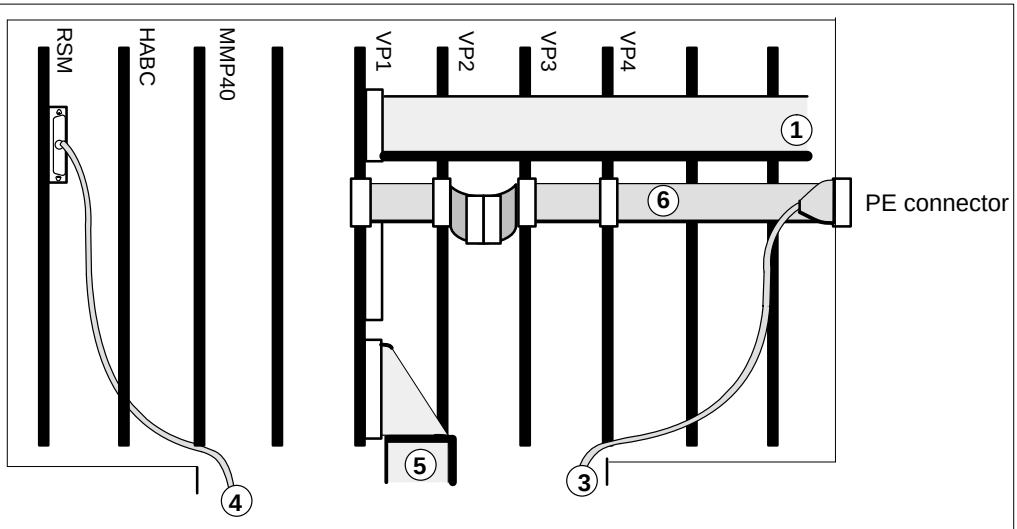
Figure 6-2
Dual-node Options or ST/RT Options MMP40



Note 1: To designate pin 1, cables have a colored edge which is illustrated by a heavy line at the bottom edge of the cable. When the other end of the cable is twisted and connected to the backplane, the colored edge appears at the top of the cable.

Note 2: Refer to Table 6-2 for routing information.

Figure 6-3
24-port Options for dual–node system (using extension cable NT4R61BA)



Note: To designate pin 1, cables have a colored edge which is illustrated by aheavy line at the bottom edge of the cable. When the other end of the cable is twisted and connected to the backplane, the colored edge appears at the top of the cable.

Figure 6-4
24-port capability extension cable (NT4R61BA)

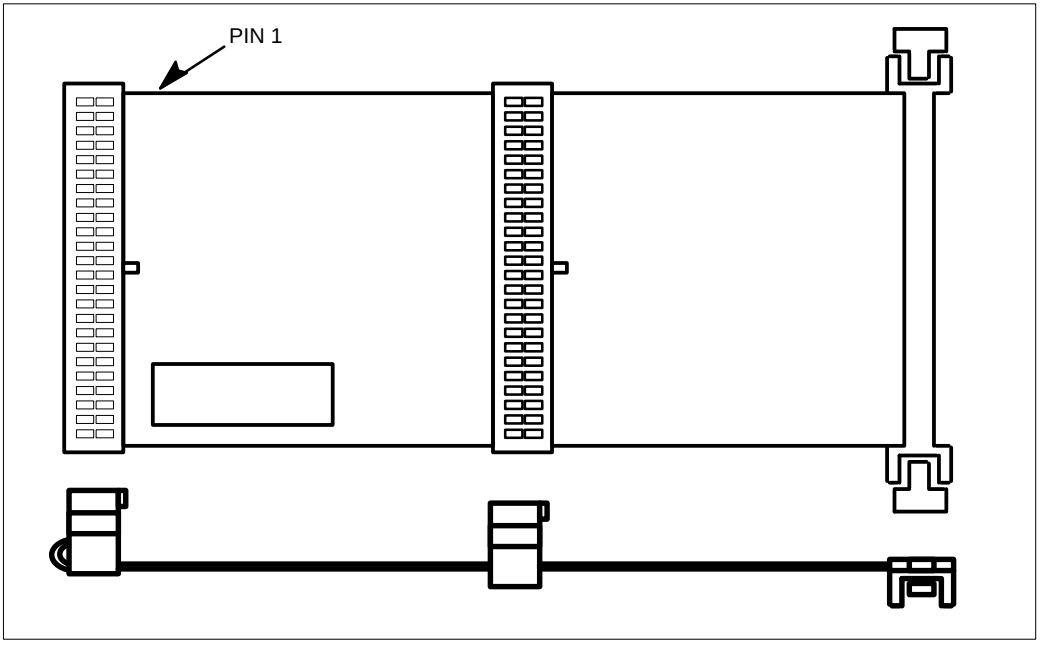


Table 6-2
Dual-node Options cabling detail (reference Figure 6-2 and Figure 6-3)

Figure Ref.	Code	Cable description	Routing information
1	NT6D4417 (A0618621)	SCSI cable assembly	From front of card to right-hand edge of unit, route to rear of the shelf. Connect to the J4 connector at the tape controller and on to the J3 connector at the hard disk assembly.
2*	NT6D4419 (A0618623)	Serial communications cable (MMP40)	Route from front of card to exit slot at the bottom of the Meridian Mail faceplate.
* For the MMP40, the combined CSL/CRT cables each have a brown wire on the inside edge that is intentionally not used.			
3	NT4R61AA (A0363515)	NVP daisychain cable assembly	Route from NVP card #1 to card #2 to card #3 (only two cards in the first node), then to the PE buffer connector at the side of the Meridian Mail faceplate. Route from PE buffer connector to exit slot at the bottom of the Meridian Mail faceplate. The NVP cable in the second node passes down through the first node (between the cables and faceplate) and exits with the first node cables.
4	NT4R58AA (A0363517)	RSM cable assembly	Route from front of card to exit slot at the bottom of the Meridian Mail faceplate. The RSM cable in the second node passes down through the first node (between the cables and faceplate) and exits with the first node cables.
5	NT4R57AA (A0363516)	Bus cable assembly	Route from HABC terminator on node 1 to the front of the MMP40 card on node 1. Route cable upward to the second node and connect to the MMP40 terminator on node 2.

–continued –

Table 6-2
Dual-node Options cabling detail (reference Figure 6-2 and Figure 6-3) – continued

	Code	Cable description	Routing information
6	NT4R61BA (A0627102)	24-port extension cable (For 24-Port enhancement only)	Remove the daisy chain cable connecting the VP1, VP2, and VP3 cards. Configure and install the VP4 card in its slot. Install the male end of the NT4R61BA extension cable onto the female end of the NT4R61AA cable. Reconnect the daisy chain cable to the four VP cards.
–end–			

Figure 6-5
ST/RT Options—cable routing to connector panel

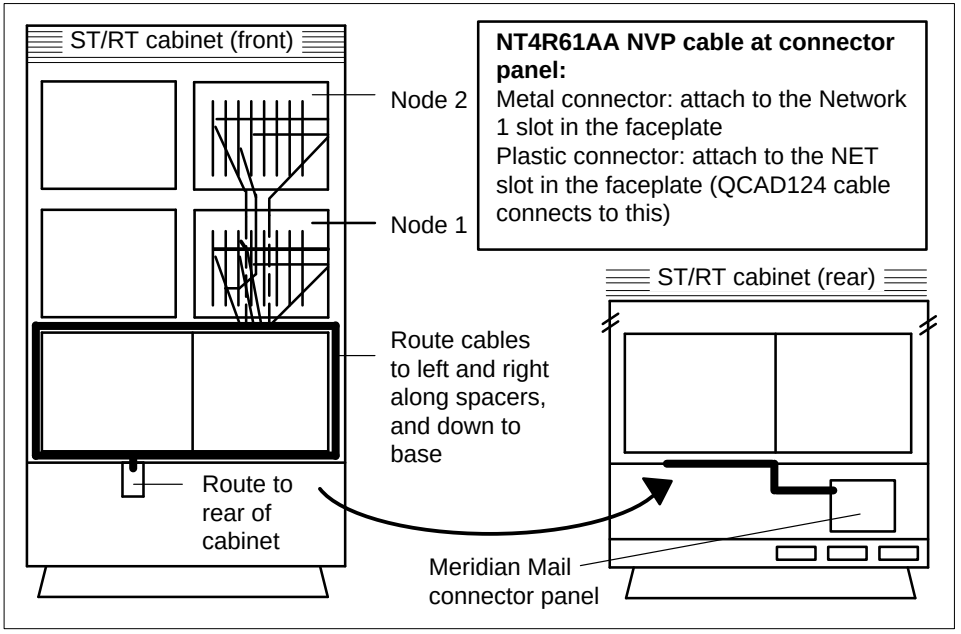


Figure 6-6
Options—cable routing to connector panel

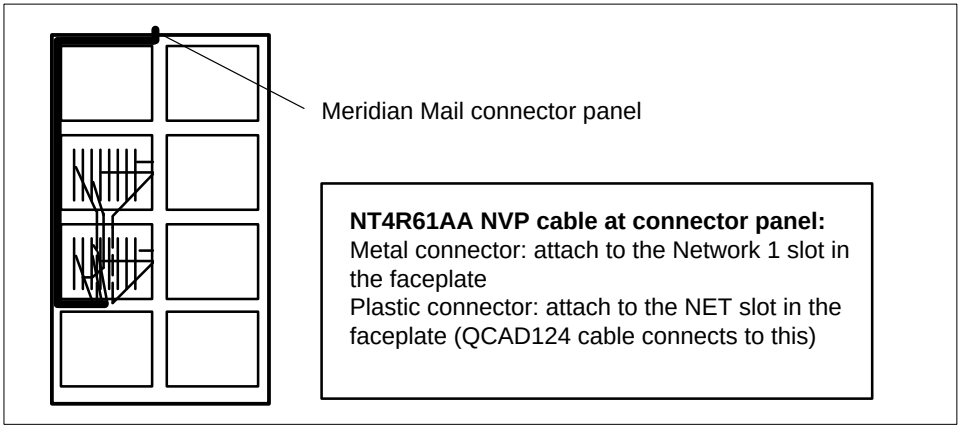


Figure 6-7
ST/RT Options connector panel (bottom rear of cabinet)

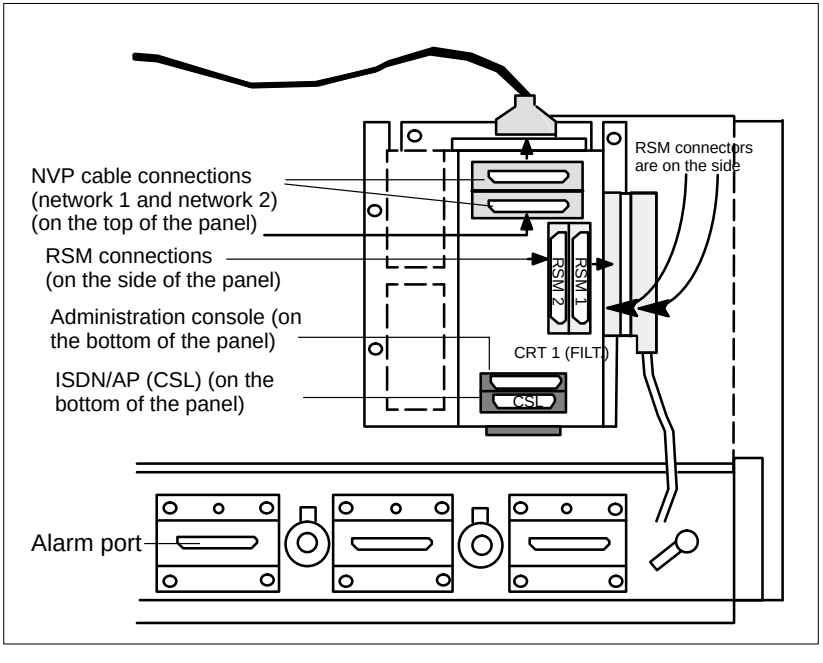
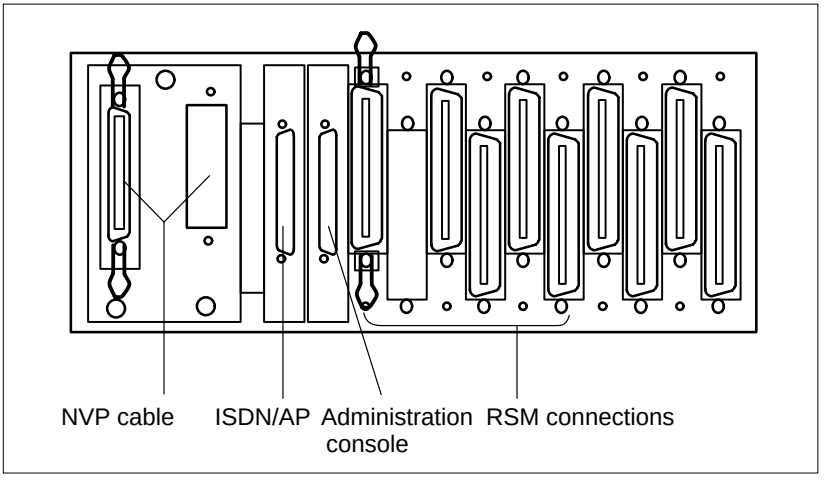


Figure 6-8
Options connector panel (top of cabinet)



Chapter 7: Meridian Mail to PBX interface cabling

Installing network (voice) cabling

If Meridian Mail was installed by the factory, proceed to the peripheral device installation chapter in this manual and continue from there. Otherwise, proceed with the procedures in this chapter.

Procedure 7-1
Installing network (voice) cabling

1 Connect the network cable (NT8D73 or NT8D85 for ST/RT Options) to the NVP1 port on the connector panel of the Meridian Mail voice node (see Figure 7-3 or 7-4 depending on the model being installed).

One-node system If Meridian Mail is the only peripheral device connected to the Network loop interface card, then install a Network Loop Terminator (QPF23A) on the NVP0 port.

Two-node systems Attach a second network cable (NT8D73 AD/AF/AL/AS -1.9, 3.6, 6.2, 9.1-meters [76-, 144-, 244, 360 inches] in length) to the NVP0 port on the connector panel, and connect the other end to the NVP1 port on the connector panel for the second voice node. Then, install the Network Loop Terminator (QPF23A) on the NVP0 port on the second voice node connector panel. See example on next page.

Multinode systems Attach a second network cable (NT8D73 AD/AF/AL/AS) to the NVP0 port, and connect the other end to the NVP1 port on the connector panel of the second voice node.

Then, install the Network Loop Terminator (QPF23A) on the NVP0 port on the second voice node.

Attach a third network cable (NT8D73 AD/AF/AL/AS) from the J2 or J1 port of the QPC414 CPU module connector panel on the Meridian 1 to the NVP1 port on the third voice node.

If the system is a four-node configuration, install a network loop terminator (QPF23A) on the NVP0 port of the third voice node.

If system is a five-node configuration, install another (fourth) network cable from the NVP0 port on the third voice node to the NVP1 port on the fourth voice node; then, install a network loop terminator (QPF23A) on the NVP0 port on the fourth voice node. See example on next page.

2 Connect the other end of the network cable to the port marked J2 or J1 on the Meridian 1 CPU module connector panel for the QPC414 network pack. See Figure 7-1 or 7-2 depending on the model being installed.

Figure 7-1
Two-node loop–sharing configuration

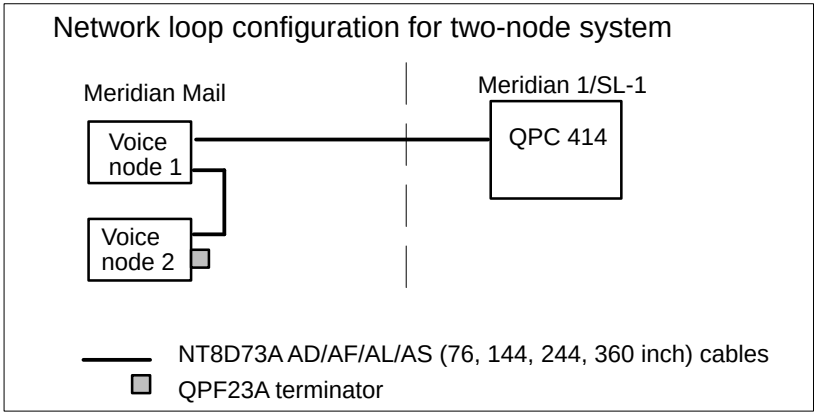


Figure 7-2
Five-node loop–sharing configuration

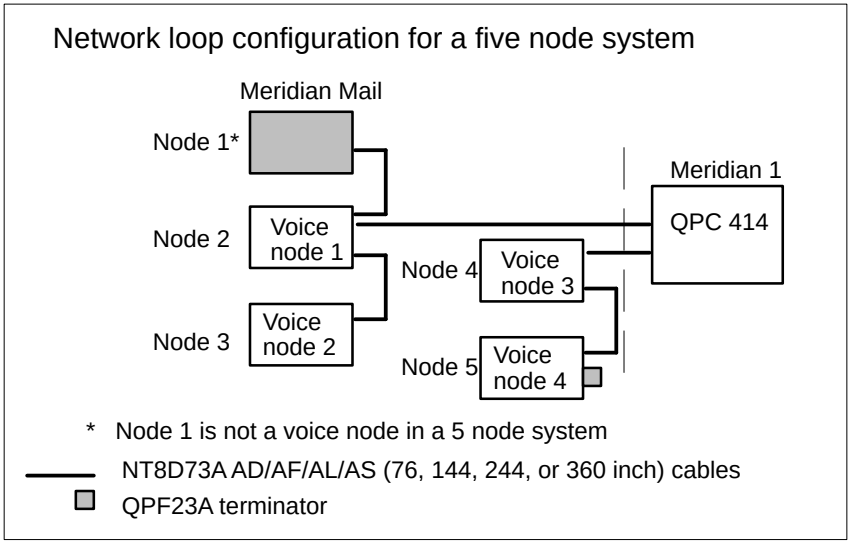


Figure 7-3
ST/RT Option connector panel

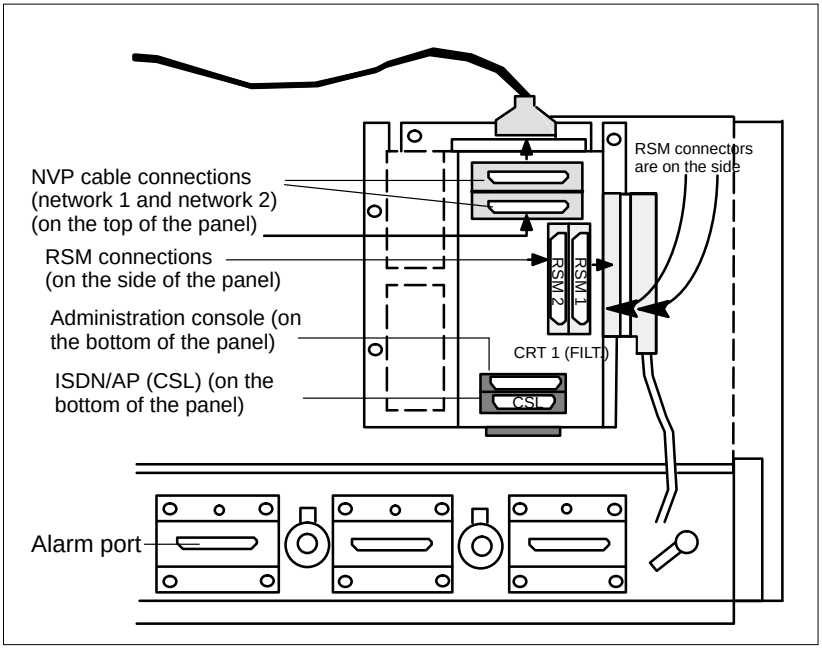
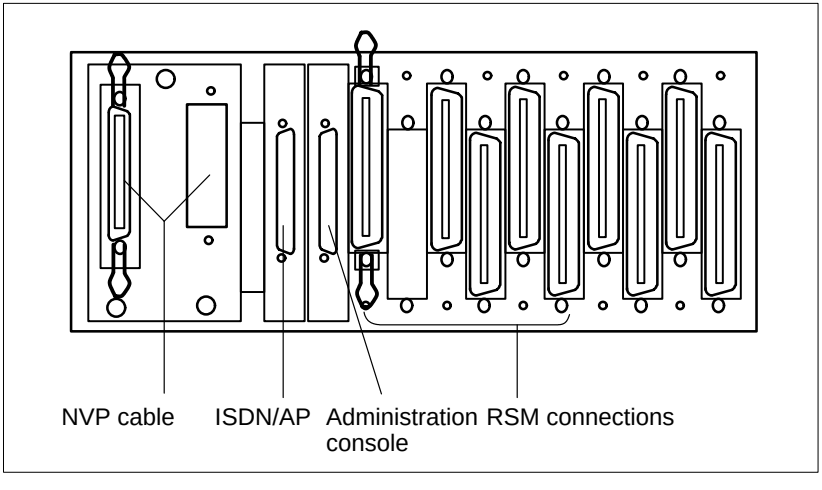


Figure 7-4
Option connector panel



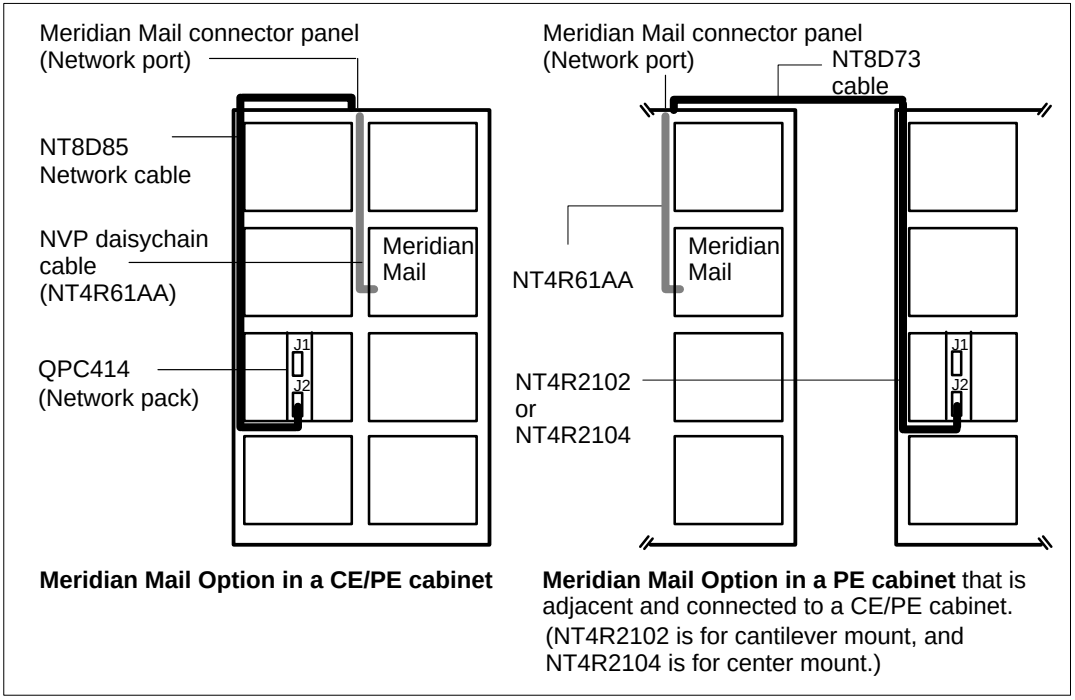
Connecting network loop to a Meridian 1 (modular) system

1. Route the network cable (NT8D73AD/AF/AL/AS) to the CPU module connector panel on the Meridian 1.

   Note: The network loop has a maximum cable distance of 15.2 metres (50 feet) (from end to end). This distance cannot be exceeded.

2. Route the NT8D86AD cable from the CPU module connector panel to the port marked J1 or J2 on the QPC414 network pack.
3. Dress and secure any extra cable length.

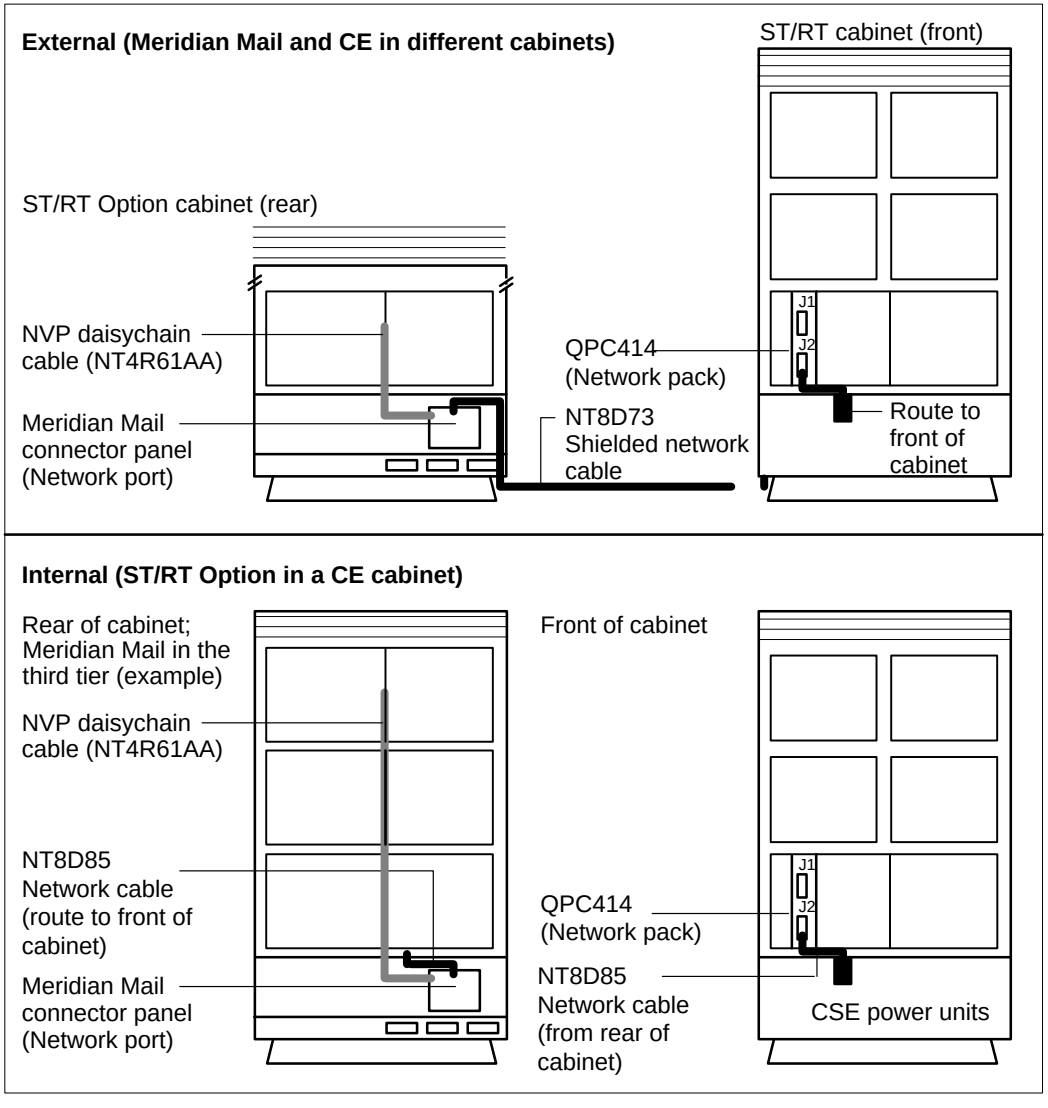
Figure 7-5
Meridian Mail Option network cable routing



Meridian Mail Option in a CE/PE cabinet

Meridian Mail Option in a PE cabinet that is adjacent and connected to a CE/PE cabinet. (NT4R2102 is for cantilever mount, and NT4R2104 is for center mount.)

Figure 7-6
Meridian Mail ST/RT Option network cable routing



Installing the network loop with peripheral equipment

Note: This section on installing the network loop with peripheral equipment does not apply to the Shelf Option and Option ST/RT.

If the network loop is to be extended to a peripheral buffer in a peripheral shelf (by a standard network cable), the following notes must be considered when installing Meridian Mail:

- There must be sufficient channels available for Meridian Mail—one terminal number (TN) per channel.
- TNs specified for Meridian Mail (four to each NVP, numbered consecutively) use slots on the PE shelf (from one to three depending on the number of NVP cards installed and the density of the PE shelf). It is important that these shelf slots are dedicated to Meridian Mail and not assigned for any other purpose. (The standard Meridian 1 ST peripheral shelf cannot accommodate a pack in slot 5. Do not designate a pack to slot 5.)
- The Meridian 1 must already be properly configured for peripheral equipment.
- Meridian Mail must be the first “link” in this “daisychain.” In other words, the first link must connect Meridian Mail to the network cable. Further network cabling connects the peripheral equipment.

Procedure 7-2
Installing the network loop with peripheral equipment

1. Ensure that the NVP cards have been configured correctly for shared PE. See the “Installation of printed circuit packs (PCPs)” chapter for NVP switch settings.
2. Connect the network cable (NT8D73 shielded or NT8D85 non-shielded) to the PCP faceplate labelled “NET” port on the Meridian Mail connector panel (see Figure 7-3 or 7-4 depending on the model being installed).
3. Connect a second network cable (NT8D73 shielded or NT8D85 non-shielded) to the connector located on the PCP card faceplate labelled PE shelf (which may or may not be in a separate cabinet).

   Note: The network loop has a maximum cable distance of 15.2 meters (50 feet) from end to end. This distance cannot be exceeded.

4 Connect the other end of these network cables to the QPC659 peripheral buffer (LPX).

5 Dress and secure any extra cable length.

Installing the ISDN/AP link

If the Meridian Mail expansion shelf was installed by the factory, proceed to the peripheral device installation chapter covered in this manual, and continue from there.

Note: A QPC513 (revision H or later) enhanced serial data interface (ESDI) port is required on the Meridian 1.

Note: Refer to your Meridian 1 maintenance documentation for the procedure enabling the ISDN/AP link.

Installing the enhanced serial data interface

Procedure 7-3
Installing the enhanced serial data interface

1 Unpack and inspect the QPC513 card.

2 Set the enhanced serial data interface (ESDI) faceplate switch to “DIS”.

3 Set the switches on the ESDI card according to Figure 7-7 (QPC513H).

4 Set the option jumpers on the ESDI card according to Figure 7-8. If you are using local data sets (LDS) for long distance setup, configure the ESDI card for data communications equipment (DCE) as shown.

5 Install the ESDI circuit pack in the assigned shelf and slot.

6 Set the ESDI faceplate switch to “ENB”.

Figure 7-7
QPC513H ESDI card switch settings

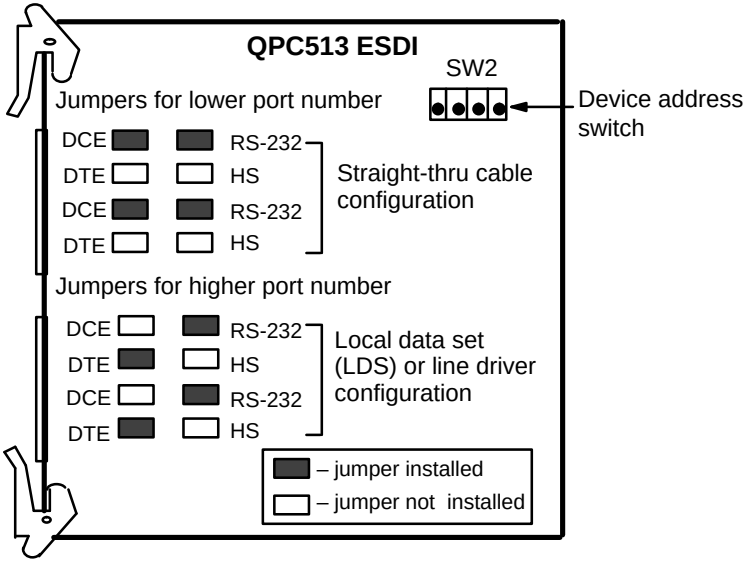
QPC513H or later

	Device address 1	2	3	Synchronous mode 4
0-1	0	0	0	1
2-3	0	0	1	1
4-5	0	1	0	1
6-7	0	1	1	1
8-9	1	0	0	1
10-11	1	0	1	1
12-13	1	1	0	1
14-15	1	1	1	1

1 = switch on, 0 = switch off

Set device address to match Overlay 17 assignment (prompt ADAN). Set position 4 of SW2 to “on” (synchronous mode).

Figure 7-8
QPC513 ESDI card jumper settings



Note: For a long distance configuration using local data sets (LDS), set the jumper settings shown above.

Note 2: This figure shows both high and low ports configured for Meridian Mail. You need to configure only the port being used.

Installing the ISDN applications protocol link cable

The ISDN applications protocol (ISDN/AP) link is also known as the command status link (CSL).

Procedure 7-4
Installing the ISDN/AP link cable

1. Connect the ISDN/AP link cable (A0355244 or A0355245) to the CSL port on the connector panel, and fasten both screw locks using a small standard screw driver. See Figures 7-3 or 7-4 as appropriate. Route the cable along to the CE shelf of the Meridian 1 cabinet.
2. Connect the other end of the ISDN/AP link cable to the connector panel on the Meridian 1 system.
3. Connect the NT8D82 cable from the connector panel to the port marked J1 or J2 on the ESDI pack. If you are connecting Meridian Mail to a non-Meridian 1 system, use the P0695822 cable instead. See Figure 7-10 or 7-11 depending on the model being installed.

   Note which port is used because this port will be assigned to Meridian Mail in Meridian 1 configuration.
4. Dress and secure any extra cable length.

Installing the MSDL

Each MSDL card (NT6D80AA) has four ports. Because all four ports on the card are associated with *one* device number, the MSDL occupies only 1 of the 16 allowed devices for Meridian 1 (unlike the ESDI which occupies 2). The device number (DNUM) is programmed in Overlay 17 of the Meridian 1 database. This is explained in Chapter 8 of this manual, “Configuring the PBX.”

Procedure 7-5
Installing the MSDL

1. Unpack and inspect the MSDL card, and check that there are no obviously loose or bent parts.
2. Set the switches on the card according to the settings shown in Table 7-1 for DCE or DTE interface. Figure 7-9 shows the MSDL and the location of the configuration switches on the card.
3. Set the S9 and S10 switches on the MSDL to the assigned device number. For example, if your device number is 10, set S9 to1 and S10 to 0.

4. Hold the card by its locking devices. Squeeze tabs to unlatch the card–locking devices and lift the locking device out and away from the card. Be careful not to touch connector pins, conductor traces, or integrated circuits. The static discharge may damage integrated circuits.
5. Slide the MSDL card into the appropriate card slot of the module, following the card guides in the module, until it engages the backplane connector.
6. Push the MSDL firmly into the connector using the locking devices as levers by pushing them towards the card's front panel.
7. Push card locking devices firmly against the front panel of the card so they latch to the front lip in the module and to the post on the card.
8. Observe the red LED on the MSDL faceplate.

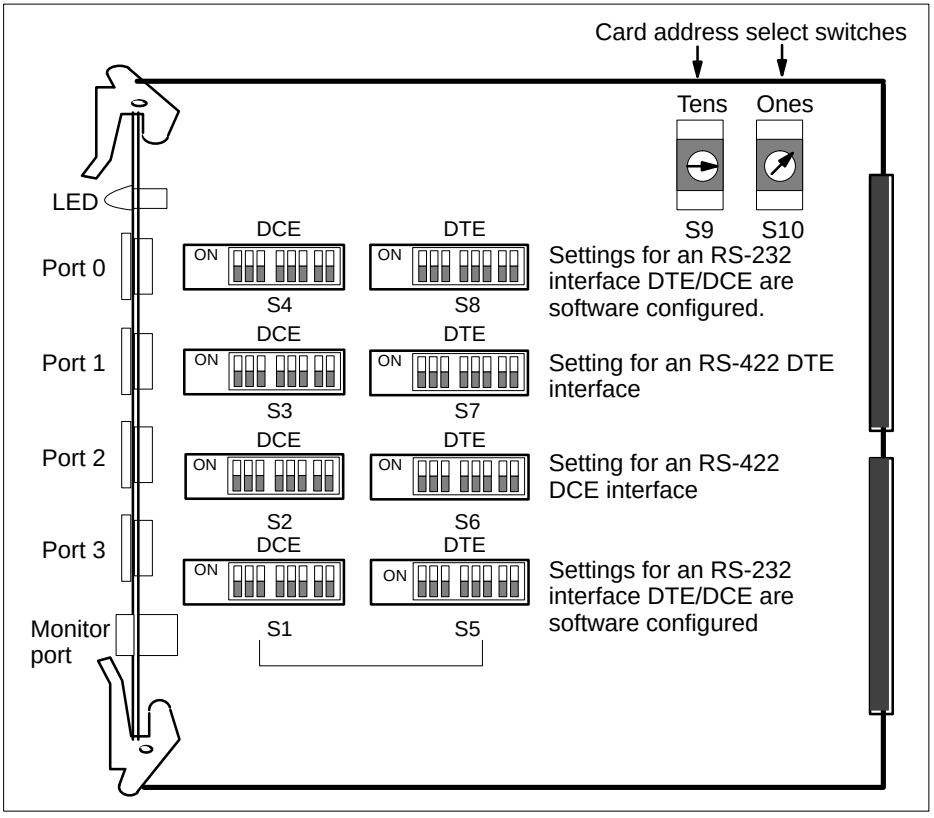
   If it turns on, flashes three times, and stays on continuously, the MSDL is operating correctly but is not yet enabled.

   If it turns on and stays on continuously without flashing three times, the card may be defective. Carry out steps 9 to 11.
9. Connect the cables (NTND27AA or NTND27AB).
10. Unplug the MSDL card and reinsert it. If the red LED still does not flash three times, leave the card installed for approximately 10 minutes to allow the card to be initialized.
11. After ten minutes, unplug the card, reinsert it, and, if the card still does not flash three times, the card is defective and must be replaced.

Table 7-1
MSDL interface switch settings

DCE switch	DTE switch	Interface	Comment
All OFF	All OFF	RS-232	DTE/DCE is software configured
All OFF	All ON	RS-422	DTE
All ON	All OFF	RS-422	DCE
All ON	All ON	RS-232	DTE/DCE is software configured

Figure 7-9
MSDL switch locations and example of switch settings



MSDL cabling

Internal routing of MSDL cabling (Meridian Mail and CE in same cabinet)

Procedure 7-6
Installing the internal routing of MSDL cabling

1. Connect the MSDL link cable (NTND27AA or NTND27AB) to the CSL port connector panel, and fasten both screw locks (see Figure 7-3 or 7-4) as appropriate.
2. Route the cable to the NT60AAA MSDL card, and connect to the appropriate assigned AML port.
3. From the connector panel, connect the AML (ISDN/AP) link cable (P0695822) to the CSL port.
4. Route and dress the other end of the cable, and connect it to the CSL port on the Meridian Mail faceplate.

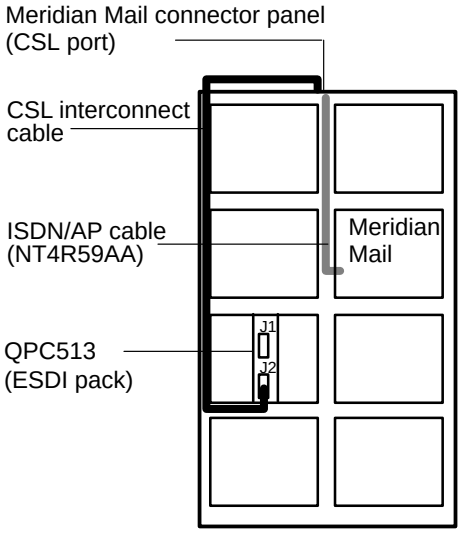
External routing of MSDL cabling (Meridian Mail and CE in different cabinets)

Procedure 7-7
Installing the external routing of MSDL cabling

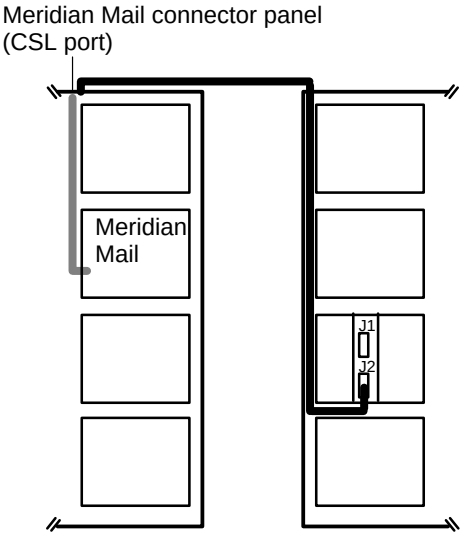
1. Connect the MSDL link cable (NTND27AA or NTND27AB) to the SDI port in the back of the cabinet or top filter panel, and fasten both screw locks (see Figure 7-3 or 7-4) as appropriate.
2. Route the cable to the NT60AAA MSDL card, and connect to the appropriate assigned AML port.
3. Connect the RS-232 ISDN/SDI cable to the SDI port located in the back of the ST/RT, or to the top I/O filter panel of the NT/XT cabinet.
4. Connect the other end of the ISDN/SDI cable to the CSL port in the back of the Option X cabinet, or to the top I/O filter panel of the NT/XT cabinet where Meridian Mail is located.
5. Connect the P0695822 between the faceplate of Meridian Mail to the CSL port of the connector panel (see Figures 7-10 or 7-11)

   Note: The MSDL cable routing is identical to that used with the QPC513.

Figure 7-10
Meridian Mail Option ISDN/AP link cable routing

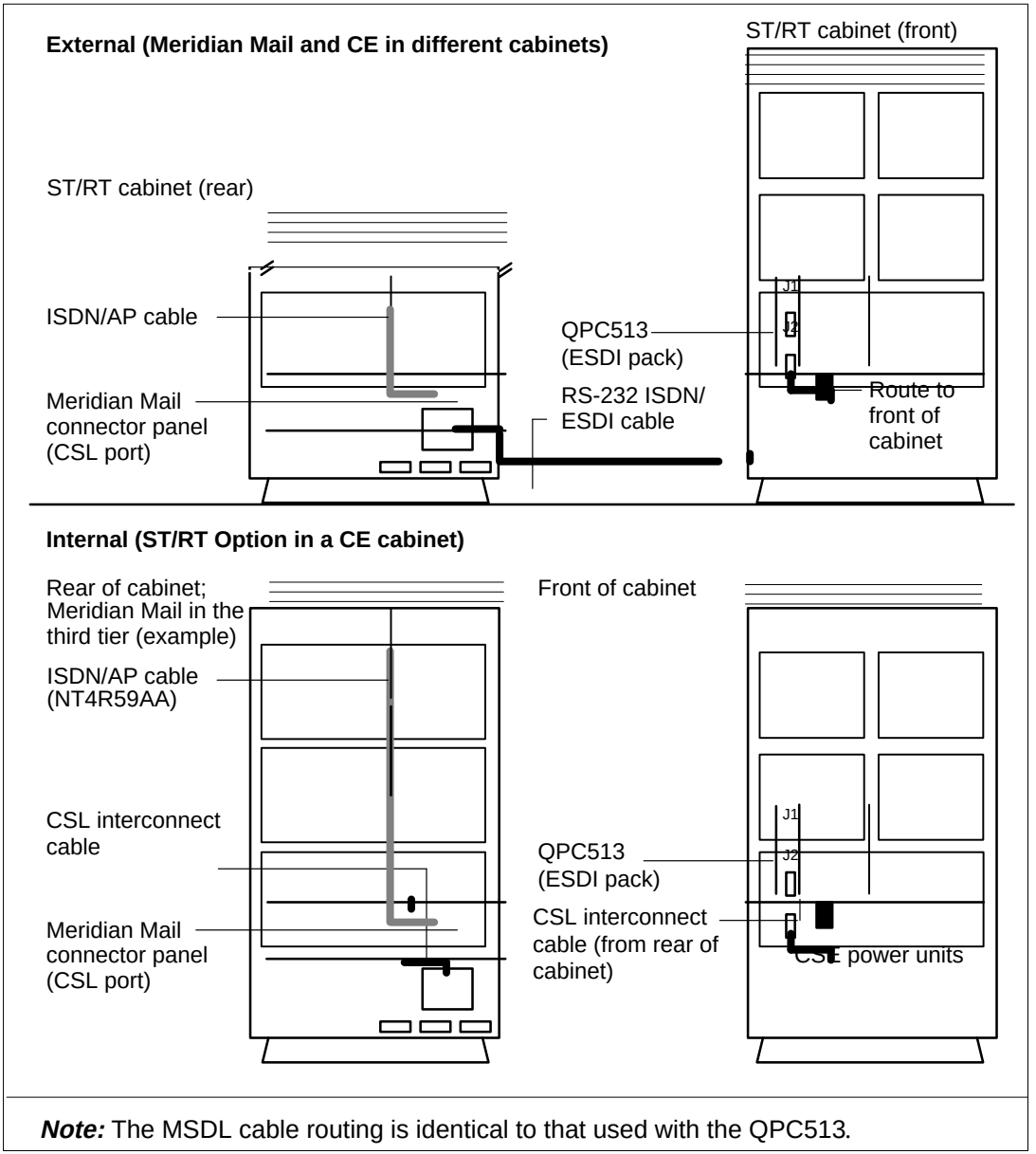


Meridian Mail Option in a CE/PE cabinet



Meridian Mail Option in a PE cabinet that is adjacent and connected to a CE/PE cabinet
(Cable numbers are the same although length may vary.)

Figure 7-11
Meridian Mail ST/RT Option ISDN/AP link cable routing



Note: The MSDL cable routing is identical to that used with the QPC513.

Chapter 8: Installing and configuring peripheral devices

Peripheral devices for Meridian Mail include the following:

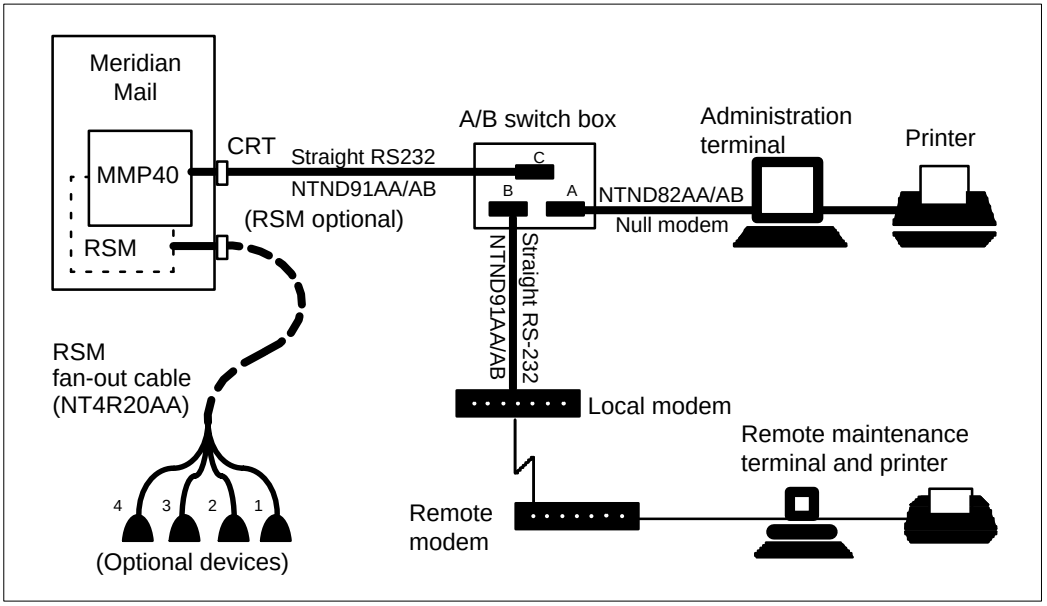
- administration terminal
- guest administration console (GAC) and unread message notification terminals for guest voice messaging
- local modem (for remote administration)
- printer
- A/B switchbox
- personal computer (optional)
- networking modem (optional)
- remote site devices (terminal and modem)

See Figure 8-1 on the following page for an overall structure of the system.

If you are using the Meridian Mail AdminPlus package, many of the procedures in this section do not apply. See *Meridian Mail Reporter User Guide* for installation instructions.

> ***Note:*** The *Meridian Mail Reporter User Guide* will be available for distribution at either the end of 1995 or the beginning of 1996.

Figure 8–1
Meridian Mail overview



Overview

To install peripheral devices, follow this sequence of events:

1 Install the A/B switchbox and connect it to Meridian Mail.

2 Install the administration terminal.

3 Install printer and connect it to the terminal.

4 Configure the terminal (using SETUP mode).

5 Attach the local modem to the terminal.

6 Configure the modem.

7 Install the modem by connecting to the A/B switchbox.

8 Connect the terminal to the A/B switchbox.

9 Install the remote terminal and modem at your convenience.

This chapter discusses each aspect of peripheral device installation and refers you to the appendixes of this document wherever detailed information is required on a device.

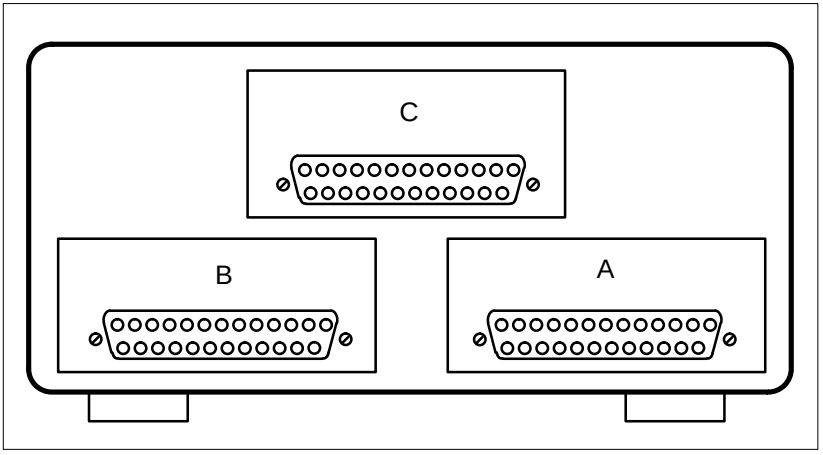
Installing and connecting the A/B switchbox

The A/B switcbox is required to permit remote support by Nortel support personnel (see Figure 8–2).

Procedure 8–1
Installing and connecting the A/B switchbox

1. Place the A/B switchbox in a suitable location near Meridian Mail.
2. Although the switchbox may not be exactly as indicated in this document, the installation is the same. See the instructions provided with the switchbox for specific details.
3. Plug one end of the RS232 cable NTND91AA/AB into the connector labelled CRT at the connector panel.
4. Plug the other end of the RS232 cable into the input connector (usually marked C) of the A/B switchbox, and secure it (see Figure 8–2).
5. Position the switch on the front of the A/B switchbox to the A position, or the position that selects Meridian Mail.

Figure 8–2
A/B switchbox (rear view)



Installing the administration terminal

Procedure 8–2
Installing the administration terminal

1. Place the administration terminal in a suitable location.

   The administration terminal should be installed within 15.24 metres (50 feet) of the Meridian Mail system. If the cable distance is greater than 15.24 metres, asynchronous limited distance modems (LDMs) must be used.

2. Connect the keyboard and power cord to the terminal.
3. Connect one end of a null modem terminal cable (NTND82AA/AB) to the COMM connector on the terminal.
4. Connect the other end of the null modem cable to the connector labelled A on the A/B switch.
5. Plug the terminal power cord into the nearest AC receptacle.
6. Power on the terminal.

Installing and connecting the printer

Procedure 8–3
Installing and connecting the printer

1 Use Table 8–1 and 8–2 to confirm the printer switch settings.

Figure 8–3 shows the switch locations.

Table 8–1
Printer mode switch settings

Switch	Position	Function
1	DOWN	CR definition
2	UP	LF definition
3	DOWN	Perforation skip mode
4	DOWN	Page length
5	UP	Control sequence mode
6	UP	Character set
7	UP	Character set for IBM 8-character set
8	DOWN	Character set

Table 8–2
Printer RS–232 switch settings

Switch	Position	Function
1	DOWN	Handshaking mode, set for DTR
2	DOWN	Parity, set for none
3	DOWN	Parity
4	DOWN	Baud rate, set for 9600 baud
5	DOWN	Baud rate

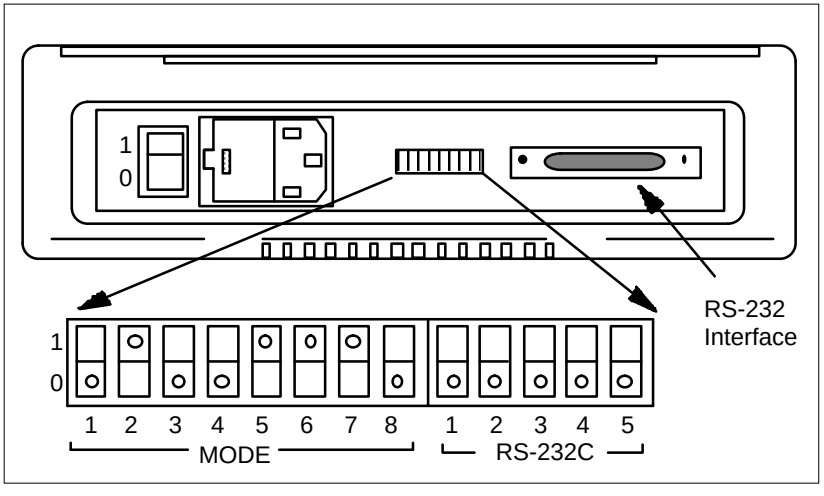
2 Attach one end of the RS–232 modem cable NTND91AA/AB to the RS–232 connector at the back of the printer.

3 Attach the other end of the cable to one of the following:

— the appropriate port on the back of the administration terminal (refer to Figure 8–4 for reference)

— the first available RSM connector (on the NT4R20AA fan-out cable)

Figure 8–3
Printer switch locations



4 Plug the printer power cord into the nearest AC receptacle.

5 Power on the printer.

Configuring the terminal

Procedure 8–4
Configuring the terminal

1 See the appendix for terminal configuration for configuration procedures for your terminal type. These are

- HP700/32 terminal
- VT420 terminal
- VT520 terminal
- NT220 terminal
- VT220 terminal
- HP700/22 terminal
- VT320 terminal

Note: The VT420 has been discontinued by the manufacturer and has been superseded by the VT520.

Attaching the local modem to the administration terminal

Procedure 8–5
Attaching the local modem to the administration terminal

1. Place one end of the 9-pin RS232 cable (NTND91AA/AB) into the modem's RS232 input which is marked as follows:
   - RS–232/EIA for Ven-Tel modems
   - DTE for UDS modems
2. Attach the other end of this cable to the terminal's RS232 data port connector.

   ***Note**:* Depending on the terminal being used, an adapter may be required.
3. Plug the modem power cord into the nearest AC receptacle.
4. Power on the modem.

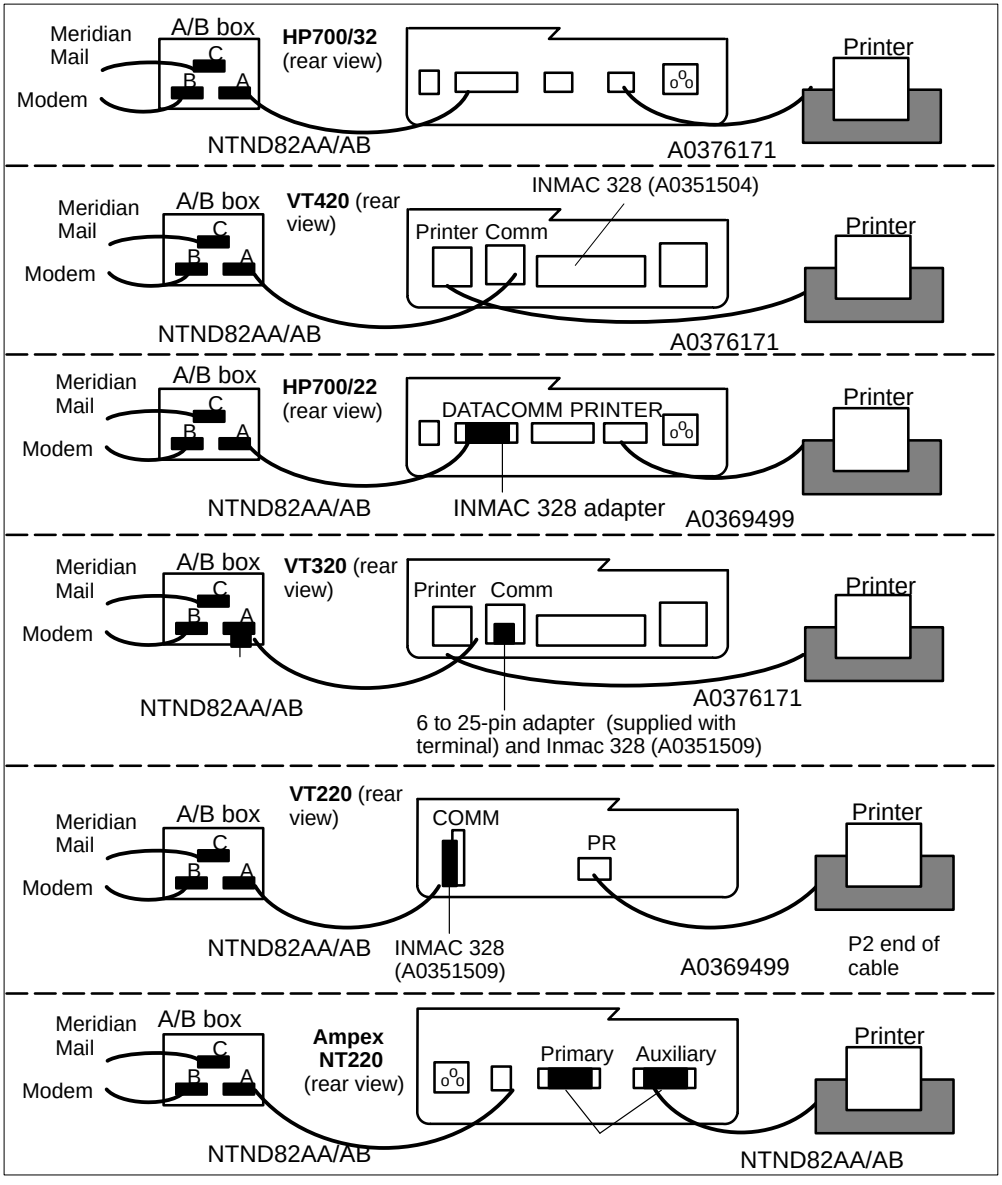
Configuring the local modem

Procedure 8–6
Configuring the local modem

1. Refer to the appendix for modem configuration procedures (switch and register settings) for your modem type:

   Modems used are the Ven-Tel and UDS modems.

Figure 8–4
Administration terminal—cabling overview



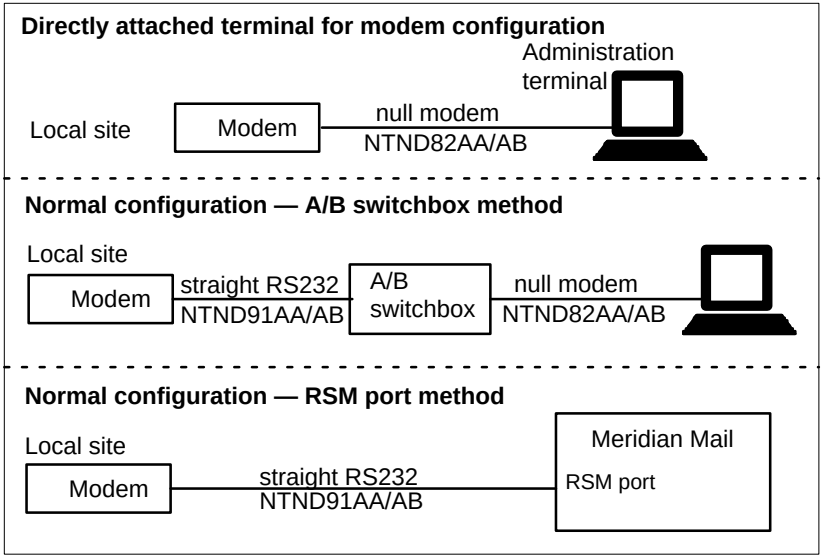
Connecting the local modem

Procedure 8–7
Connecting the local modem

1. Place one end of the 3.4 meter (10-foot), 9-pin RS232 cable (NTND91AA/AB) into the modem's RS232 input which is marked as follows:
   - — RS–232/EIA for Ven-Tel modems
   - — DTE for UDS modems
2. Attach the other end of this cable to the connector labelled B on the back of the A/B switchbox.
3. Plug one end of the Ven-Tel RJ-11c jacked cable (RJ-11 on the UDS modem) into the modem's telephone copany receptacle and the other end into the telephone outlet installed for Meridian Mail.

   The RJ-11 plug is supplied with the modem.

Figure 8–5
Modem configuration overview



Connecting the terminal

Procedure 8–8
Connecting the terminal to the A/B switchbox

1. Connect the administration terminal to the connector labelled A on the back of the A/B switchbox using the null modem cable (NTND82AA/AB) indicated in Figure 8–4.

Installing the remote terminal and modem

Procedure 8–9
Installing the remote terminal and modem

1. Place the VT220-compatible terminal and modem in a suitable location for remote administration.
2. Plug the power cord for the remote terminal into the appropriate AC receptacle.
3. Plug one end of the 3.4 meter (10-foot), 9-pin RS232 modem cable (NTND91AA/AB) into the modem's RS232 connector marked RS232/EIA (DTE on the UDS modem).
4. Attach the other end of the cable into port A of the remote terminal, and screw the cable into place.
5. For the Ven-Tel modem, plug one end of the RJ-11c jacked cable (RJ-11 for UDS modem) into the modem's telephone company receptacle and the other end into the telephone outlet installed for the remote site.
6. Plug the modem power cord into the nearest AC receptacle.
7. Check the modem hardware configuration against the appendix entitled Modem Configuration.

Optional peripheral devices

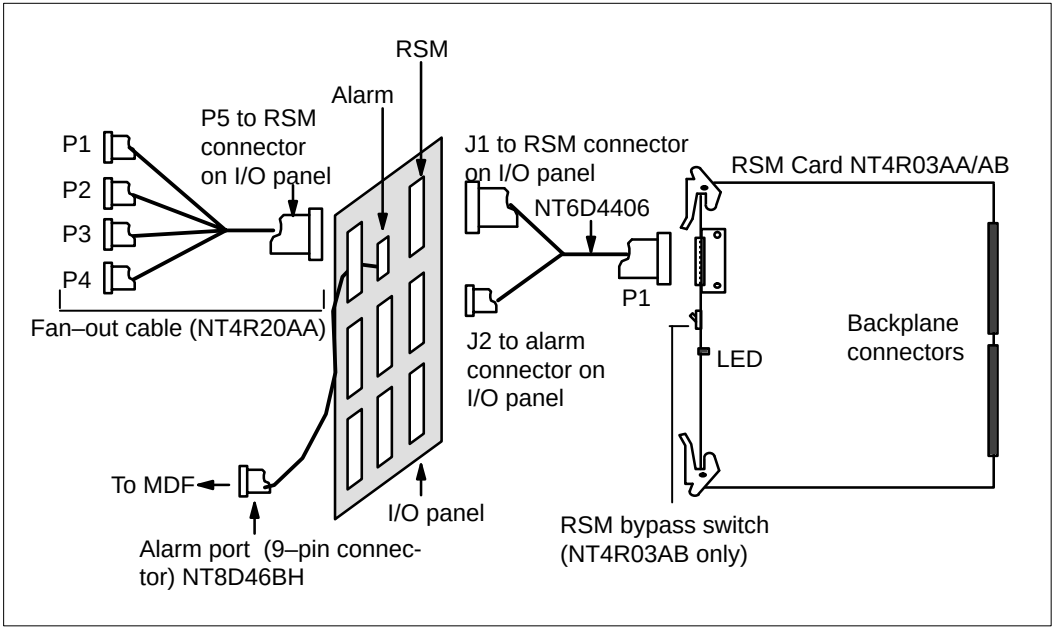
RSM card and cabling installation

The RS–232 service module (RSM) provides four RS–232 ports and alarm capabilities. Figure 8–6 illustrates the cabling involved in these functions. Table 8–3 lists the alarm port and ground cable connections.

Table 8–3
RSM alarm, ground and power connections

J2	Description
2	Ground
6	Power monitor
7	Minor alarm, normally closed
3	Minor alarm, normally open
8	Minor alarm, common
1	Frame ground
9	Major alarm, normally closed
4	Major alarm, normally open
5	Major alarm, common

Figure 8–6
RSM cabling overview



Alarms

Two Form-C dry contact relays are provided for connection to customer-provided alarms. Each relay contact is rated at 0.5 amperes and 150 V DC.

Alarms that show as critical or major on your administration terminal appear in the central office as minor. Alarms that show as minor on your administration terminal do not appear in the central office (see Table 8–4). These alarms are corrected by following the instructions in the SEER reports.

The critical and major alarm contacts can be triggered by the ESBC processor, a board reset, power–off condition, or watchdog timeout (which has a fixed 128-second timeout interval). When using the major alarm to indicate a system–down status, the associated RSM card should be installed on the prime node (node 1).

Table 8–4
Software and hardware alarm status

Software alarm	.. translates into hardware alarm
Critical	Minor
Major	Minor
Minor	Not supported by Meridian Mail software

Connecting the alarm

Procedure 8–10
Connecting the alarm

1. Connect the alarm cable (NT8D46BH) from the I/O panel to the Main Distribution Frame (MDF). Refer to Figure 8–6.
2. Connect the power monitor alarm cable (NT8D46BH) from the XSM J3 connector of Meridian Mail to the Main Distribution Frame (MDF). The pin assignments are detailed in Table 8–3.

Installing a new RSM card and cabling

Procedure 8–11
Installing a new RSM card and cabling

1. Power down the Meridian Mail system before continuing.
2. Remove the front and rear covers of the cabinet. For Meridian Mail Option, only the front cover must be removed.
3. Disconnect cabling at the front of the MMP40 card (except for shelf option systems).

   Ensure that all cables are tagged or labeled so that they can be reinstalled correctly.
4. If you are installing the RSM in node 1, disconnect cabling at the front of the HABC card. Remove the HABC card and carefully set it aside.
5. Disconnect the cabling at the front of the voice processor cards if there are voice processor cards in that node (except for shelf option systems).
6. Remove the voice processor cards and carefully set them aside.
7. Confirm that the switch settings on the RSM card are correct. See the chapter entitled “Installing Printed Circuit Packs.”
8. Mount the J1 connector on the RSM cable (NT4R58AB for Option, ST/RT Option) onto the port marked “RSM” located on the connector panel at the back of the cabinet.
9. Route the RSM cable as appropriate.
   - ST/RT Option: Route the RSM cable from the connector panel at the rear of the cabinet through the opening at the base, along the spacers at the front, and, finally, up to the RSM card slot. See Figure 8–9.
   - Option: Route the cable from the top of the cabinet where the connector panel is located, along the side, and down to the front. See Figure 8–10.
10. Connect the RSM fan-out cable (NT4R20AA) to the RSM connector and route it to the RS232 devices you require. These devices include a modem, terminal, or printer.

    Note: To connect the terminal, use a null modem adapter (A0376557). The printer and modem do not require adapters.
11. Install the new RSM card securely in its proper location.

12 Reinstall the cards that were previously removed, and reattach all cabling.

13 Attach the RSM cable to the connector at the front of the RSM card.

14 Inspect all cables and cards to ensure that they are seated properly.

15 Reinstall front and rear covers.

16 Power up the system.

Figure 8–7
RSM cable routing to connector panel

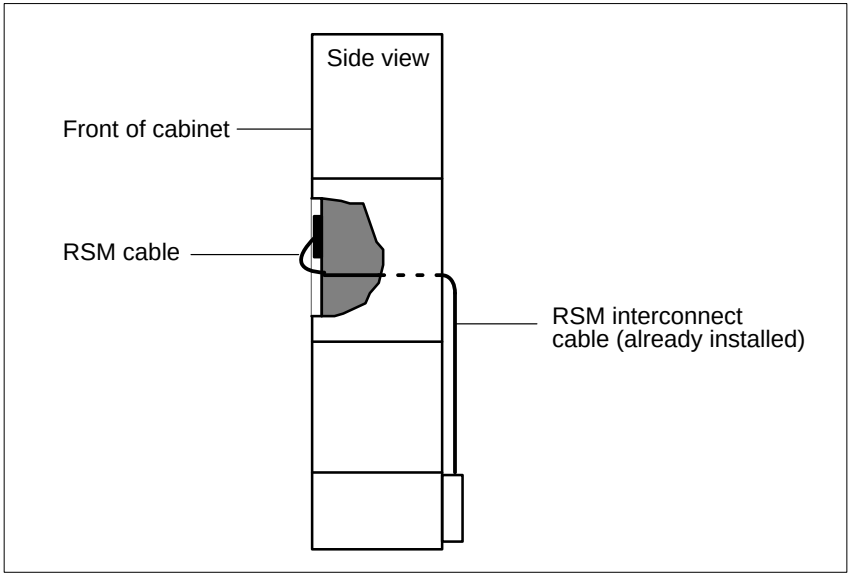


Figure 8–8
Meridian Mail ST/RT Option RSM cable routing to connector panel

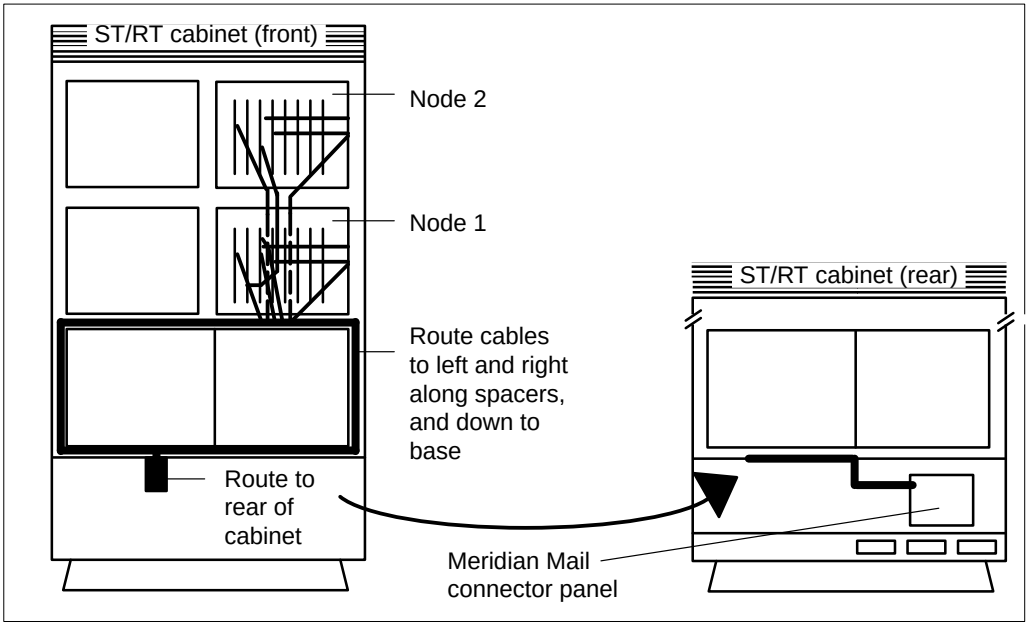
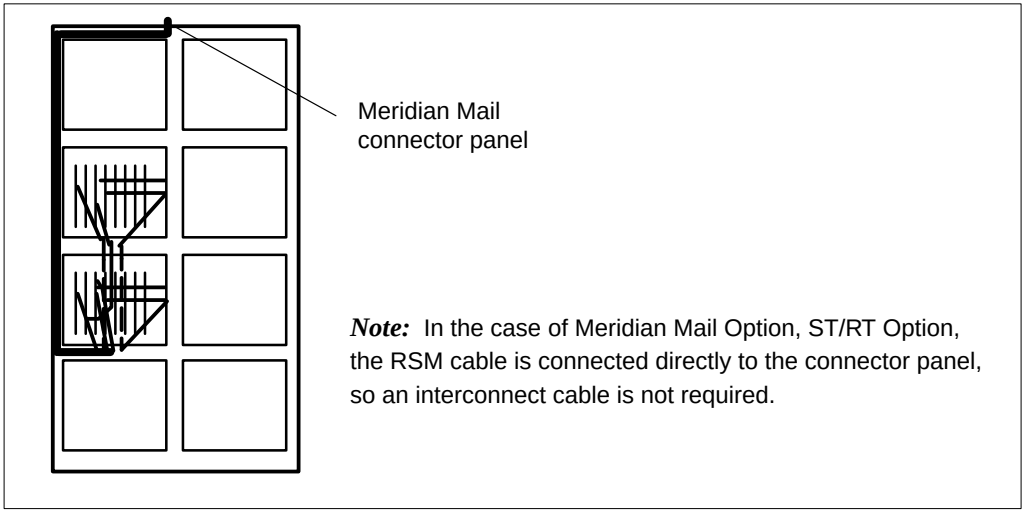


Figure 8–9
Meridian Mail Option — RSM cable routing to connector panel



Chapter 9: Configuring the PBX

Ensure that the appropriate software and hardware conditions are met on the Meridian 1 before installing the Meridian link. See the *Site and Installation Planning Guide* (NTP 555-7011-200) for details.

You must be familiar with Meridian 1 terminology, programming, and installation to perform the procedures in this manual. For information related to the Meridian 1, see the following documents:

- *Master Index of Practices* 553-2201-000
- *Circuit Pack Option Settings* 553-2201-211
- *Acceptance Test Manual* 553-2201-230
- *X11 Input/Output* 553-3001-400
- *Meridian 1 Maintenance Practice* 553-2301-511

Notes on Meridian 1 overlays

All software configuration procedures described in this manual are performed at the Meridian 1 administration terminal or TTY (teletype) using overlay programs. The overlay program examples shown in this manual do not necessarily list all of the prompts that will appear since many do not affect Meridian Mail functionality. Some prompts are also feature– or release–dependent (refer to your Meridian 1 documentation for more information). Enter a carriage return at any prompts not listed here unless you are also programming information not specific to Meridian Mail.

Your input should be typed in upper case. Either a blank space or lower case response indicator appears under the Responses column where a site-specific value is required. Default values appear in parentheses ( ). These values should have been filled in on the data forms provided in the *Site and Installation Planning Guide* (NTP 555-7011-200).

ISDN/AP link overview

Meridian Mail is directly connected to the Meridian 1 by an RS-232-based link (also known as the ISDN/AP link) and a voice port cable.

This section describes the Meridian 1 configuration procedures necessary for the Meridian Mail service. The following procedures are discussed:

- verification of the CPU ROM version (and the procedure for replacing the daughterboard if the version is incorrect)
- configuration of the customer data block in Overlay 15
- configuration of the ISDN/AP Link (which includes determining an ESDI device number and enabling the ESDI ports)
- ACD configuration for voice messaging and express messaging
- addition of ACD agents which become Meridian Mail voice channels
- configuration of user telephone sets

Check CPU ROM daughterboard

Ensure that the correct CPU ROM daughterboard (containing ISDN/AP-related firmware) is installed.

To check the current ROM, load Overlay 22 and enter **ROM** in response to the prompt REQ. The required ROM is one of the following:

- Meridian 1 ST (Release 12-14) QPC717
- Meridian 1 ST (Release 15 or later) QPC940
- Meridian 1 N QPC782
- Meridian 1 LE QPC573
- Meridian 1 XL QPC599
- Meridian 1 XN QPC600
- Meridian 1 XN (memory enhanced) QPC601

- Meridian 1 RT/NT/XT QPC602
- Meridian 1 MS QPC662
- System 21/21A QPC940
- System 51/61/71 QPC939

If the ROM must be replaced, follow the procedure described in this section for single or dual CPUs.

CAUTION
Potential equipment damage
Do not touch the other components on the CPU pack. During removal and insertion, carefully line up the connector and pins of the new daughterboard with the pins and connector on the CPU.

Single-CPU Meridian 1s

Service will be interrupted during this procedure, since it involves a Meridian 1 system reload.

1. Power down the Meridian 1 system.
2. Remove the CPU card and replace the daughterboard (located on the component side of the CPU pack).
3. Reinsert the CPU card.
4. Power up the Meridian 1 system.

Dual-CPU Meridian 1s

Use Overlay 35 to ensure that the system is operating on the other CPU. The LED on the CPU card, when lit, indicates a CPU is idle (standby).

1. Place the active CPU in maintenance mode with the faceplate switch.
2. Disable the inactive CPU by setting the Enable/Disable switch to Disable.
3. Remove the inactive CPU card, and replace the daughterboard (located on the component side of the CPU pack) with the correct version.
4. Reinsert the CPU card.
5. Reenable the CPU card by setting the Enable/Disable switch to Enable.

6. Load Overlay 35, and use the **TCPU** command to test the inactive CPU and new ROM. If the response is anything other than OK, consult Meridian 1 NTPs.
7. Take the active CPU out of maintenance mode.
8. Use the **SCPU** command (Overlay 35) to switch CPUs.
9. Repeat steps 1 to 7 for the second CPU.
10. Exit from Overlay 35 by entering ********.

Determine new AML/ESDI device number

The AML port can be provided by the MSDL or ESDI card. The MSDL has four ports where you can connect the cable to the faceplate of the card. The four ports are assigned one device number. The ESDI has two ports. Each port is assigned a device number (range 0-15) in Overlay 17 (see prompt ADAN, Table 9-2). The device number identifies the ESDI port (and Meridian link) in all Meridian 1 error messages and commands.

To determine the existing ports and to assign the AML, print the Meridian 1 configuration using Overlay 22 as shown in Table 9-1. The device numbers and switch settings must be coordinated with all other SDI ports in the Meridian 1. For more information, see *X11 Input/Output* (NTP 553-3001-400).

Table 9-1
Overlay 22—printing existing Meridian 1 configuration

Prompts	Responses	Description
REQ	PRT	
TYPE	CFN	Configuration data block

Configure the ISDN/AP link

Use Overlay 17 to define the ESDI and ISDN/AP link on the Meridian 1. (“NMS only” prompts apply to network message service systems).

Table 9-2
Overlay 17—ESDI and ISDN/AP link configuration
(Release 17 or earlier)

Prompts	Responses	Description
REQ	CHG	
TYPE	CFN	Configuration data block
ISDN	YES	***NMS only***—to update the ISDN records
IFC	SL1	***NMS only***—Interface type is Meridian 1
RLS	16	***NMS only***—minimum Meridian 1 software release at the far end is 16
IOTB	YES	Make changes to logical units.
ADAN	NEW TTY xx	To add an ESDI port, where xx is an unused port number (0-15)
		Note: Ensure that this number does not conflict with another device number (for example, FDK in release 15).
	CHG TTY xx	To change an ESDI port, where xx is the port number (0-15)
	OUT TTY xx	To remove an ESDI port, where xx is the port number (0-15)
ESDI	YES	Port is on an ESDI card
SYNC	YES	Synchronous mode required
DUPX	FULL	Full duplex required
BPS	9600	ISDN/AP link data rate
CLOK	EXT	External clocking arrangement
IADR	3	Data link level HDLC protocol individual address (identifies the Meridian 1 at HDLC data link level)
RADR	1	Data link level HDLC protocol remote address (identifies Meridian Mail at HDLC data link level)
LCTL	YES	Modify link control parameters

—continued—

Table 9-2 (continued)
Overlay 17—ESDI and ISDN/AP link configuration
(Release 17 or earlier)

Prompts	Responses	Description
T1	10	Retransmission timer (range 2-20 is in units of 0.5 s; for example, 3 = 1.5 s)
T2	0	Timer for no frame exchange (range 0-255, in seconds)
T3	40	Timer for initial link setup (range 2-255 is in units of 0.5 s)
N1	(128)	Maximum number of octets (8–bit bytes) per HDLC information frame (Allowed values are 32, 64, [128]).
N2	(8)	Maximum number of retransmissions. Allowed values are 4-(8)-16
K	7	Maximum number of outstanding frames (Allowed values are (1-[2]-7).
LTHR	YES	Modify link performance thresholds. Use defaults for all prompts except USER.
USER	CMS	This ESDI port is used for ISDN/AP.
ADAN	<cr>	Go on to the next prompt.
VAS	NEW, CHG	Define ISDN/AP link configuration.
VSID	0-15	Server ID. (Same number as associated ESDI port number entered for ADAN above)
DLOP	<cr>	Go on to next prompt.
CMS	0-15	ESDI port (see ADAN above)
CONF	DIR	Link configuration is DIR.
CMS	<cr>	Go on to next prompt.
CSQI	(20) *	Max. no. of call registers for input queues (range is from 20 [default] to the lesser of 25% of the call registers defined for the system, or 255)

—continued—

Table 9-2 (continued)
Overlay 17—ESDI and ISDN/AP link configuration
(Release 17 or earlier)

Prompts	Responses	Description
CSQO	(20) *	Max. no. of call registers for output queues (range is from 20 [default] to the lesser of 25% of the call registers defined for the system, or 255)
* The number of call registers assigned in the CSQI and CSQO fields should be twice the number of voice ports. For example, 24 call registers should be assigned for a 12-channel Meridian Mail system.		
—end—		

Enable ESDI ports (Release 17 or earlier)

Use the link diagnostic program, Overlay 48, to enable the ESDI port for the ISDN/AP link. The commands listed below let you test and set the link up automatically for the ISDN/AP link port.

Note: Input is represented in bold type in the following procedure.

Procedure 9-1
Enabling ESDI ports (Release 17 or earlier)

1. Enter **LD 48** to load Overlay program 48.
2. Enter **ENL ESDI n** to enable the ESDI pack for port n.
3. Ensure that the ISDN/AP link port is enabled, and that the other port on the ESDI port is configured (with the values IADR=1 and RADR=3) and disabled.

   When the lamp on the ESDI card is lit, it indicates that the card is disabled. If the display LED on the ESDI card is unlit, at least one port is enabled.
4. Enter **SLFT ESDI n** to test the ESDI pack for port n.

   If the system response is other than OK, see the Meridian 1 Maintenance Practice *(553-2301-511) to analyze the message.*
5. Enter **DIS ESDI n** to disable ESDI port n.
6. Enter **ACMS n** to initiate the auto setup sequence and establish a link.
7. Enter ******** to exit from Overlay program 48.

Status messages

The following messages appear on the Meridian 1 when the link is up:

- ESDA002 (ISDN Applications Protocol Link <n> Link Layer is connected)
- CSA003 Active ISDN Applications Protocol Link <n> is up

Meridian Mail will issue the following system even and error report (SEER) when the link is up:

- (CLS-NUM: 25-5) CSL P Link is up

If other ISDN/AP link (CSL) SEERs appear, see the *Maintenance Messages (SEERs)* (NTP 555-7001-500).

Table 9-3
Overlay 17—MSDL and AML (ISDN/AP) link configuration (Release 18 or later)

Prompts	Responses	Description
REQ	CHG	Change
TYPE	CFN	Configuration data block
ADAN	NEW AML xx (range is 0–15)	The response “NEW AML xx” creates an AML link with a link number xx. The link number can be any number from 0 to 15.
CTYP	MSDL or ESDI	Card type
DNUM	0-15	Device number for I/O ports (The device number must match the physical address switch on the card.)
PORT	0-15	Port number for MSDL cards, Option 81 I/) devices, or MSDI ports
DES	aaa...a	AML port designation (DES is used to identify the link and can be up to 16 alphanumeric characters: 0-9 and A-Z (upper case only). Characters * and # are not allowed.
BPS	(9600)	Baud rate
PARM	(RS-232). R-422 (DCE), DTE	Interface and transmission mode (MSDL port only)
CLOK	EXT	Internal or external clock (Source of primary clock is either internal or external.) (ESDI only)

—continued—

Table 9-3 (continued)
Overlay 17—MSDL and AML (ISDN/AP) link configuration (Release 18 or later)

Prompts	Responses	Description
RADR	(1)	Remote address for the data-link level HDLC protocol (The IADR and RADR prompts must be coordinated with the far-end. If IADR is defined as 3, then RADR must be 1. Default is 3 prior to Release 18.) To remove an MSDL port, where xx is the logical device (0-15)
LCTL	YES	Modify link control parameters.
T1	10	Timer of retransmission range in units of 0.5 seconds
T2	(10)	Maximum time allowed without a frame being exchanged
T3	40	Timer for initial link setup in units of 0.5 seconds
IADR	(3)	Individual Address for the data-link HDLC protocol (The IADR and RADR prompts must be coordinated with the far-end. If IADR is defined as 3, then RADR must be 1. Default is 1 prior to Release 18.)
N1	(128)	Maximum number of octets (8–bit bytes) per HDLC information frame (Allowed values are 32, 64, [128].)
N2	(8)	Maximum number of retransmissions in steps of 1
K	(7)	Maximum number of outstanding frames

—continued—

Table 9-3 (continued)
Overlay 17—MSDL and AML(ISDN/AP) link configuration (Release 18 or later)

Prompts	Responses	Description
LTHR	NO	Modify link performance thresholds. Use defaults for all prompts except USER.
ADAN	<CR>	Go to next prompt of exit overlay.
VAS	NEW	Add, change, or remove a value–added server.
VSID	0-15	VAS identifier
DLOP	<CR>	
AML	0-15	Application Module Link
***		
CONF	DIR	Direct CSL configuration
	—end—	

Activate AML link (Release 18 or later)

Use the link diagnostic program, Overlay 48 *X11 Input/Output* (NTP 553-3001-400 Release 18), to enable the AML port. The commands listed below let you test and set up the link automatically for the AML link port.

Note: Input is represented in bold type in the following procedure.

Procedure 9-2
Activating the AML link (Release 18 or later)

1. Enter **LD 48** to load Overlay program 48.
2. Enter **ENL AML n LYR2** to enable the MSDL pack for port n.
3. Ensure that the AML link port is enabled, and that the other port on the AML port is configured (with the values IADR=1 and RADR=3) and disabled.

   When the lamp on the MSDL card is lit, it indicates that the card is disabled. If the display LED on the MSDL card is unlit, then at least one port is enabled.

4 Enter **SLFT AML n** to test the MSDL pack for port n.

If the system response is other than OK, see the *Meridian 1 Maintenance Practice* (NTP 553-2301-511) to analyze the message.

5 Enter **DIS AML n LYR2** to disable AML port n.

6 (ESDI card only) Enter **ENL AML n ACMS** to initiate the auto setup sequence and establish a link.

7 (MSDL card only) Enter **ENL AML n AUTO** to initiate the auto setup sequence and establish a link.

8 Enter ******** to exit from Overlay program 48.

Status messages

The following messages appear on the Meridian 1 when the link is up:

- ESDA002 (ISDN Applications Protocol Link <n> Link Layer is connected)
- CSA003 Active ISDN Applications Protocol Link <n> is up

Meridian Mail will issue the following system event and error report (SEER) when the link is up:

- (CLS-NUM: 25-5) CSL p Link is up

If other ISDN/AP link (CSL) SEERs appear, see the *Maintenance Messages (SEERs)* (NTP 555-7001-510).

Define Meridian Mail in customer data block

The Meridian Mail service must be defined in the customer data block via Overlay 15. Have the filled-in data forms available from the *Site and Installation Planning Guide* (NTP 555-7011-200).

Procedure 9-3
Defining Meridian Mail in the customer data block

1 Load Overlay 15 at the Meridian 1 administration terminal.

2 Respond to the prompts as shown in Table 9-4.

3 When configuration is complete, enter **END** to the prompt REQ.

There are two sets of prompts in Overlay 15 that affect the routing of unanswered or busy calls.

- Flexible Call Forward (FNAD/FNAN) is set on a per customer basis. The call forward DN is defined in the user's telephone data.

- Call Forward No Answer/Busy (MDID/NDID/MWFB) is set on a per customer basis. All no answer/busy calls are routed to the flexible call forward DN (provided the called set has message waiting allowed [MWA] class of service).

Normally, non–direct inward dialing (DID) calls are routed to Meridian Mail when a no answer or busy condition is encountered. As an option, DID calls can be routed to the attendant's or user's Hunt DN.

Table 9-4
Overlay 15—customer data block

Prompts	Responses	Description
REQ	CHG	
TYPE	CDB	Customer data block
CUST		Enter the customer number (range 0-99).
ATDN	____	Attendant DN
OPT	MCI	Message center is included for the customer.
IMS	YES	Integrated voice messaging feature
IMA	YES	Enable Integrated voice messaging attendant for the customer.
FNAD	FDN	Call forward no answer DID calls are routed to the flexible CFNA DN.
FNAN (or FNAT)	FDN	Call forward no answer non-DID calls are routed to the flexible CFNA DN.
FNAL	FDN	Call forward no answer local calls (with CFCT enabled) are routed to the flexible CFNA DN.
CFNA	____	Number of ring cycles before the call is forwarded (default is 4).
MDID	YES	No-answer DID calls are routed to the Meridian Mail service.
NDID	YES	No-answer non-DID calls are routed to the Meridian Mail service.

—continued—

Table 9-4 (continued)
Overlay 15—customer data block

Prompts	Responses	Description
MWFB	YES (NO)	DID calls encountering busy are (or are not) routed to Meridian Mail.
MATT	YES (NO)	Set to NO for secondary switch, when using the NMS option.
EEST	NO	Originating party does not receive DTMF feedback. Remote Meridian 1 sites should also be set to NO.
ISDN	YES	***NMS only***—To change ISDN options
PNI	____	***NMS only***—private network identifier. (Within one network, use the same PNI value in overlays 15 and 16. When interacting with different networks, enter the PNI of this Meridian 1 in overlay 15, and the remote switch PNI in overlay 16.)
HLOC	____	***NMS only***—home location code (ESN) of the Meridian 1 (range 100-999)
LSC	____	***NMS only***—local steering code (established in the Coordinated Dialing Plan, or CDP) of the Meridian 1. This prompt only appears for 5– or 6-digit dialing plans.
The flexible call forward DN is the Meridian Mail DN. It is entered in the telephone set data block for each Meridian Mail user. The other options for FNAD and FNAN are att – route to attendant htn – route to the hunt DN no – do not route unanswered calls		
—end—		

Configure route data block (NMS only)

This procedure shows how to configure the trunk route data block for the network message service feature.

Note: Ensure that digit manipulation (DMI in Overlay 86) is not used to insert ESN access codes at the sending switch. ESN access code insertion must be done at the receiving switch (INAC in Overlay 16).

Procedure 9-4
Configuring route data block

1. Load Overlay 16 at the Meridian 1 administration terminal.
2. Respond to the prompts as shown in Table 9-5.
3. When configuration is complete, reply **END** to the prompt REQ.

Table 9-5
Overlay 16—route data block parameters

Prompts	Responses	Description
REQ		Either NEW or CHG
TYPE	RDB	Route data block
CUST	____	Meridian 1 customer number
ROUTE	____	Route number
PNI	____	Customer Private Network ID of the non-local target Meridian 1
NCRD	YES	Network call redirection will provide the CLID display information.
TRO	YES	Optimize trunk usage on this route.
INAC	YES	Insert ESN access code to incoming private network call.

Define Meridian Mail ACD queue

This procedure shows how to configure the ACD groups for voice messaging, express messaging, and other voice services (such as voice menus, automated attendants, and networking). See the *System Administration Guide* (NTP 555-7001-301) for more information on voice services.

Procedure 9-5
Defining Meridian Mail ACD queue

1. Load Overlay 23 at the Meridian 1 administration terminal.
2. Respond to the prompts as shown in Table 9-6.
3. Press Return for each prompt that appears after NCFW.
4. At the next REQ prompt, enter **END**.

Table 9-6
Overlay 23—voice messaging ACD parameters

Prompts	Responses	Description
REQ	NEW	
TYPE	ACD	ACD data block
CUST		Meridian 1 customer number
ACDN	____	Enter the Meridian Mail DN.
MWC	YES	This is a message center DN.
IMS	YES	This is an integrated messaging service.
CMS	YES	Use the ISDN applications protocol.
IMA	YES	Enable IMS attendant.
IVMS	YES	Integrated voice messaging
VSID	____	Enter the VAS ID (0-15).
MAXP	____	Maximum number of ACD agents (This should be equal to or greater than the number of voice channels in the installed voice processor cards.)
ALOG	YES	Provide automatic logon for the ACD agents associated with this group.
NCFW	____	Night call forward

Define voice services queues

This procedure shows how to configure express messaging and other voice services (such as voice menus, automated attendants, and networking). See the *System Administration Guide* (NTP 555-7001-30x) for more information on voice services.

Procedure 9-6
Defining voice services queues

1. Load Overlay 23 at the Meridian 1 administration terminal.
2. Respond to the prompts as shown in Table 9-7.
3. Press Return for each prompt that appears after NCFW.
4. At the next REQ prompt, enter **END**.

Table 9-7
Overlay 23—voice service and satellite site ACD parameters

Prompts	Responses	Description
REQ	NEW	
TYPE	ACD	ACD data block
CUST		Meridian 1 customer number
ACDN	____	Enter the DN of the voice service.
MWC		Set to YES for NMS satellite sites and multi-customer voice service DNs; Release 16 is required. For voice services, set to NO.
MAXP	1	Maximum number of positions
NCFW	____	Enter the Meridian Mail DN. (If this is an NMS satellite site, use network format.)

Meridian Mail numbering requirements are slightly different when the guest voice messaging option is installed. The following is a list of recommended services/DNs:

- ***Guest messaging DN*** This is the DN that is programmed into each phone definition, and is the main DN to be entered in Overlay 23 (Table 9-6, prompt ACDN).

- ***Public voice messaging DN*** This is the "published" voice messaging DN, for use by guests (to access messages from outside their rooms) and staff. Follow the prompts given in Table 9-7 so that this number (ACDN) is "night call forwarded" to the main DN (guest messaging DN).
- ***Staff messaging DN (optional)*** You may choose to have separate ACD queues for staff and guests. Follow the prompts given in Table 9-7 so that this number (ACDN) is "night call forwarded" to the main DN (guest messaging DN).
- ***Express messaging DN*** See Table for details.
- ***Post check-out DN*** This number will be provided to guests upon checkout only. Follow the prompts given in Table 9-7 so that this number (ACDN) is "night call forwarded" to the main DN (guest messaging DN).

Add ACD agents

There must be one ACD agent for each Meridian Mail voice processor channel. There are four channels per voice processor card. The ACD agents are defined as Meridian 1 sets in Overlay 11.

A terminal number and position ID are required for each agent. For ease of maintenance, assign sequentially numbered IDs. For example, if the Meridian Mail DN is 3800, the IDs for the agents could be 3801, 3802, and so on.

Note 1: It is useful to have the ESDI disabled when adding agents. If you leave it enabled, the service changes will take much longer to perform. Use the DIS ESDI command in Overlay 48, then use ACMS N to enable it once the changes are complete. (Refer back to page 9–9 and the overlay 17 tables.)

Note 2: If an LD44 audit program is running, VAS002 and SCH3484 error messages may appear on the Meridian 1 console. Ignore them.

Note 3: Whenever ACD agent data is modified on the Meridian 1, you must make corresponding changes on Meridian Mail. Refer to the "Channel allocation table" section in the "Voice System Administration" chapter of the *System Administration Guide* (NTP 555-7001-301) to change DNs. To modify TNs, refer to the "Node configuration" section in the "Modify hardware" chapter of *System Administration Utilities* (NTP 555-7001-305).

Procedure 9-7
Adding ACD agents

1. Load Overlay 11 at the Meridian 1 administration terminal.
2. Respond to the prompts (as shown in Table 9-8) for the first agent.
3. Repeat step 2 for each ACD agent.
4. When all agents have been added, reply **END** to the prompt REQ.

Table 9-8
Overlay 11—ACD agents

Prompts	Responses	Description
REQ	NEW	
TYPE	SL1	
TN	ll s cc u	Enter an ACD agent TN. Ranges: Single density / Double density Loop = 0-159 / 0-159 Shelf = 0-3 / 0-1 Card = 1-10 / 1-10 Unit = 0-3 / 0-7
CDEN	ss/dd/4d	ACD agents may be on a single, double, or quadruple density line card.
CUST	___	Enter the customer number.
CLS	VMA IMA	Enter class of service; voice messaging allowed. Use the default for all other class of service options.

—continued—

Table 9-8 (continued)
Overlay 11—ACD agents

Prompts	Responses	Description
KEY	0 ACD xxxxxxx yyyyyyy	Define key 0 as an ACD agent key. DN xxxxxxx is the Meridian Mail DN. ID yyyyyyy is any unused DN in the numbering plan and is used to identify the agent position. It is not dialed by users.
KEY	1 SCN zzzzzzz	Define key 1 as a single-call non-ringing DN (SCN-DN). This value is also used when configuring the Channel DN in the Channel Allocation table. See the "Voice system administration" chapter of the *System Administration Guide* (NTP 555-7001-301).
KEY	2 MSB	Define key 2 as a Make Set Busy key.
KEY	3 NRD	Define key 3 as a Not Ready key.
KEY	6 TRN	Define key 6 as a Transfer key.
KEY	7 AO3	Define key 7 as a Conference key.
KEY	9 RLS	Define key 9 as a Release key.
	—end—	

Set call routing options for user telephone sets

Set call routing options for each user's set as shown in Overlay 10 (Table 9-9) for 2500 sets and Overlay 11 (Table 9-10) for Meridian 1 sets.

> ***Note:*** Ensure that all telephone sets are configured to hunt to the main Meridian Mail DN. If they hunt to a voice service DN (which is then routed to the main DN as shown in Table 9-7), a "dummy" agent must be assigned to the voice service queue.

The following call routing options and features are available:

- ***Routing of Calls to Meridian Mail*** The method of routing calls to Meridian Mail is defined in the customer data block, Overlay 15.
- ***Call Forward No Answer*** If the Flexible Call Forward feature is used, enter the Meridian Mail DN in response to the prompts FTR (Overlay 10, Table 9-9) and FDN (Overlay 11, Table 9-10). Otherwise, don't respond to these prompts.
- ***Call Forward All Calls*** If Call Forward All Calls is enabled (this is controlled at the telephone set) and there is no answer at the call forward DN, the call is routed to Meridian Mail.
- ***Call Forward Busy*** A call to a busy number is routed to the Meridian Mail Service unless one of the following conditions exists:
  - The call is direct inward dial (DID), and Call Forward Busy on DID calls is disabled for the customer (see Overlay 11).
  - The call waiting feature is enabled for the user in two forms: Call Waiting (applies to incoming trunk calls) and station-to-station call waiting (applies to internal calls).
- ***Routing to Hunt DNs*** If the user has a hunt DN defined, the call is routed to the Hunt DN. If there is a no answer/busy condition at the Hunt DN, the call is routed to the Meridian Mail mailbox for the originally called DN.
- ***Message waiting indication*** A user is notified of a new message by a lit message-waiting lamp or an audible indication (interrupted dial tone).

For further information on the Meridian 1 feature and services, see the *SL-1 Features and Services Practice* (NTP 553-2301-105).

Table 9-9
Overlay 10—2500 set data

Prompts	Responses	Description
REQ	NEW, CHG	
TYPE	500	2500 set data block (500 sets [rotary dial] cannot use Meridian Mail.)
TN	lll s cc u	Terminal number: loop, shelf, card, unit
CDEN	sd, (dd), 4d	Card density is single, double, quadruple. Default is double density.
CUST	____	Customer number
DN	____	Directory number
HUNT	____	Hunt directory number
CLS	MWA	Message waiting is allowed.
	FNA	Call forward no answer is allowed.
	HTA	Hunting is allowed.
	XFA	3-party call conferencing feature
	FBA (FBD)	Call forward busy allowed (denied).
	LPA (LPD)	Message-waiting lamp is equipped (not equipped). If a lamp is not equipped, users are notified by interrupted dial tone.
	DTN	Digitone class of service
FTR	FDN HTA	Hunting is allowed.
FTR	CFW yy	Call forward all calls. yy is the DN length (4-23)
FTR	FDN xxxx	xxxx is the flexible call forward no answer DN (Meridian Mail DN).

Table 9-10
Overlay 11—Meridian 1 set data

Prompts	Responses	Description
REQ	NEW, CHG	
TYPE	____	Type of set (for example, Meridian 1, 2317, 3000)
TN	lll s cc uu	Terminal number: loop, shelf, card, unit
CDEN	sd, (dd), 4d	Card density: single, double, or quadruple
CUST	____	Customer number
FDN	____	Flexible call forward no answer DN (Meridian Mail DN)
HUNT	____	Hunt (internal) DN
CLS	HTA	Huntis is allowed.
	MWA	Message waiting is allowed.
	FNA	Call forward no answer is allowed.
	FBA (FBD)	Call forward busy is allowed (denied).
KEY	0 SCR xxxx	Single call ringing DN, where xxxx is the user's DN
KEY	1-9 MWK yyyy	Add a message waiting key/lamp, where yyyy is the Meridian Mail DN.
KEY	1-9 AO3	Add a 3-party conference key. This is necessary for some basic Meridian Mail features.
KEY	1-9 CFW yy xxxx	Call forward all calls (where yy is the maximum DN length and xxxx is the call forward DN.

Save Meridian 1 changes

Use Overlay 43 to save the Meridian 1 changes on tape. For details, see the *Meridian 1/SL-1 Maintenance Manual* (NTP 555-2301-511).

Procedure 9-8
Saving Meridian 1 changes

1. At the prompt ">", enter **LD43**.
2. At the next ">" prompt, enter **EDD** to start dumping the data to tape. The following message appears:

   OK (dump completed successfully)

3. Enter ******** to exit from Overlay 43.

Chapter 10: Starting up and configuring Meridian Mail

Meridian Mail software has already been installed on your system. Software tapes have been included with your system as a precaution only—do not attempt to load software from the tapes unless specifically instructed to do so.

Starting up Meridian Mail

1 Power on the administration terminal and other peripheral devices.

2 Power up the Meridian Mail system by setting the main breaker switch to ON.

As part of the bootup process, the administrator's terminal displays various messages.

Note: If you power the system up without voice connection, the diagnostics runs and the software loads, but the channels will time out and fail, and error messages appear.

3 Check for power problems.

LEDs (on the power units at the base of the cabinet) indicate that the power is on, and DC fans should be heard. If Meridian Mail is powered on with a tape installed, the red LED indicating tape access is on. If it is not, consult *Meridian Mail Maintenance Procedures* (NTP 555-70x1-500).

1 Check that the printer is working.

The printer is idle until a SEER (system error and event report) message is printed. To test the printer press the PRINT SCREEN button on the administration terminal, or initiate the appropriate function on the PC. The data currently displayed on the terminal will be printed.

2 Check the terminal screen by typing <Ctrl>-<w>.

a. If the information appears in a box with straight lines, close the window by typing <s>.

b. If the information appears in a box composed of letters, refresh the screen by pressing CTRL R.

Configuring Meridian Mail

When the Meridian Mail logon screen appears, follow the instructions given in the *Meridian Mail System Administration Guide* (NTP 555-7001-301) for initial system configuration.

Ensure that the following information is correct:

- customer number (as defined in the General System Administration menu, under system options)
- ACD agent TNs and DNs, as well as the main voice messaging DN (as defined in System Status and Maintenance Channel Allocation Table [CAT])

  Note: The system is delivered with these assignments already configured. If the values shown on the status screen are missing or incorrect, see *Meridian Mail System Administration Tools* (NTP 555-7001-305) for "hardware modification" information.

- applicable voice service DNs, for example, voice messaging, express messaging (as defined in the voice system administration menu and voice service DN table)

Acceptance testing of Meridian Mail

1. Check basic features by performing all functions outlined in the *Meridian Mail User Guide*.
2. Test system and administrative features as described in the *Meridian Mail System Administration Guide* (NTP 555-7001-301).
3. Test optional features using the appropriate NTP. See the *Meridian Mail NTP Contents Overview* (NTP 555-7001-000) for NTP listings.

Appendix A: Terminal configuration

Several different models of administration terminal can be used with Meridian Mail. Chapter 7 shows these terminals and their respective cabling to the printer and the A/B switchbox.

This appendix shows how to configure each terminal for proper data communications with Meridian Mail.

You configure a terminal by entering setup mode.

CAUTION
Risk of data loss
You can enter setup mode at any time, but it is recommended that you do so only while logged off from Meridian Mail.

There are three types of fields in terminal setup screens: action, read only and parameter entry, or selection. Most of the fields on the screens, and almost all the fields you need to use for setup, are parameter entry or selection fields.

Action fields are indicated by underscores in the figures illustrating setup screens. Action fields cause an action, such as clearing the display, to take place. Unless instructed otherwise, you do not need to use action fields.

Note: The underscores do not appear on the terminal screen.

Parameter entry or selection fields are used to enter or select terminal parameter values.

Configuring an HP700/32 terminal

Procedure 11-1
Configuring an HP700/32 terminal

1 Power on the terminal.

2 Enter setup mode by pressing the <SETUP> key located on the top row of function keys. If no key is marked <SETUP>, press the third key from the left on the top row.

The Global setup screen is displayed with the current setup values.

Note: There may be minor differences between what you see in this chapter and the contents of the setup screens on your terminal. This is due to improvements made to the terminal by the manufacturer. Follow the setup documented here as closely as possible.

3 Change the values in each parameter field (on each setup screen) as necessary so that they match those shown in Figures 11-1 through 11-6.

Use the following keys to view and change setup values:

Up and down arrow keys	*Move from field to field.*
Left and right arrow keys	*Scroll through possible values for a parameter. The values are displayed in a window at the bottom of the screen.*
<Enter>	*Cause the requested action to take place in an action field.*
<NextScreen>	*Move to next setup screen.*
<PrevScreen>	*Move to previous setup screen.*

4 Save changes by pressing <F6-SaveMenu> on **each screen** on which you make changes you want to save.

5 Exit setup mode by pressing the <SETUP> key.

Figure 11-1
HP700/32 setup screen

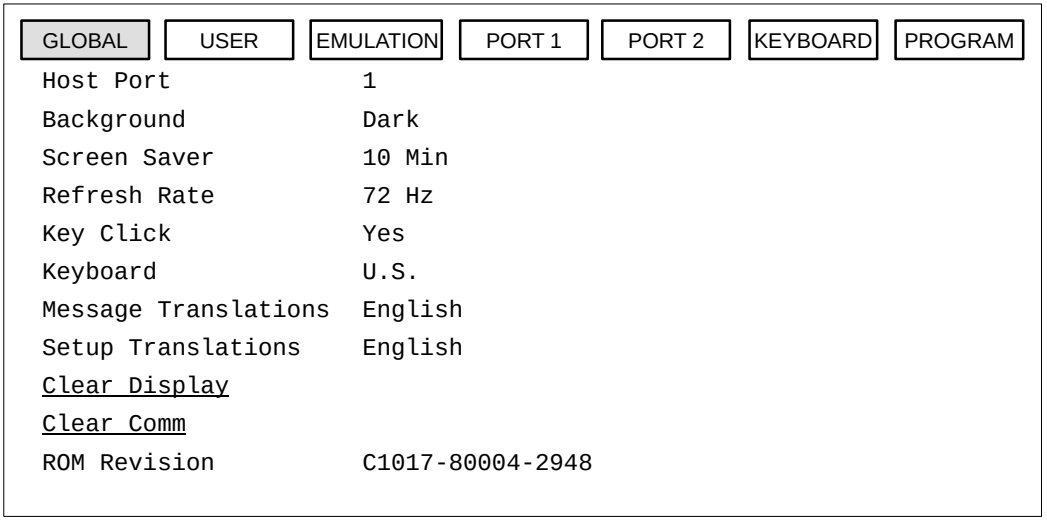


Figure 11-2
HP700/32 user screen

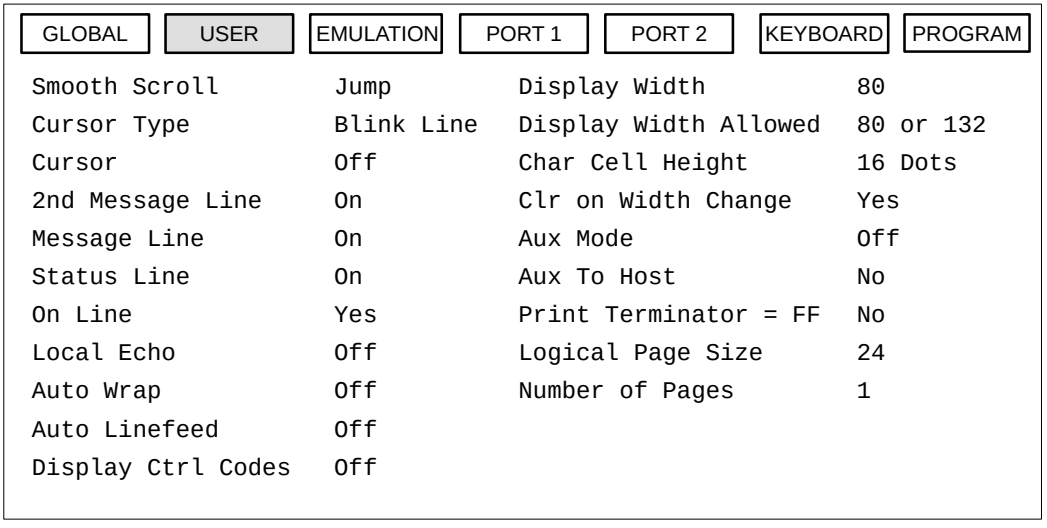


Figure 11-3
HP700/32 emulation screen

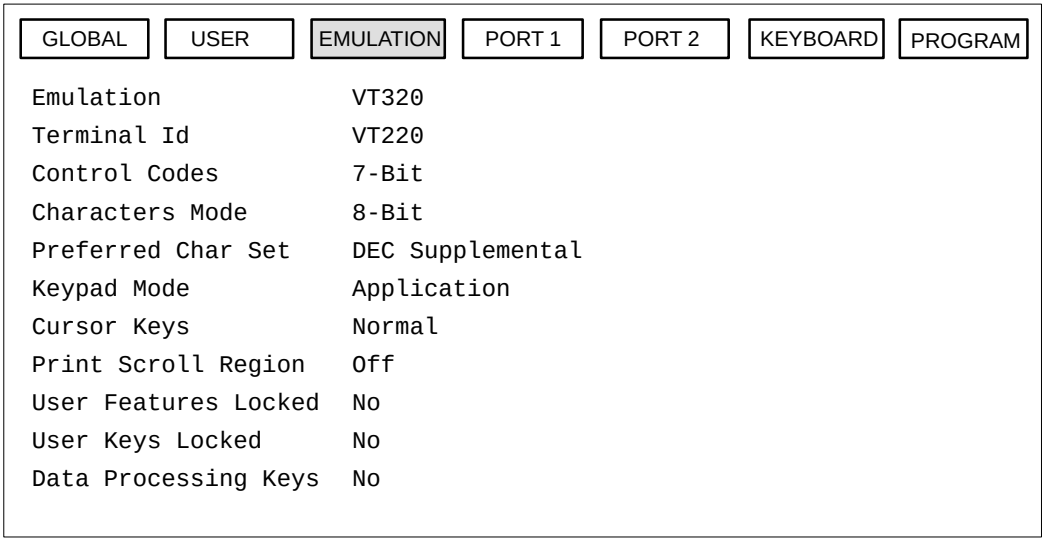


Figure 11-4
HP700/32 port 1 setup screen

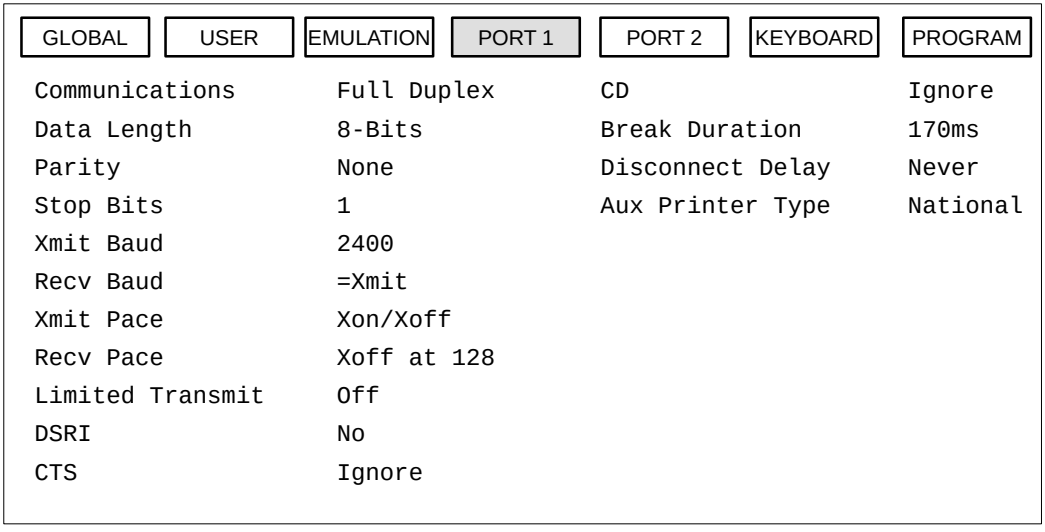


Figure 11-5
HP700/32 port 2 setup screen

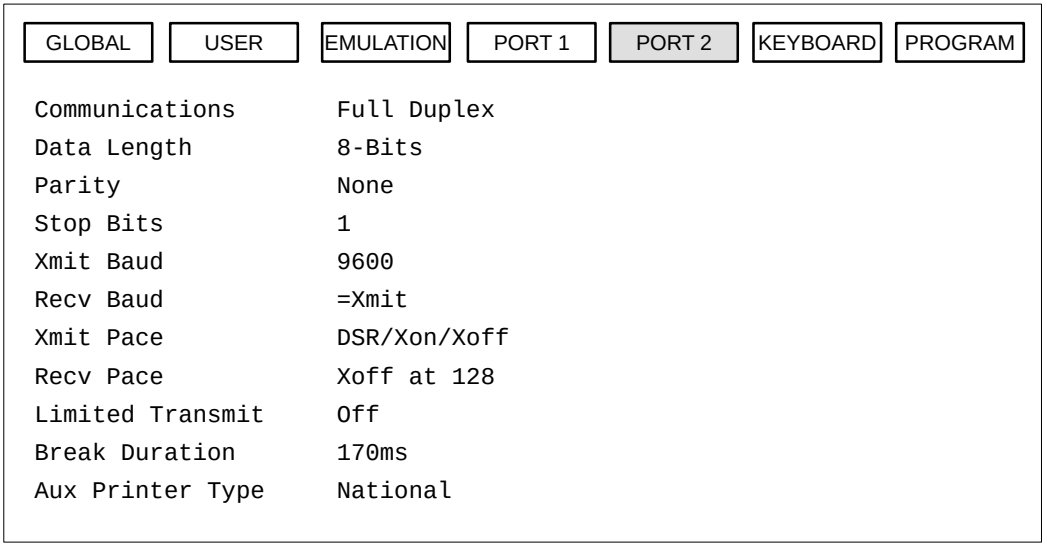
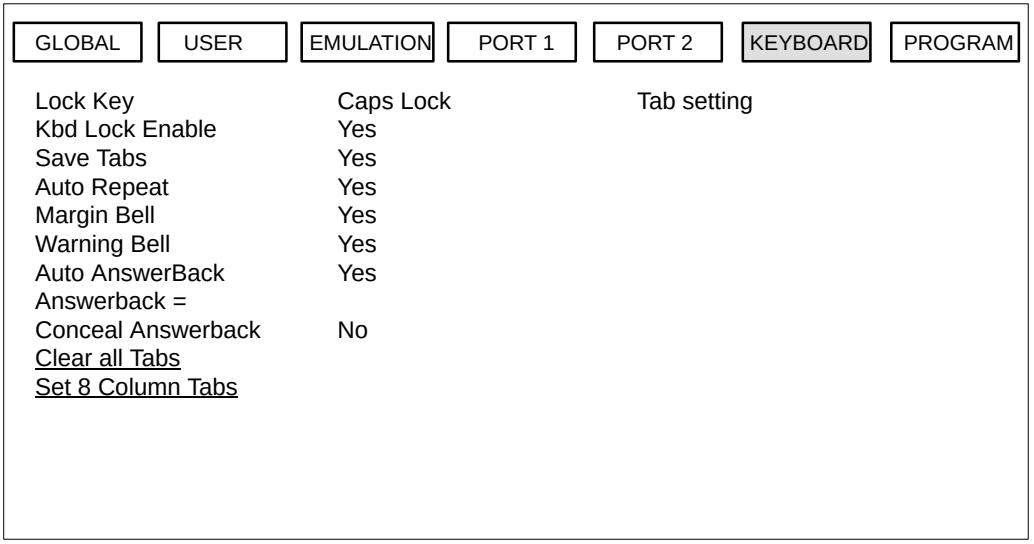


Figure 11-6
HP700/32 keyboard setup screen



Configuring a VT420 terminal

Note: The VT420 terminal has been discontinued by the manufacturer and is superseded by the VT520.

Procedure 11-2
Configuring a VT420 terminal

1 Power on the terminal.

2 Enter setup mode by pressing the <SETUP> key located on the top row of function keys. If no key is marked <SETUP>, press the third key from the left on the top row.

The Setup Directory screen is displayed with the current setup values.

Note: There may be minor differences between what you see in this chapter and the contents of the setup screens on your terminal. This is due to improvements made to the terminal by the manufacturer. Follow the setup documented here as closely as possible.

3 Change the values in each parameter field (on each setup screen) as necessary so that they match those shown in Figure 11-7.

Use the following keys to view and change setup values:

Arrow keys	*Move from field to field.*
<Enter>	*Scroll through possible values or cause requested action to take place (depends on type of field).*

To move to another setup screen, select a screen from the top line of the *Setup Directory* screen and press <Enter>. To move to the next setup screen, select *To Next Set-Up* on any other setup screen.

4 Save changes by returning to the *Setup Directory* screen, moving the cursor to the *Save* field, and pressing <Enter>.

5 Exit setup mode by pressing the <SETUP> key.

Figure 11-7
VT420 setup screens

```
Set-Up Directory
Global   Display     General     Comm     Printer     Keyboard      Tab
Clear Display     Clear Comm     Reset Session     Recall     Save
Set-up = English    Canadian (English) Keyboard   Default
Enable Sessions    Disable Sessions   Exit    Screen Align
```

```
Global Set-Up
To Next Set-Up   To Directory
On Line    Sessions on Comm1    CRT Saver
Comm1=RS-232    70Hz    Printer shared
```

```
Display Set-Up
To Next Set-Up     To Directory     80 Columns     Interpret Controls
Auto Wrap     Jump Scroll     Dark Screen
Cursor     Block Style Cursor    Indicator Status Display
Cursor Steady    6x24 pages    24 Lines/Screen
Vertical Coupling    Page Coupling    Auto Resize Screen
```

```
General Set-up
To Next Set-Up     To Directory     VT400 Mode, 7 Bit Controls
User Defined Keys Unlocked    User Features Unlocked   8-bit Characters
Application Keypad     Normal Cursor Keys     No New Line
UPSS DEC Supplemental    VT220 ID
When Available Update
```

```
Communications Set-Up
To Next Set-Up     To Directory     Transmit=2400     Receive=Transmit
Xoff @ 64     8 Bits, No Parity     1 Stop Bit     No Local Echo
Data Leads Only     Disconnect, 2 s Delay     Limited Transmit
No Auto Answerback      Answerback =                  Not Concealed
Modem High Speed = ignore    Modem Low Speed = ignore
```

```
Printer Set-Up
To Next Set–Up     To Directory     Speed=9600     Printer to Host
Normal Print Mode    NO XOFF     8 Bits, No Parity     1 Stop Bit
Print Full Page     Print National Only     No Terminator
```

```
Keyboard Set-Up
To Next Set-Up     To Directory     Typewriter Keys    Caps Lock
Auto Repeat     Keyclick High     Margin Bell Off     Warning Bell High
Character Mode      <X]  Delete   Local Compose    Ignore Alt
F1 = Hold    F2 = Print    F3 = Set-Up    F4 = Session    F5 = Break
, <  and  . >  Keys         < >  Key         ‘~  Key
```

Configuring a VT520 terminal

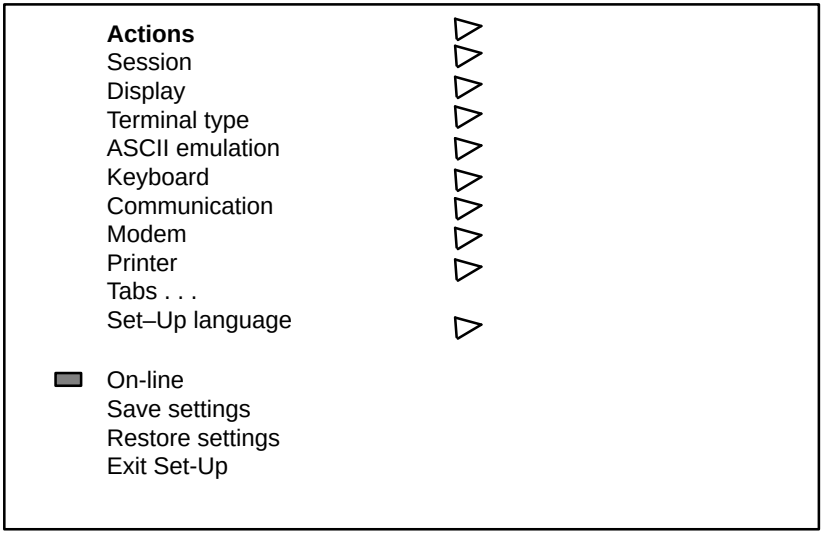
Procedure 11-3
Configuring a VT520 terminal

1 Power on the terminal.

2 Enter setup mode by pressing the <SETUP> key located on the top row of function keys. If no key is marked <SETUP>, press the third key from the left on the top row.

The Main Set-Up window is displayed (see Figure 11-8).

Figure 11-8
VT520 terminal Main Set-Up window



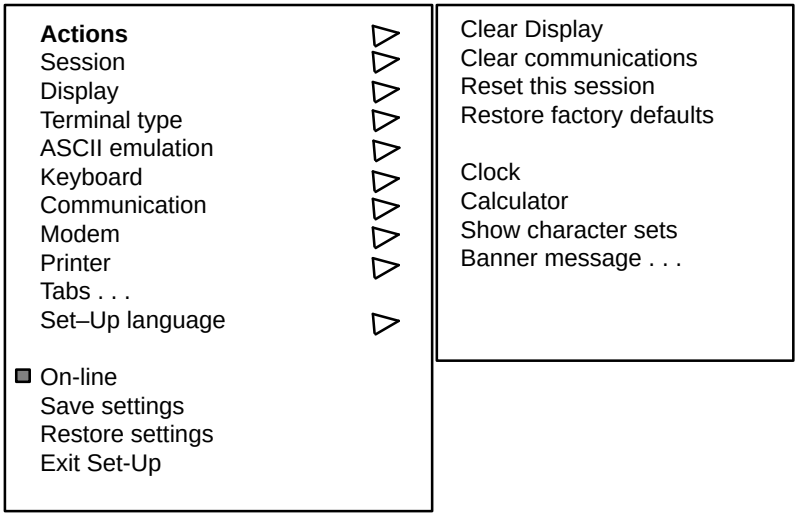
3 Use the up and down arrow keys to highlight the setup feature which is to be changed (for example, **Actions**).

4 When the setup feature is highlighted, use one of the following methods to select the appropriate settings:

Table 11-1
Navigating the setup windows

If	then
a solid triangle appears beside the setup feature	use the right arrow key to automatically display the pop-up window of associated settings. See Figure 11-9 for an example.
a box appears beside the setup feature	press <Enter> to toggle the setting for the selected feature on or off. A diagonal line appears in the box when the setting is on.
three dots (. . .) appear beside the setup feature	press <Enter> to display the associated pop-up window. When all fields have been completed, move the cursor to [OK] or [Cancel], and press <Enter> again to activate your choice.

Figure 11-9
VT520 terminal - sample feature pop-up window



Note: Features shown in parentheses are grayed out on the window.

5 Configure the terminal to match mandatory settings in Table 11-2. If no setting is specified, select the parameter which best suits your environment.

6 Press <SETUP> again to exit setup mode.

Table 11-2
VT520 setup values

Setup feature	First level	Mandatory setting or description
Actions	Clear Display	Press <Enter> to clear the display.
	Clear Communications	Press <Enter> to clear communications.
	Reset this session	Press <Enter> to reset this session.
	Restore factory defaults	Press <Enter> to restore the factory default.
	Clock	Press <Enter> to set the VT520 clock.
	Calculator	Press <Enter> to use the VT520 calculator.
	Show character sets	Press <Enter> to display character sets.
	Banner message . . .	Press <Enter> to set the banner message.
Session	Select Session	Select Session 1
	Session name . . .	Optional user text
	Pages per session . . .	04 pages maximum
	Soft char sets/session	Two each S1 and S2
	Save settings for all	
	Restore settings for all	
	Copy settings from	
	Update session	At regular intervals

–continued–

Table 11-2 (continued)
VT520 setup values

Set-up feature	First level	Mandatory setting or description
Display	Lines per screen	24, 25, or 26
	Lines per page	24 lines X 01 pages
	Review previous lines	ON
	Columns per page	80 columns, Clear on change
	Status display	Local status
	Scrolling mode	Jump
	Screen background	Dark
	Cursor display	Enable cursor, Block, Blink
	Cursor coupling	Set to “Vertical” and “Page”
	Cursor direction	Left to right
	Copy direction	Left to right
	Zero	Select style of zero you want to display.
	Auto Wrap	ON
	New line mode	
	Lock user preferences	
	Show control characters	
	CRT saver	
	Energy saver	
	(Overscan)	
	Framed windows	ON (Set to OFF to enable Overscan.)
	Screen alignment	
Terminal type	Emulation mode	VT520
	Terminal ID to host	VT520
	VT default char set	DEC Multinational - See user documentation as well.

–continued–

Table 11-2 (continued)
VT520 setup values

Set-up feature	First level	Mandatory setting or description
Terminal type (continued)	PC Term character set	DEC Multinational - See user documentation as well.
	(7-bit NCRS characters)	
	Transmit 7-bit cable	ON
(ASCII emulation)		
Keyboard	VT Keyboard language	Select appropriate language—Canadian English
	(PC Keyboard language)	
	Define key . . .	Use Define Key Editor screen to set the following: F1=Hold Ignore Alt F2=Print ,< and .> Keys F3=Setup <> Key F4=Session ‘~ Key F5=Break
	Save key definitions	
	Recall key definitions	
	Lock key definitions	
	Caps lock function	Caps lock
	Keyclick volume	High
	Warning bell volume	High
	Margin bell volume	OFF
	Keyboard encoding	Character (ASCII)
	Auto Repeat	
	Data processing keys	
	Application cursor keys	
	Application keypad mode	
	(Map PC keyboard to VT)	
	Ignore missing keyboard	

–continued–

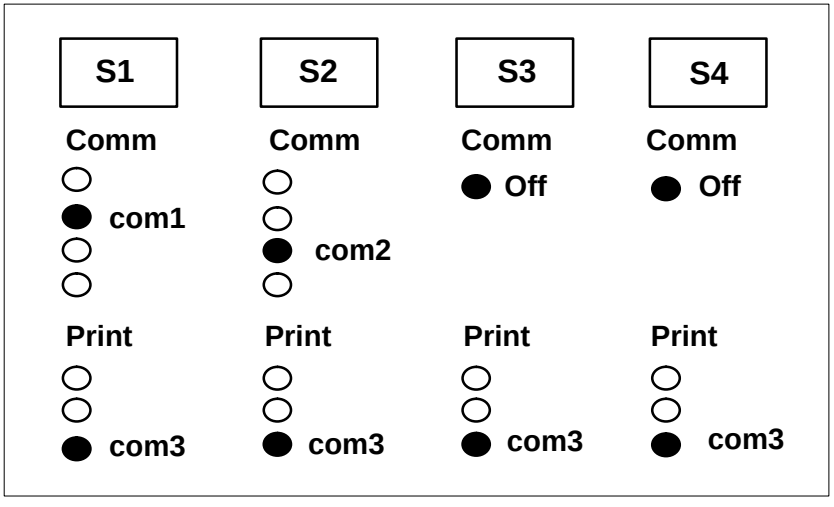
Table 11-2 (continued)
VT520 setup values

Set-up feature	First level	Mandatory setting or description
Communication	Port select . . .	See Figure 11-10.
	Word size	8 bit
	Parity	None
	Stop bits	1 bit
	Transmit speed	2400 baud
	Receive speed	Transmit speed
	Transmit flow control	XON/XOFF
	Receive flow control	XON/XOFF
	Flow control threshold	Low
	Transmit rate limit	150 cps
	Fkey rate limit	150 cps
	Ignore Null character	ON
	Local echo	
	Half duplex	
	Auto answerback	ON
	Answerback message . . .	Enter the answerback message.
	Answerback concealed	
Modem	Enable modem control	
	(Disconnect delay)	
	(Modem high speed)	
	(Modem low speed)	
Printer	Port select . . .	See Figure 11-10.
	Print mode	Normal
	Printer type	DEC ANSI
	DEC/ISO char sets	Country dependent setting
–continued–		

Table 11-2 (continued)
VT520 setup values

Set-up feature	**First level**	**Mandatory setting or description**
Printer (continued)	(PC character sets)	
	Print extent	Full page
	Print terminator	None
	Serial print speed	9600 baud
	2-way communication	XON/XOFF
	Transmit flow control	ON
	Receive flow control	XON/XOFF
	Word size	8 bits
	Parity	None
	Stop bits	1 bit
Tabs	Tabs Set–Up Screen	
Set-Up language		User dependent
On-line		ON
Save settings		When settings are complete, push <Enter> to save.
Restore settings		
Exit Set-Up		
–end–		

Figure 11-10
Port selection for VT520



Configuring an NT220 terminal

Procedure 11-4
Configuring an NT220 terminal

1. Power on the terminal.
2. Enter setup mode by pressing the <SETUP> key located on the top row of function keys. If no key is marked <SETUP>, press the third key from the left on the top row.

   The General Set-Up screen is displayed with the current setup values.

   Note: There may be minor differences between what you see in this chapter and the contents of the setup screens on your terminal. This is due to improvements made to the terminal by the manufacturer. Follow the setup documented here as closely as possible.
3. Change the values in each parameter field (on each setup screen) as necessary so that they match those shown in Figures 11-11 through 11-13.

   Use the following keys to view and change setup values:

Arrow keys	*Move from field to field.*
<Enter>	*Scroll through possible values or cause requested action to take place (depends on type of field).*

   To move to the next setup screen, select *To Next Set-Up Screen* on any setup screen.
4. Save changes by returning to the *General Set-Up* screen, moving the cursor to the *Save Current Values* field, and pressing <Enter>.
5. Exit setup mode by pressing the <SETUP> key.

Figure 11-11
NT220 setup screens

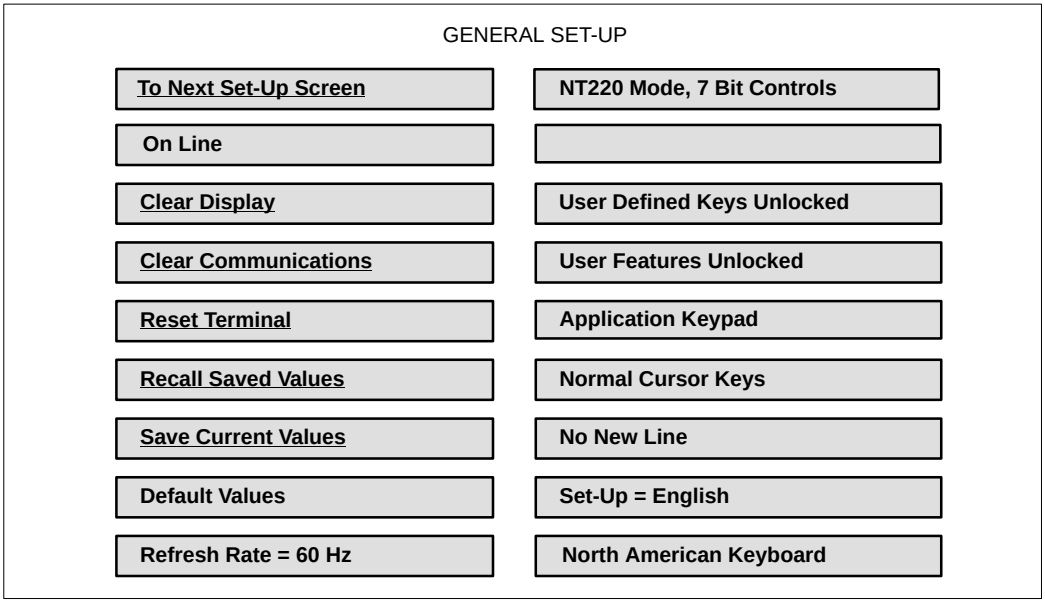


Figure 11-12
NT220 display and keyboard setup screens

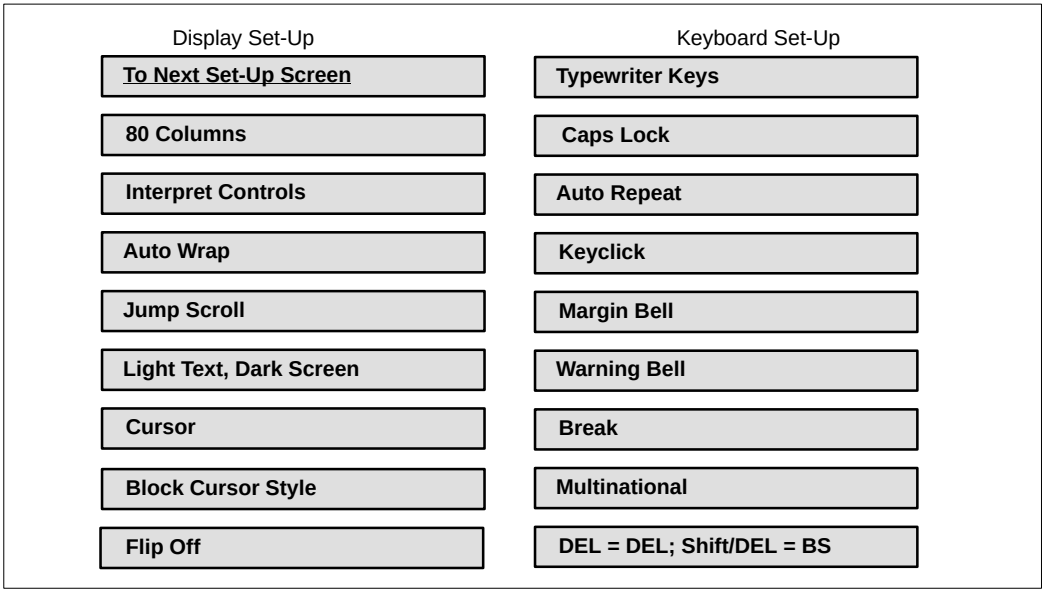
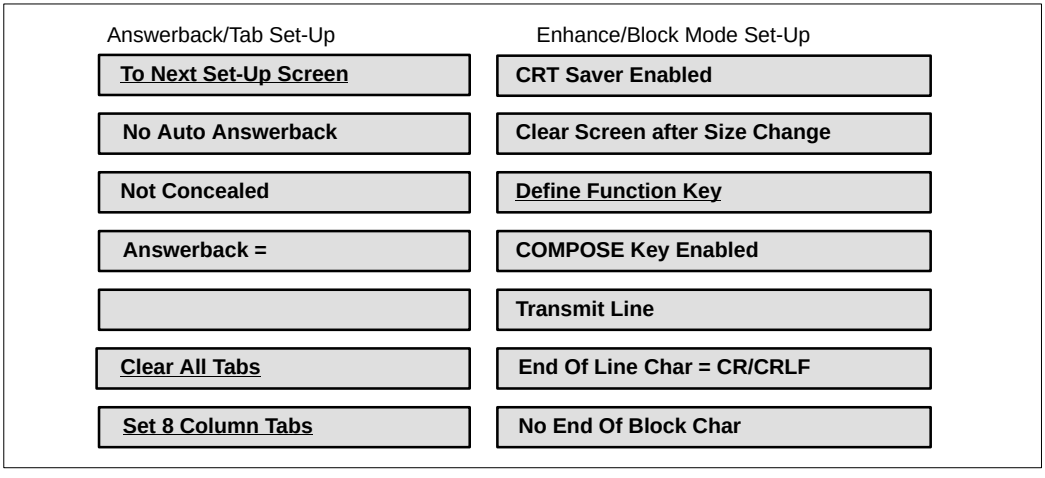


Figure 11-13
NT220 tab setup screen



Configuring an HP700/22 terminal

Procedure 11-5
Configuring an HP700/22 terminal

1. Power on the terminal.
2. Enter setup mode by pressing the <SETUP> key located on the top row of function keys. If no key is marked <SETUP>, press the third key from the left on the top row.

   The General setup screen is displayed with the current setup values.

   Note: There may be minor differences between what you see in this chapter and the contents of the setup screens on your terminal. This is due to improvements made to the terminal by the manufacturer. Follow the setup documented here as closely as possible.
3. Change the values in each parameter field (on each setup screen) as necessary so that they match those shown in Figures 11-14 through 11-17.

   Use the following keys to view and change setup values:

Arrow keys	*Move from field to field.*
<Enter>	*Scroll through possible values, which are displayed in the field, or cause requested action to take place (depends on type of field).*
<NextScreen>	*Move to next setup screen.*
<PrevScreen>	*Move to previous setup screen.*
4. Save changes by returning to the *General Setup* screen, moving the cursor to the *Save* field, and pressing <Enter>.
5. Exit setup mode by pressing the <SETUP> key.

Figure 11-14
HP700/22 setup screen

General Setup

Clear Display Clear Communications Reset Terminal
Recall Save Default Setup = English

Terminal Mode	EM200, 7 Bit Ctrls	EM100 ID	EM220
On Line	YES	Interpret Control Mode	YES
Columns	80	User Features Locked	NO
Smooth Scroll	YES	User Defined Keys Locked	NO
Block Cursor	YES	Numeric Mode Keypad	NO
Cursor OFF	NO	Normal Mode Cursor Keys	YES
Light Background	NO	National Character Set	NO
Inhibit Auto Wrap	NO	Frame Rate	72
New Line	NO	Display OFF After (min)	15
MultiPage	NO		
Status Line	Indicator		

Figure 11-15
HP700/22 communications setup screen

Communications Setup

Host

Xmit Baudrate	2400	XON/XOFF	@ 64
Recv Baudrate	=Xmit	Disconnect Delay	2 s
DataBits/Parity	8/None	Stop Bits	1
Check Parity	NO	Local Echo	NO
Port Selection	EIA, Data Leads Only	Unlimited Xmit	NO

Printer

Baudrate	9600	Print Mode	Normal
DataBits/Parity	8/None	Print Scroll Region	NO
Stop Bits	1	Terminator	None
Character Set	National Only		

Figure 11-16
HP700/22 keyboard setup screen

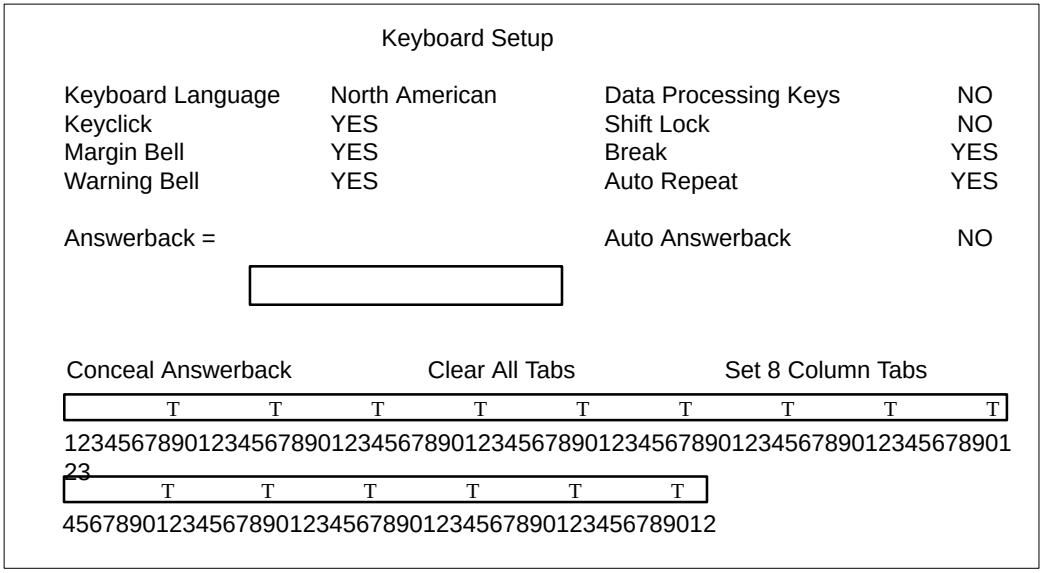
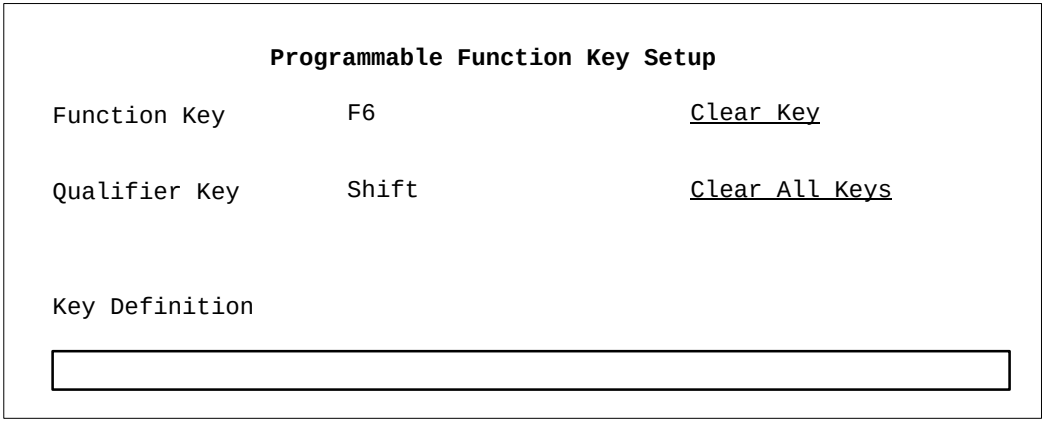


Figure 11-17
HP700/22 function key setup screen



Configuring a VT320 terminal

Procedure 11-6
Configuring a VT320 terminal

1. Power on the terminal.
2. Enter setup mode by pressing the <SETUP> key located on the top row of function keys. If no key is marked <SETUP>, press the third key from the left on the top row.

   The Setup Directory screen is displayed with the current setup values.

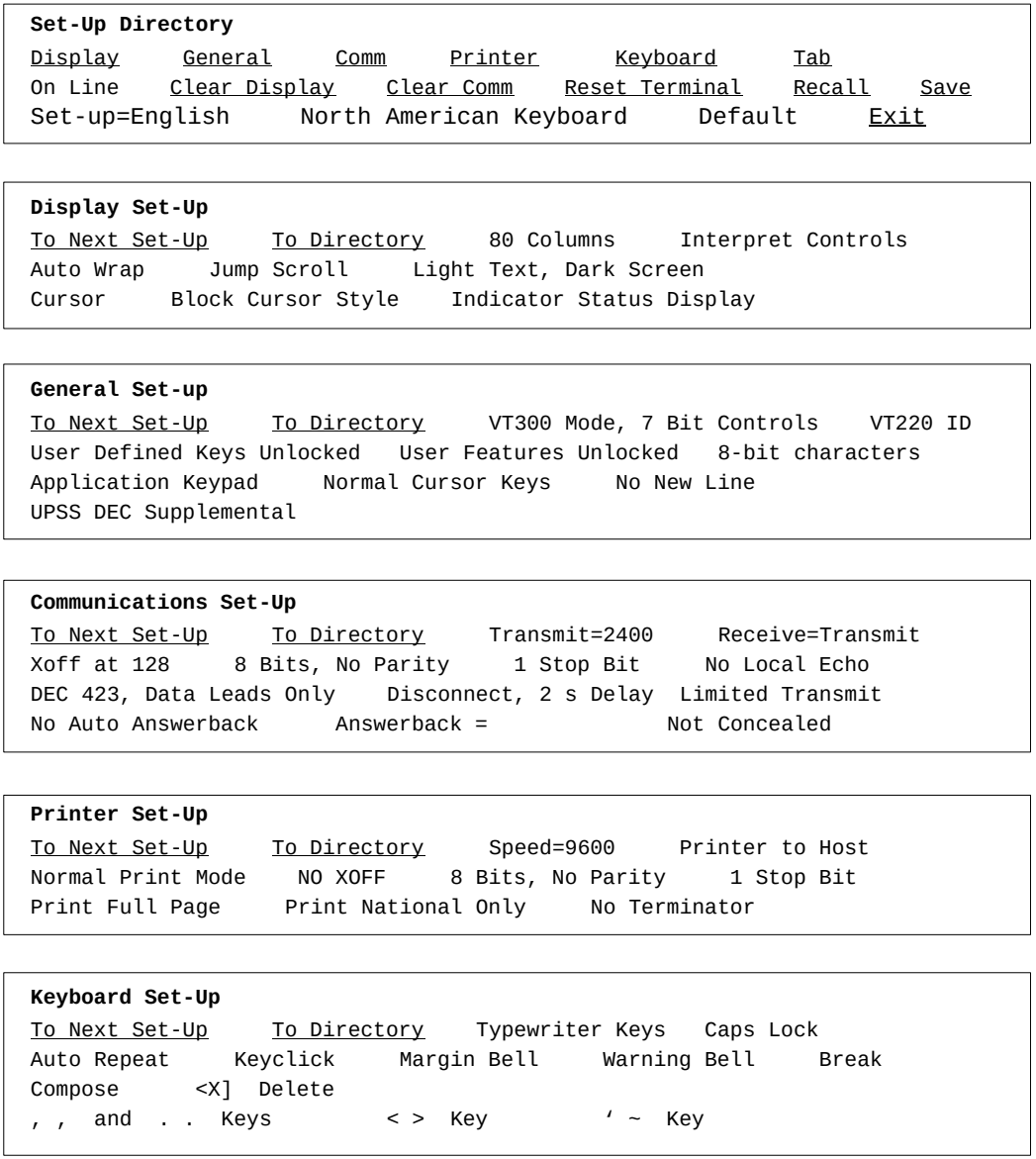
   Note: There may be minor differences between what you see in this chapter and the contents of the setup screens on your terminal. This is due to improvements made to the terminal by the manufacturer. Follow the setup documented here as closely as possible.
3. Change the values in each parameter field (on each setup screen) as necessary so that they match those shown in Figure 11-7.

   Use the following keys to view and change setup values:

Arrow keys	*Move from field to field.*
<Enter>	*Scroll through possible values, or cause requested action to take place (depends on type of field).*

   To move to another setup screen, select a screen from the top line of the *Setup Directory* screen and press <Enter>. To move to the next setup screen, select *To Next Set-Up* on any other setup screen.
4. Save changes by returning to the *Setup Directory* screen, moving the cursor to the *Save* field, and pressing <Enter>.
5. Exit setup mode by pressing the <SETUP> key.

Figure 11-18
VT320 setup screens



Configuring a VT220 terminal

Procedure 11-7
Configuring a VT220 terminal

1. Power on the terminal.
2. Enter setup mode by pressing the <SETUP> key located on the top row of function keys. If no key is marked <SETUP>, press the third key from the left on the top row.

   The Setup Directory screen is displayed with the current setup values.

   Note: There may be minor differences between what you see in this chapter and the contents of the setup screens on your terminal. This is due to improvements made to the terminal by the manufacturer. Follow the setup documented here as closely as possible.
3. Change the values in each parameter field (on each setup screen) as necessary so that they match those shown in Figure 11-7.

   Use the following keys to view and change setup values:

Arrow keys	*Move from field to field.*
<Enter>	*Scroll through possible values, or cause requested action to take place (depends on type of field).*

   To move to another setup screen, select a screen from the top line of the *Setup Directory* screen and press <Enter>. To move to the next setup screen, select *To Next Set-Up* on any other setup screen.
4. Save changes by returning to the *Setup Directory* screen, moving the cursor to the *Save* field, and pressing <Enter>.
5. Exit setup mode by pressing the <SETUP> key.

Figure 11-19
VT220 setup screens

```
Set-Up Directory
Display     General     Comm     Printer    Keyboard    Tab
On Line    Clear Display    Clear Comm    Reset Terminal    Recall     Save
Set-up=English     North American Keyboard     Default     Exit
```

```
Display Set-Up
To Next Set-Up     To Directory     80 Columns     Interpret Controls
Auto Wrap     Jump Scroll     Light Text, Dark Screen
Cursor     Block Cursor Style
```

```
General Set-up
To Next Set-Up     To Directory     VT200 Mode     7 Bit Controls
User Defined Keys Unlocked   User Features Unlocked    Multinational
Application Keypad     Normal Cursor Keys     No New Line
```

```
Communications Set-Up
To Next Set-Up     To Directory     Transmit=2400     Receive=Transmit
Xoff at 128     8 Bits, No Parity     1 Stop Bit     No Local Echo
EIA Port, Data Leads Only     Disconnect, 2 s Delay     Limited Transmit
```

```
Printer Set-Up
To Next Screen     To Directory     Speed=9600
Normal Print Mode     7 Bits, Odd Parity     1 Stop Bit
Print Full Page     Print National Only     No Terminator
```

```
Keyboard Set-Up
To Next Set-Up     To Directory     Typewriter Keys     Caps Lock
Auto Repeat     Keyclick     Margin Bell     Warning Bell     Break
No Auto Answerback     Answerback =                Not Concealed
```

Appendix B: Configuration of modems for Remote Access

Each modem supplied with Meridian Mail needs to be configured before use. Configure the modem by connecting it to a VT220 compatible terminal and sending commands to it as described in this chapter.

Offsite personnel can access Meridian Mail by dialing in through a remote modem connected to a terminal. Before this can be done, the A/B switch must be set so that offsite personnel can connect to Meridian Mail. While the switch is set for the remote connection, the local administration terminal cannot access Meridian Mail.

All modems, with the exception of UDS, need to be connected to a terminal for configuration. If you wish, you can connect it temporarily to the Meridian Mail administration terminal for configuration, and move it to its permanent location afterwards.

Configuration of modems may vary slightly from one model to the next. Refer to the manual that accompanies the modem as well as the procedures in this chapter when configuring the modem.

> ***Note:*** Before configuring the modem, the terminal must first be configured to the desired speed. This determines the modem's default speed when resetting or powering up
>
> — For modem 2400 bps access, set the terminal to 2400 bps.
>
> — For modem 9600 bps access, set the terminal to 9600 bps.

Supported modems

In Meridian Mail Release 10.0, the baud rate of the CPU can be set at either 2400 bps or 9600 bps. Modems must be configured so the baud rate matches that of the terminal and the CPU's NVRAM (non–volatile memory).

To determine the appropriate configuration method for your modem, refer to Table 12-1 for terminals set at 9600 bps or Table 12-2 for terminals set at 2400 bps.

> ***Note:*** UDS modems can be configured manually using the front-panel buttons or through the administration terminal.

Table 12-1
Local modem setups for 9600 bps operations

Modem type	Configuration method	Refer to
UDS 2440	Front panel	Procedure 12-1
UDS 2440	Terminal	Procedure 12-2
Ven-Tel 2400-33/ 2400 Plus II	Terminal	Procedure 12-3
Ven-Tel 9600 Plus/ 9600 Plus II	Terminal	Procedure 12- 4

Table 12-2
Local modem setups for 2400 bps operations

Modem type	Configuration method	Refer to
Ven-Tel EC2400-33/ 2400 Plus II	Terminal	Procedure 12-6
Ven-Tel EC2400-33/ 2400 Plus II	Terminal	Procedure 12-10
UDS 2440	Terminal	Procedure 12-7
UDS 2440	Front panel	Procedure 12-8
UDS EC 224 A/D	Terminal	Procedure 12-9

Table 12-3
Remote modem setups for 2400 bps modems

Modem type	Refer to
Ven-Tel 2400-33/2400 Plus II	Procedure 12-10
UDS 2440	Procedure 12-11
UDS 224 A/D	Procedure 12-12

Table 12-4
Remote modem setups for 9600 bps modems

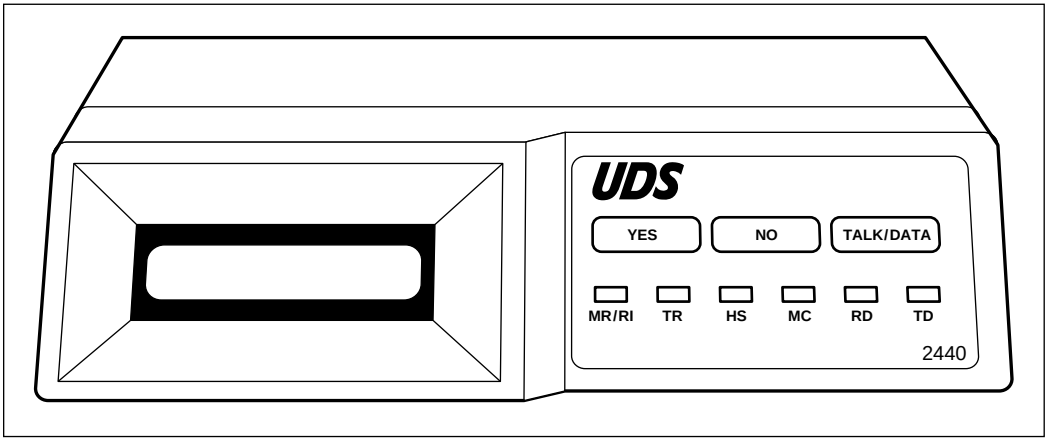
Modem type	Refer to
Ven-Tel 9600/9600 Plus II	Procedure 12-13

Local modem setups for 9600 bps operations

UDS 2440 modem for 9600 bps operation

The UDS 2440 modem can be configured for 9600 bps operation using either the administration terminal or the front panel on the modem. The front panel of the modem contains a small display and several buttons (YES, NO, and TALK) which are used to configure the modem (see Figure 12-1).

Figure 12-1
UDS 2440 modem — front panel



Procedure 12-1
Configuring the UDS 2440 modem through the front panel

1 Press the NO button to advance to “OPTIONS?” prompt.

2 Respond to the appropriate prompt as outlined in Table 12-5 below.

Table 12-5
UDS 2440 front panel prompts

Display window prompt	Press
OPTIONS?	YES
FACTORY?	YES
Factory 3?	YES
Data OPTS?	YES
DTE OPTS?	YES
DTE RATE?	9600
DTE ECHO?	YES
ECHO d?	YES
AT’ CMDS?	YES
AT’ CMDS d?	YES
OPTIONS?	YES
PIN OPTS?	YES
CD OPTS?	YES
CD Normal?	YES
SAVE?	YES

3 Advance to the next prompt by pressing NO.

4 To save the configuration, press YES at the “SAVE?” prompt.

Note: If you have entered incorrect information at a prompt, you need to restart your entry from the beginning. To do this, press NO for all remaining prompts. The “OPTIONS” prompt will reappear, and you can continue your entries.

If you have already saved the configuration, start over from step 1.

Procedure 12-2
Configuring the UDS 2440 modem through the terminal

1 Enter the commands on Table 12-6 on the administration terminal to configure the modem.

Table 12-6
UDS 2440 modem configuration commands

Enter the following command	System response
at&f3 <Return>	OK
at&c1 <Return>	OK
ats0=1 <Return>	OK
at e0 s14=140 <Return>	No response is seen on the terminal after this command.
at&w <Return>	

Ven-Tel modems for 9600 bps operation

The Ven-Tel modems can be configured for 9600 bps operation through the administration terminal.

Procedure 12-3
Configuring the Ven-Tel 2400-33/2400 Plus II modem

1 Enter the commands on Table 12-7 on the administration terminal to configure the modem.

Table 12-7
Ven-Tel 2400-33/2400 Plus II modem configuration commands

Enter the following command	System response
at&f <Return>	OK
at&c1<Return>	OK
at&d0 <Return>	OK
at\n3 <Return>	OK
at\j0 <Return>	OK
at\q1\x1 <Return>	OK
–continued–	

Table 12-7 (continued)
Ven-Tel 2400-33/2400 Plus II modem configuration commands

Enter the following command	System response
ats0=1 <Return>	OK
ats64=1 <Return>	OK
at e0 s14=12 <Return>	No response is seen on the terminal after this command.
at&w <Return>	
–end–	

Procedure 12-4
Configuring the Ven-Tel 9600 Plus/9600 Plus II modem

1 Enter the commands on Table 12-8 on the administration terminal to configure the modem.

Table 12-8
Ven-Tel 9600 Plus/9600 Plus II modem configuration commands

Enter the following command	System response
at&f <Return>	OK
at&c1 <Return>	OK
at\n3 <Return>	OK
at\q0 <Return>	OK
at%f2 <Return>	OK
at\f0 <Return>	OK
ats0=1 <Return>	OK
ate0 q1 <Return>	No response is seen on the terminal after this command.
at&w <Return>	

Local modem setups for 2400 bps operation

Ven-Tel modems for 2400 bps operation

The following versions of Ven-Tel modems are supported for 2400 baud terminals in Release 10.0 of Meridian Mail:

- EC2400-33, rev. 5.2 or 6.0
- EC2400-33 Plus II

Procedure 12-5
Setting the Ven–Tel modem switches

You need to set switches on both models of the Ven-Tel modem. The switch settings are the same for both local and remote use.

1. Remove the modem cover and verify that the E-PROM label shows version 5.2 or higher.
2. Locate the modem switch block which may be labeled S2. Set the switch as follows:

S2-1	ON	Modem assumes data terminal ready (DTR) is on.
S2-2	OFF	Not used
S2-3	OFF	Not used
S2-4	OFF	Not used
S2-5	OFF	Not used
S2-6	OFF	Not used
S2-7	ON	Speaker enabled
S2-8	ON	Modem will respond to commands.
S2-9	ON	NVRAM Model command set is enabled.
S2-10	OFF	Not used

Procedure 12-6
Configuring the Ven-Tel local modem

1. Connect the modem to a terminal using a straight-through cable.
2. Enter **at&f &d3 \j1 \n3 s0=1 s64=1 s14=12** <Return> .

   The cursor returns to "A" on the same line.

   Note: This step disables the echo of the modem. Enter the following command carefully because you will no longer see your input on the terminal screen.
3. Enter **ate0 &w** <Return>.
4. Turn off the modem for 10 seconds and then turn it back on.

UDS modems for 2400 bps operation

Procedure 12-7
Configuring the UDS 2440 modem through the terminal

1. Connect the modem to a terminal using a straight-through cable.
2. Enter **at&f s14=140** <Return> from the terminal.
3. Enter **at&w** <Return>.

   The cursor returns to "A" on the same line.

   Note: This step disables the echo of the modem. Enter the following commands carefully because you will no longer see your input on the terminal screen.
4. Turn the modem off, wait ten seconds, then turn it back on.

Procedure 12-8
Configuring UDS 2440 modem using the front panel method

The front panel of the modem contains a small display and several buttons (YES, NO, and TALK) which are used to configure the modem.

1. Plug in the modem and turn it on.
2. Press the YES button until OFFLINE appears in the display window.
3. Press NO in response to the OFFLINE prompt.
4. Press NO to advance to the next desired prompt.
5. Enter the appropriate response for each prompt listed on Table 12-9 to configure the modem.

Table 12-9
UDS 2440 modem configuration (front panel method)

Prompt	Response
OFFLINE	NO
DIAL?	NO
TEST	NO
AUTO ANS	NO
DATA OPTS?	NO
OPTIONS?	YES
RESET?	YES

–continued–

Table 12-9 (continued)
UDS 2440 modem configuration (front panel method)

Prompt	Response
LOADING (appears for one second)	
RESET	NO
FACTORY?	YES
FACTORY 0?	YES
LOADING (appears for one second)	
FACTORY?	NO
SPKR OPTS?	NO
TELE OPTS?	NO
PIN OPTS?	NO
MSG OPTS?	NO
SECURITY?	NO
DISC OPTS?	NO
SREGS?	NO
OPTIONS?	NO
PROTOCOL?	NO
If this configuration is different from the stored configuration, SAVE appears; otherwise OFFLINE is displayed.	
If SAVE? appears	YES
SAVING (appears for two seconds)	
OFFLINE?	NO
DIAL?	NO
TEST?	NO
AUTO ANS?	YES
AUTO ANS E?	YES
RINGS?	YES
RING= 001?	YES
AUTO ANS	NO
DATA OPTS?	NO

–continued–

Table 12-9 (continued)
UDS 2440 modem configuration (front panel method)

Prompt	Response
OPTIONS?	YES
RESET?	NO
FACTORY?	NO
SPKR OPTS?	NO
TELE OPTS?	NO
PIN OPTS?	YES
DTR OPTS?	YES
DTR OPTS 0?	NO
dtr opt 1	NO
dtr opt 2	NO
dtr opt 3	YES
DTR OPTS?	NO
DSR OPTS?	YES
DSR FORCED?	NO
DSR normal	YES
DSR OPTS?	NO
CD OPTS?	YES
CD FORCED?	NO
lo at disc	NO
cd normal	YES
CD OPTS?	NO
CTS OPTS?	NO
P 21 OPTS?	NO
P 23 OPTS?	NO
P 25 OPTS?	NO
PIN OPTS?	NO
MSG OPTS?	NO
SECURITY?	NO

–continued –

Table 12-9 (continued)
UDS 2440 modem configuration (front panel method)

Prompt	Response
DISC OPTS?	NO
SREGS?	NO
OPTIONS?	NO
PROTOCOL?	NO
If this configuration is different from the stored configuration, SAVE appears; otherwise OFFLINE is displayed.	
SAVE?	YES
SAVING (appears for two seconds)	
OFFLINE	
–end–	

Procedure 12-9
Configuring the UDS 224 A/D through the terminal

1. Put the front panel rotary switch in the “Data” position.
2. Connect the modem to a terminal using a straight-through cable.
3. Enter **at&f s14=140** and press <Return>.

   The cursor returns to “A” on the same line.

   Note: This step disables the echo of the modem. Enter the following commands carefully because you will no longer see your input on the terminal screen.
4. Enter **at&w** <Return>.
5. Turn the modem off, wait ten seconds, then turn it back on.

Table 12-10
UDS EC 224 A/D modem hardware configuration

Front Panel Switches		
Rotary Switch: – DATA position when using terminal to dial – TALK position when using TELSET to dial. Switch to DATA position once connected. 3 position toggle switch: HI position 2400 bps Speed Select		
Circuit Board Mount DIP Switches		
Switch 1 (S1)		
S1-1	On	Attempt MNP error correction protocol
S1-2	Off	Disable DCE independent speed
S1-3	Off	Switched network
S1-4	On	Private line originate
S1-5	On	Enable auto–answer
S1-6	Off	Operate in 224 A/D mode
S1-7	Off	Disable TX space disconnect
S1-8	Off	Disable RX space disconnect
Switch 2 (S2)		
S2-1	On	8 bits no parity, 1 start, 1 stop
S2-2	Off	
S2-3	Off	
S2-4	Off	CTS DTE flow control
S2-5	On	
S2-6	Off	No DCE flow control
S2-7	Off	
S2-8	Off	Bell 212A @ 1200 bps
Switch 3 (S3)		
S3-1	Off	DTR disconnect disabled
S3-2	On	Carrier disconnect = 100mS
S3-3	Off	Disable use of CH pin
S3-4	Off	Disable DTE Analog loopback

Remote modem setups for 2400 bps modems

Procedure 12-10
Configuring the Ven-Tel 2400-33/2400 Plus II

1. Connect the modem to a terminal using a straight-through cable.
2. Enter **at&f** <Return> .
3. Enter **at&f \n3 &c1 s14=170** <Return> .

   The response on the terminal is "OK".
4. Enter **at&w** <Return>.
5. Turn off the modem for 10 seconds and then turn back on.

Procedure 12-11
Configuring the UDS 2440

1. Connect the modem to a terminal using a straight-through cable.
2. Enter **at&f s14=140** <Return> from the terminal.
3. Enter **at&w** <Return>.

   The cursor returns to "A" on the same line.

   Note: This step disables the echo of the modem. Enter commands carefully because you will no longer see your input on the terminal screen.
4. Turn the modem off, wait ten seconds, then turn it back on.

Procedure 12-12
Configuring the UDS 224 A/D

1. Put the front panel rotary switch in the "Data" position.
2. Connect the modem to a terminal using a straight-through cable.
3. Enter **at&f &w** <Return>.

Factory default jumper settings are used for the UDS modem. For reference, see Table 12-10.

Remote modem setups for 9600 bps modems

Procedure 12-13

Configuring the Ven-Tel 9600/9600 Plus II

1. Connect the modem to a terminal using a straight-through cable.
2. Enter **at&f** <Return> .
3. Enter **at&f \n3 &c1 s14=170** <Return> .

   The response on the terminal is “OK”.
4. Enter **at&w** <Return>.
5. Turn off the modem for 10 seconds and then turn back on.

Appendix C: AC/DC ground test

Types of grounds

AC equipment ground (ACEG)

An AC equipment ground (ACEG) is an insulated conductor, used to protect personnel from injury, that does not normally carry current. The ACEG is permanently bonded to the service panel ground and to metal parts of electrical equipment that do not normally carry current.

Battery return

A battery return (BR or BRTN) is a conductor that carries –48 VDC return current. Although battery return conductors are not grounding conductors, they must be referenced to ground by a single connection.

Ground

A ground is a metallic connection, whether intentional or accidental, between an electric circuit or equipment and the earth, or some conducting body that serves in place of the earth. Typically, it is a connection to earth obtained by a grounding electrode.

Logic return

Sometimes referred to as logic ground, logic return (LR or LRTN) is the voltage reference and current return path, which is eventually connected to the single point ground for analog and digital circuits.

Logic return equalizer

The logic return equalizer is the point at which all logic return wires are consolidated before connecting to the single point ground. Physically, the LRE function may be provided by a separate grounding bus bar, by the common battery return bus in a DC power distribution panel, or by the AC equipment ground in an isolated ground service panel.

Safety or personal hazard ground

An insulated conductor is connected to the equipment frame. The safety or personal hazard ground is used to protect personnel from injury and provide grounding for transient voltage that may occur intentionally or accidentally.

Meridian Mail and grounds

There are three types of grounds associated with Meridian Mail:

- personal hazard
- battery return (BR, BRTN, BATRTN)
- logic return (LTRN)

The grounds are separate within Meridian Mail and have terminals available to connect to approved ground sources. To ensure proper grounding is applied at the Meridian Mail location, the grounds should be tested. Each of the grounds should not have more than 0.5 ohms resistance between them.

Figure 13-1 shows a single-column distribution for AC power and grounding. Figure 13-2 shows AC power and grounding for a multicolumn system.

Figure 13-1
AC power—single-column distribution

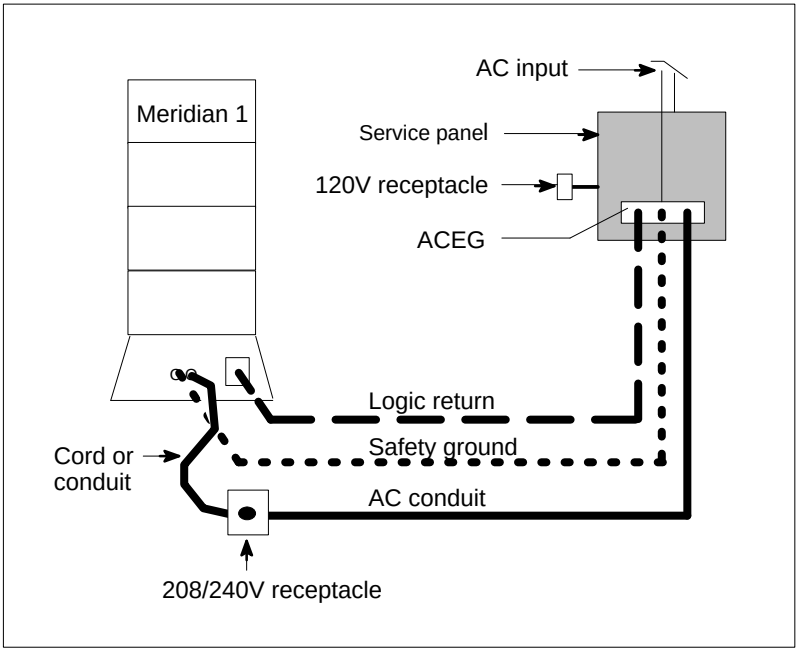
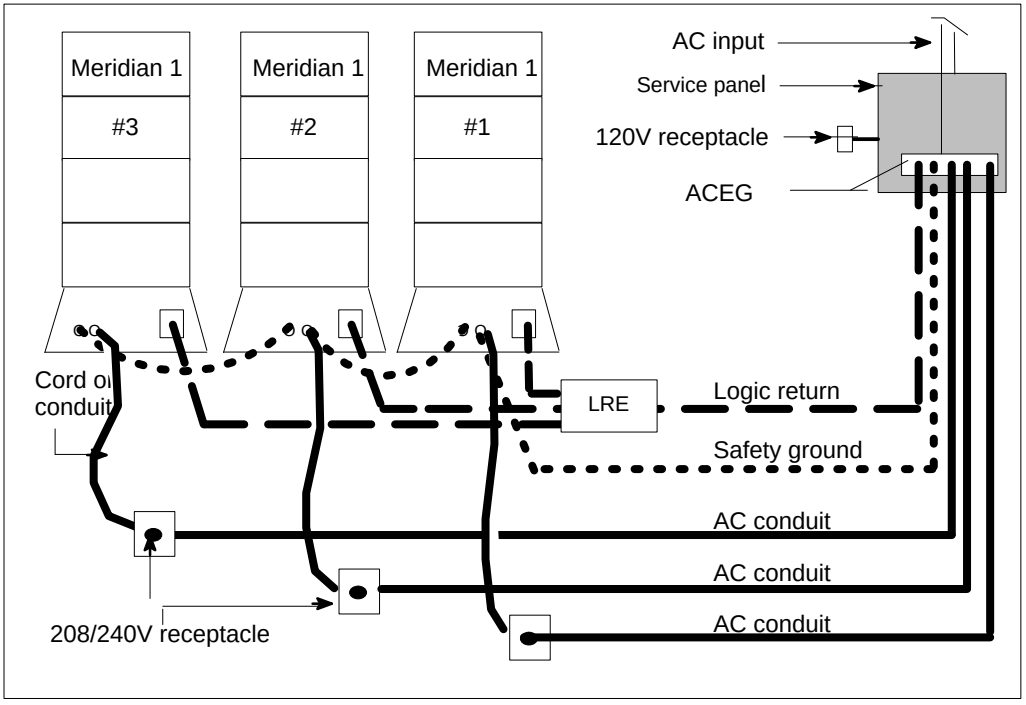


Figure 13-2
AC power—multicolumn distribution



AC ground test

This test has a prerequisite that the grounds under test are connected to the approved ground source and are present at the Meridian Mail location. Typical in a single-column system, the battery return (BATRTN) and logic return (LTRN) are strapped together. In multicolumn installations, this strap is removed, and the logic return (LTRN) is terminated at an LRE ground bar.

AC ground test—single column

If any of the ground test procedures fail, the following meter checks and wire connection checks must be performed:

- Check the accuracy of the meter.
- Check the stability of the ohmmeter connections.

- Inspect all wire connections.
- Contact your support organization.

Testing AC ground on a single–column system

1. Remove the ground strap between the battery return (BATRTN) and the logic return (LTRN) if connected, and measure the resistance between these two points with a volt/ohm meter. The meter should indicate infinite resistance.
2. Reconnect the ground strap between the battery return (BATRTN) and the logic return (LTRN). Measure the resistance between the ground pin of the AC cord and the battery return (BATRTN). The measurement should be 0 ohms.
3. Measure the resistance between the battery return and the personal hazard. The meter should indicate infinite resistance.
4. Connect the personal hazard, and plug in the AC cord to the approved AC outlet. Measure the resistance between the personal hazard and the battery return (BATRTN). The measurement should be no more than .5 ohms.

AC ground test—multiple column

If any of the ground test procedures fail, the following meter checks and wire connection checks must be performed:

- Check the accuracy of the meter.
- Check the stability of the ohmmeter connections.
- Inspect all wire connections.
- Contact your support organization.

Testing AC ground on a multiple column system

1. Remove the ground strap between the battery return (BATRTN) and the logic return (LTRN), if connected, and measure the resistance between these two points with a volt/ohm meter. The meter should indicate infinite resistance.

   Note: Do not reconnect the ground strap.
2. Measure the resistance between the ground pin of the AC cord and the battery return (BATRTN). The measurement should be 0 ohms.
3. Measure the resistance between the logic return (LTRN) and the personal hazard. The meter should indicate infinite resistance.

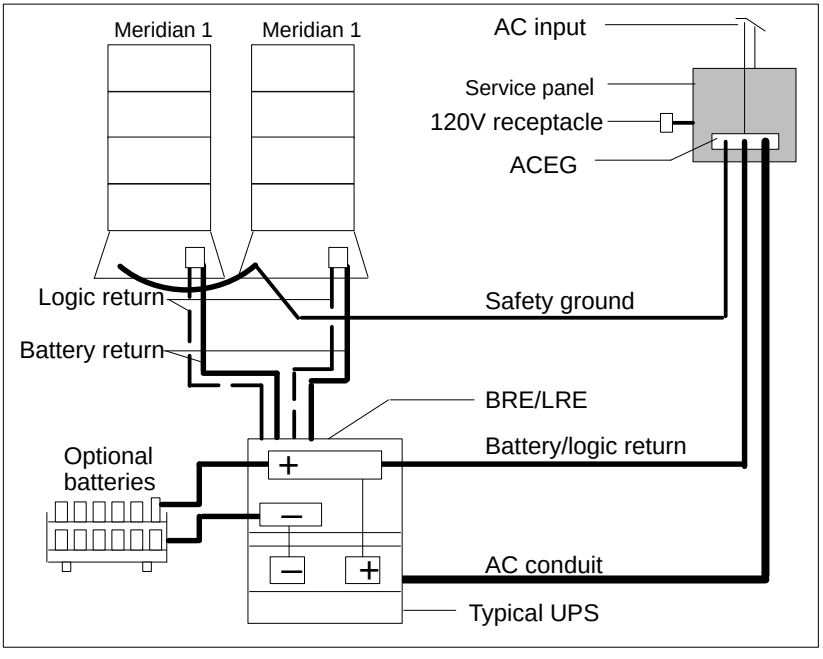
4. Connect the logic return (LTRN) personal hazard, and plug in the AC cord to the approved AC outlet.
5. Measure the resistance between the personal hazard and the battery return (BATRTN). The measurement should be no more than .5 ohms.
6. Measure the resistance between the battery return (BATRTN) and the logic return (LTRN). The measurement should be no more than .5 ohms.
7. Measure the resistance between the battery return (BATRTN) and the personal hazard. The measurement should be no more than .5 ohms.
8. Measure the resistance between the logic return (LTRN) and the personal hazard. The measurement should be no more than .5 ohms.

DC ground test

This procedure assumes that personal hazard ground, battery return (BATRTN) ground, and logic return (LTRN), ground are terminated at the UPS. Figure 13-3 shows an example of the typical DC grounding overview.

For the locations of the battery return (BATRTN), logic return (LTRN) and personal hazard ground terminals, refer to the power and grounding sections of the “Meridian Mail assembly” chapter.

Figure 13-3
DC power—multicolumn distribution with MFA150 power system



If any of the ground test procedures fail, the following meter checks and wire connection checks must be performed:

- Check the accuracy of the meter.
- Check the stability of the ohmmeter connections.
- Inspect all wire connections.
- Contact your support organization.

Testing DC ground on A multipl– column system

1 Ensure the ground cables from the UPS are disconnected at the equipment location. Remove the ground strap between the battery return (BATRTN) and the logic return (LTRN) if connected, and measure the resistance between these two points with a volt/ohm meter. The meter should indicate infinite resistance.

Note: Do not reconnect the ground strap.

2. Measure the resistance between the battery return (BATRTN) and the personal hazard. The meter should indicate infinite resistance.
3. Measure the resistance between the logic return (LTRN) and the personal hazard. The meter should indicate infinite resistance.
4. Connect the ground cables from the UPS to Meridian Mail.
5. Measure the resistance between the battery return (BATRTN) and the logic return (LTRN). The measurement should be no more than .5 ohms.
6. Measure the resistance between the battery return (BATRTN) and the personal hazard. The measurement should be no more than .5 ohms.
7. Measure the resistance between the logic return (LTRN) and the personal hazard. The measurement should be no more than .5 ohms.

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NORTEL

Reader's Response Form for

Meridian Mail Options
***Installation Guide* (NTP 555-7011-210)**
August 1995

Tell us about yourself:

Name: _____ **Date:** _____

Company: _____

Address: _____

_____

Occupation: _____ **Phone:** _____

1. What is your level of experience with this product?

   ❑ New user ❑ Intermediate ❑ Experienced ❑ Programmer

2. How do you use this book?

   ❑ Learning ❑ Procedural ❑ Problem solving ❑ Reference

3. Did this book meet all of your needs?

   ❑ Yes ❑ No

   If you answered **No** to this question, please answer the following questions.

4. What chapters, sections, or procedures did you find hard to understand?

   _____

   _____

   _____

5. What information (if any) was missing from this book?

   _____

   _____

   _____

6. How could we improve this book? (For example, books can also be evaluated in many other ways, including: ease of information retrieval, presentation, and use of reading aids, such as diagrams.)

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Reader's Response Form

Meridian Mail Options

Installation Guide

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