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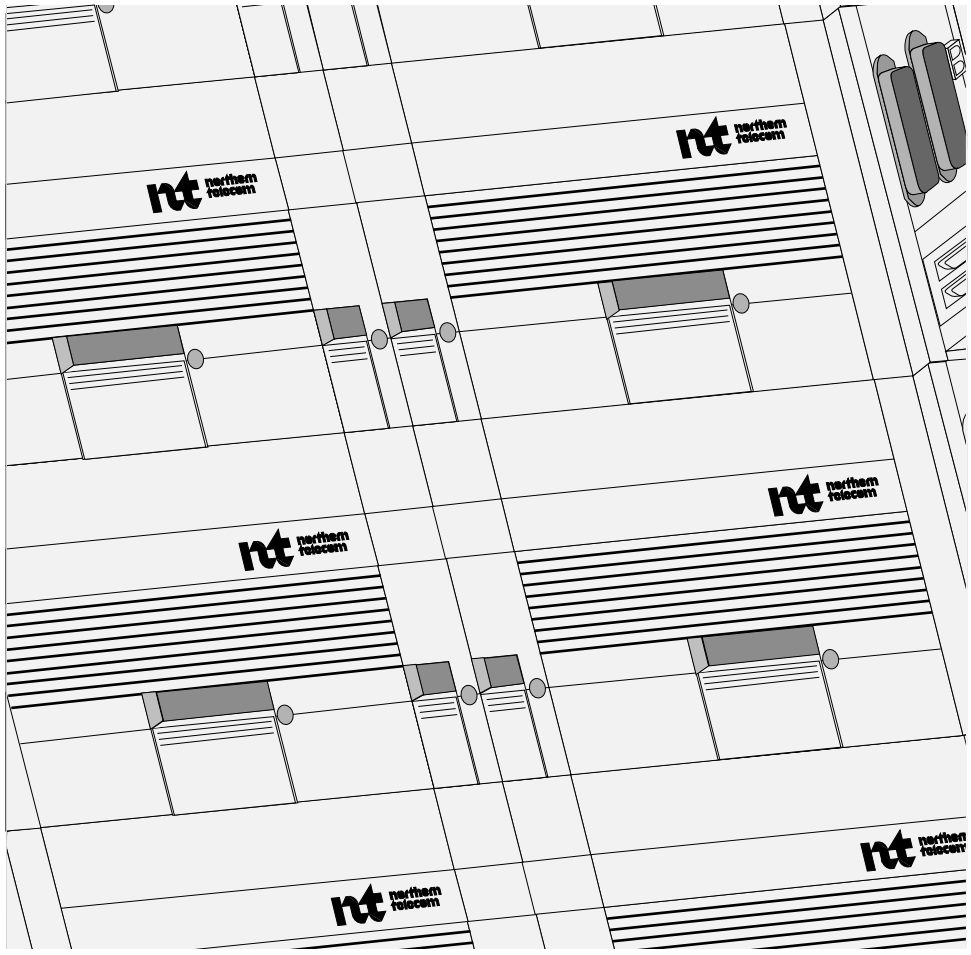
SONET Products

AccessNode

Setting Up Your System: Point-to-Point

Powering Up, Commissioning, and Provisioning

Issue 3.0 October 1999



NORTEL NETWORKS™

SONET Products

AccessNode

Setting Up Your System: Point-to-Point

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Contents

Planning to set up a point-to-point system

Major processes in setting up a point-to-point system

There are four major processes in setting up a new point-to-point system:

1 Powering up the equipment

2 Commissioning the equipment

3 Provisioning the equipment

4 Miscellaneous procedures

Each major process consists of a set of procedures that must be performed in a specific order.

Terms

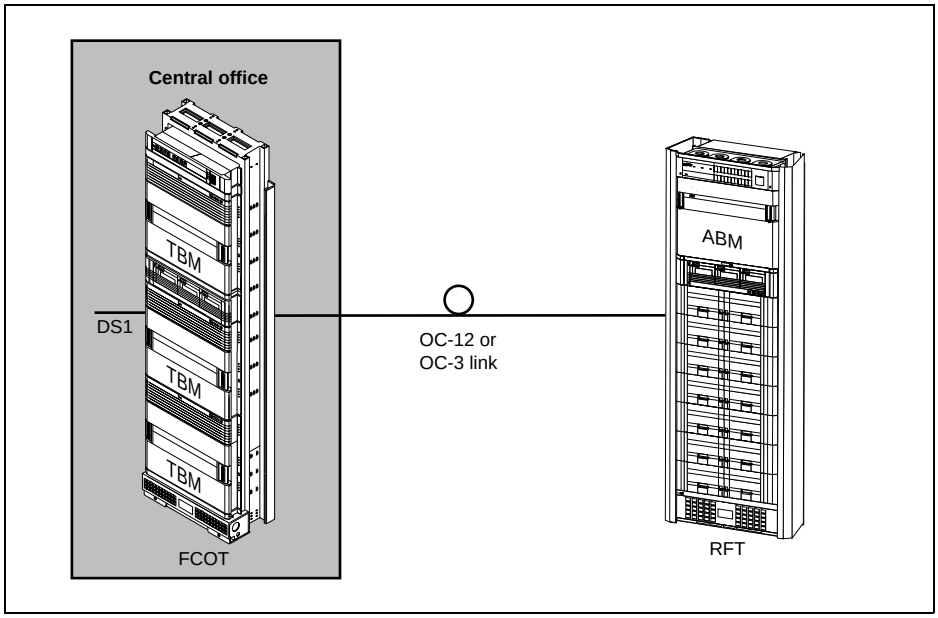
The following terms are used in this document:

- *Network* refers to the broad collection of multi-vendor products that are used to service a given administrative region.
- *System* refers to the cluster of Nortel Networks network elements (NEs) that are controlled by a single operations controller (OPC). System is also known as a *span of control*.

Typical point-to-point configuration

Figure 1-1 shows a typical point-to-point configuration.

Figure 1-1
Point-to-point configuration



Prerequisites

Before you begin setting up a new point-to-point system, you should do the following:

- Make sure you have all the equipment you need. Equipment for commissioning is listed in “Equipment requirements” on page 1-4.
- Obtain the network element IDs (NEID) you are assigning to the network elements in the system. All NEIDs must be unique within the network. See “Planning network elements” on page 1-3.
- Obtain the OPC user identification (user ID) and password for the system line-up and test (SLAT) security level. The default user ID is “root” with password “root.”
- Have the admin security level network element (NE) login user ID and password for each NE to be commissioned. The default user ID is “admin” with password “admin.”

- Obtain a tape or tapes with the correct OPC software load and NE software loads.
- The network administrator must fill out the System Setup Forms at the end of this chapter. Once completed, these forms list all the information needed for a technician to bring up a new system.

Control Network requirements

A CNet termination plug must terminate any unused CNet port on an access bandwidth manager shelf. There are two CNet ports on a shelf, CNet out and CNet in.

An OPC span of control can have no more than 16 network elements, and a CNet LAN can have up to 10 network elements daisy-chained by CNet cable. A CNet configuration also cannot have multiple paths (loops) in the control network. The configuration must have only one path from the operations controller (OPC) to each network element.

You must carefully engineer a control network if it interconnects several systems.

The total length of the CNet LAN bus (cables and backplane tracking) must not exceed 120 meters (400 feet). To calculate bus lengths, use the following formula. Lengths are in feet.

```
total bus length = total cable length + (4 feet x the
number of shelves connected by a CNet LAN)
```

Planning network elements

After you assign an NE number during commissioning, you cannot change it without affecting all integrated, universal, and DS1 tandem services. Therefore, it is very important for the NE numbers to be assigned according to a specific numbering plan. The numbering plan must adhere to the following rules:

- All NEs in an OPC's span of control must have unique numbers. The numbers can run from 1 to 9999.
- All NEs connecting to the same DMS-100 SuperNode must have unique NE numbers.
- All NEs across the Network Manager's span of control must have unique NE numbers.
- The fiber central office terminal (FCOT) and remote fiber terminal (RFT) in a system must have unique NE numbers.

Nortel Networks recommends that you develop a regional numbering scheme that is larger than the OPC span of control to which the NE belongs. This will minimize NE renumbering if NEs are later transferred to another OPC's span of control, or if that OPC's spans of control are later consolidated.

Equipment requirements

The following is a list of the equipment required to commission, provision, and test an NE. All tools should be approved for use in the equipment area.

- an operations controller module, NT7E24, placed in slots 5 to 8 of the FCOT (not required if adding NEs to other OPC span of control).
- either a VT100-compatible terminal with a 9-pin female to 9-pin male RS-232 cable or a personal computer used as a VT100 terminal emulator. The personal computer must have an RS232 cable (25-pin D-sub miniature male to 9-pin D-sub male).
- a null modem 9-pin (male) to 25-pin (female) RS-232 cable, NT7E44
- two blank tapes for data backup
- a digital multimeter, Fluke 85 or equivalent
- an electrically safe stepladder or step stool
- a work light
- a small flat-head screwdriver
- obtain an optical power meter, 1310/1550 nm (or equivalent) with range –50 to +5 dB
- obtain one (1) optical test cord, single-mode, 5 m (16 ft) long, as follows:
  - NT7E46AA for biconic connectors
  - NT7E46BA for FC connectors
  - NT7E46CA for ST connectors
  - NT7E46FA for SC connectors

Required circuit packs

The following list contains the circuit packs that must be installed in the shelf you are commissioning and those circuit packs that are optional.

RFT

The following is a list of the modules that can be used in the ABM shelf in a fiber-fed AccessNode system:

- two processor cards (Proc), NT4K52.

  Note: You can use either NT4K52FB or NT4K52GB for any application, but you must use NT4K52GB if you are using DMS Access. NT4K52FB does not support DMS Access.

- one maintenance interface card (MIC), NT4K53
- working and protection DS1/VT mapper circuit packs, NT7E04. Quantity depends on your system configuration (optional)
- two DS1 protection bridge cards, NT4K31 (optional)
- two fiber optics cards (OC-3/OC-12), NT7E01/NT7E02
- DS1 input and output cards, NT4K32 and NT4K33 (optional)
- two transport interface cards (TICs), NT4K56
- two access interface cards (AICs), NT4K55
- one test access card (TAC), NT4K54
- one operations controller module (OPC), NT7E24. This unit is optional depending on your configuration.
- one integrated remote test unit (IRTU), NT4K57 (optional)

FCOT

The following is a list of the modules that can be used in the TBM shelf that is configured as an FCOT:

- one OPC, NT7E24 (optional)
- one processor, NT4K52 (second processor is optional)
- one MIC, NT4K53
- one to three DS1 mappers, NT7E04

  Note: The protection mapper must be the same type as the DS1/VT mapper, NT7E04CA or NT7E04EA, or a circuit pack mismatch alarm is generated.
- two DS1 protection bridge cards, NT4K31 (optional)
- DS1 input and output cards, NT4K32 and NT4K33 (two per DS1 mapper)
- two fiber optic cards (OC-3/OC-12), NT7E01/NT7E02
- if the network element carries TR-08 services, the DS1/VT mapper type NT7E04CA or NT7E04EA and the NT4D56AC TIC card are required.
- ESI cards (NT7E27DA)
- ESI carrier (NT7E19AA)
- blank faceplates or a shelf cover to improve airflow, all unused slots must be so equipped

CDS modules

The following modules are required in each CDS:

- two CDS power (CDSP) cards, NT4K62
- two metallic test access cards (MTACs), NT4K73
- four line interface cards (LICs), NT4K70

Circuit packs on the ABM BIP

The following circuit packs are required in the ABM BIP:

- one alarm relay card (NT4K64)
- one talk battery filter card (NT4K61)

Using a laptop computer to emulate a VT100 terminal

In this document, it is assumed that the laptop computer is used to emulate the VT100 terminal. If you are using a laptop, replace the VT100 terminal and RS-232 cable in the previous list with the following equipment:

- a laptop computer (battery pack can be required), configured for use as an OPC terminal as described in *Network Element User Interface Description*, 323-3001-300, and *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A
- a null modem 9-pin (male) to 9-pin (female) RS-232 cable with the following pin connections.

OPC-to-VT100 cable	
9-pin male (OPC)	**25-pin female (VT100)**
1	4
2	2
3	3
4	5,6
5	7
7	8
6, 8	20

OPC-to-laptop cable	
9-pin male (OPC)	**9-pin female (laptop)**
1,6	4
2	3
3	2
4	1,6
5	5
7	8
8	7

RS-232 signals

All VT100-compatible terminals used with the OPC should support the following RS-232 signals:

- CD (Carrier Detect)
- TxD (Transmit Data)
- RxD (Receive Data)
- CTS (Clear To Send)
- DSR (Data Set Ready)
- DTR (Data Terminal Ready)
- RTS (Request To Send)

Optical attenuators

Throughout this volume references are made to variable optical attenuators (VOA), miniature variable optical attenuators (mVOAs), and fixed optical attenuators. Most of the examples in this volume will show the acronym mVOA; however, if your site uses a variable optical attenuator (VOA), please substitute VOA wherever applicable in the procedures. Fixed optical attenuators are denoted in the appropriate procedures in this volume.

System shelves

There are two types of system shelves as described in the table below.

Table 1-1
Common equipment shelf types

Shelf type	Description
access bandwidth manager (ABM) shelf	supports transport DS1s and DS3s, and the termination of DS0 circuits on line cards installed in copper distribution shelves (CDSs). It can be installed as a fiber central office terminal (FCOT) or a remote fiber terminal (RFT).
transport bandwidth manager (TBM) shelf	supports a larger number of transport DS1s and DS3s than the ABM shelf, but no DS0 circuits or CDSs. It can be installed as an FCOT.

Shelf functions

Three ABM and TBM shelf functions are supported on a point-to-point system:

This shelf function	Is used in these applications	For this shelf
RFT	• fiber-fed	ABM
FCOT	• IDLC traffic • Transport facility	TBM
FCOT	• IDLC traffic • Transport functionality • UDLC traffic	ABM

Processor requirements for ABM and TBM shelves

Before you begin commissioning the system, verify that you have the correct AccessNode processor card for the ABM or TBM shelf. Table 1-2 lists the processor requirements.

Table 1-2
Processor requirements

If you are commissioning this shelf	Then you must use this processor
ABM (for line size expansion)	NT4K52FB (64 Mb) or NT4K52GB (64 Mb for DMS Access or DMS-X interface to APC-100)
TBM	NT4K52BD (24 Mb) or NT4K52FA (32 Mb)
Note 1: Use NT4K52FA or NT4K52FB for all applications except DMS Access. Use NT4K52GA or NT4K52GB for all applications including DMS Access and DMS-X interface to APC-100. **Note 2:** If you use the DMS-X interface to APC-100, you must use the NT4K52GA or NT4K52GB processor in each ABM shelf.	

Circuits

- Transport DS1s require a DS1/VT mapper at any NE where the transport DS1s are accessed at the DS1 level.
- Transport DS3s are supported in a point-to-point topology and require a DS3 mapper at both the FCOT and RFT.
- DS1 tandem circuits contain non-locally switched or non-switched DS0s terminated on line cards at the RFT. They are mapped to DS1 channels at the site where they interface with a digital line at the FCOT in point-to-point, or at the RFT in single-ended or DS1-fed systems. DS1 tandem circuits require a DS1/VT mapper at the FCOT or RFT. DS1 tandem circuits are supported in all topologies and applications.
- Digital multiplex switch (GR-303 DMS/MVI) circuits are DS0s from the RFT that exit the FCOT on DS1s and terminate on a digital switch. GR-303 DMS/MVI circuits require a DS1/VT mapper at the FCOT, but GR-303 DMS/MVI and DS1 tandem circuits can use the same mapper. These circuits terminate on line cards at the RFT. GR-303 DMS/MVI circuits are supported in all topologies and applications, except in the UDLC application. Examples are:
  - — GR-303 DMS (GR-303 DMS circuits that terminate at a Nortel DMS switch)

— GR-303 MVI (GR-303 circuits meeting the multi-vendor interface standard)

— TR-08 (GR-303 DMS circuits meeting the TR-08 interface standard. TR-08 circuits require a particular DS1/VT mapper unit. Use the NT7E04CA or NT7E04EA mapper card.)

- Universal digital loop carrier (UDLC) circuits exit the FCOT at the voice frequency level and require line cards at both the FCOT and the RFT. Only point-to-point topologies support UDLC services. UDLC circuits are supported in both UDLC and combined (IDLC plus UDLC) applications.

Equipment cautions and warnings

This section has the warnings and precautions for personal safety and for proper handling and operation of equipment.

Radio-frequency emissions notice

The following regulatory notice applies to the equipment:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Static electricity

It is usual for static electrical charges to build up on the body if a person walks a short distance. This buildup of static electricity is sufficient to damage some circuit packs if it is not properly discharged first. Circuit packs that are sensitive to damage by static electricity should be packaged in antistatic material. The following precautions are recommended.

CAUTION
Risk of equipment damage
Wear a grounded antistatic wrist strap or equivalent protection when handling circuit packs, to avoid damaging electronic parts.

Handling circuit packs

Units that are sensitive to static electricity are marked in their antistatic shipping bags with the following symbol:

ATTENTION
OBSERVER LES PRECAUTIONS POUR LA MANIPULATION DES DISPOSITIFS SENSIBLES AUX CHARGES STATIQUES

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

To avoid static electrical damage when handling circuit packs, follow these rules:

- Do not remove circuit packs from their antistatic packages unless you are using antistatic protection, such as wearing an antistatic wrist strap. The wrist strap is attached to a long cord, which must terminate at a good ground source, so that static buildup is harmlessly discharged. Alternative antistatic methods include conductive carpet, conductive shoes, or heel grounders. Use the equipment recommended by your company.
- Handle each circuit pack by the faceplate or stiffener. Do not touch electrical connections, pins, or soldered surfaces.

Protect optical connectors by covering them with clean dust caps.

Storing and transporting circuit packs

When storing and transporting circuit packs, follow these rules:

- Never transport, stack, or store circuit packs without first replacing them in their antistatic material and original shipping package. This avoids physical damage and accumulation of dirt or dust on goldplated contacts. Be careful not to damage any parts when inserting the circuit pack into its packaging.
- Avoid storage in areas where the relative humidity can exceed 95% and where the temperature can exceed 70°C, because boards can warp or corrode.

Laser radiation

The equipment and associated optical test sets use laser sources that emit light energy into fiber cables. This energy is within the red (visible) and infrared (invisible) regions of the electromagnetic spectrum.

Laser products are subject to federal and state or provincial regulations, and local practices. Regulation 21 CFR 1040 of the U.S. Bureau of Radiological Health requires manufacturers to certify each laser product as Class I, II, III, or IV, depending upon the characteristics of the laser radiation emitted. In terms of health and safety, Class I products present the least hazard (none at all), while Class IV products present the greatest hazard.

CAUTION
Risk of eye damage
At all times when handling optical fibers, follow the safety procedures recommended by your company.

Read and follow the precautions below, to decrease the risk of exposure to laser radiation.

Although Nortel Networks optical products have a Class I certification, hazardous exposure to laser radiation could occur when fibers that interconnect system components are disconnected or broken. Certain procedures carried out during testing require the handling of optical fibers without dust caps, and therefore increase the risk of exposure. Exposure to either visible or invisible laser light could cause eye damage under certain conditions.

The caution label at the right appears on the optical interface card, near the optical connector, and should be complied with.

Caution
Avoid direct exposure to beam. Invisible light can blind. Keep all optical connectors capped.

Handling optical fibers

During service, maintenance, repair, or removal of cables or equipment, follow these rules:

- Avoid direct exposure to fiber ends or optical connector ends, where the laser signal can be accessed.
- Follow the manufacturer's instructions when using an optical test set. Incorrect calibration or control settings could result in hazardous levels of radiation.

Splicing optical fibers

During the splicing of any fiber cable, you may be required to look at the fibers using an eye loupe (a small magnifier). Take the following precautions:

- Prior to starting, power off all laser sources related to those fibers, and make sure the laser sources remain off (whether located at the central office, subscriber premises, or remote location).

- Prior to starting, disconnect any optical test sets from the fibers (whether locally or remotely connected).
- Use only the optical instruments approved by your company.

Repairing optical fibers

When there is an accidental break in the fiber feeder cable, take these steps:

- Notify both central-office personnel and field-repair personnel of the problem.
- Identify to central-office personnel which fibers have been damaged.
- Power off all laser sources related to the damaged fibers (whether located at the central office, subscriber premises, or remote location).

Equipment warning label

The equipment label is located in the top left corner of the back cover. It reads as follows:

> To be installed only in restricted access areas (dedicated equipment rooms, equipment closets, or the like) in accordance with articles 110-16, 110-17, and 110-18 of the National Electrical Code, ANSI/NFPA No. 70.

DS1 parameters

To provision a new system, you have to set the appropriate DS1 parameters. The DS1 parameters are:

- facility identifier
- line coding
- line build-out
- frame format
- alarm encoding
- synchronization mode
- performance monitoring

Facility identifier

The identifier for the facility.

Line coding

Line coding is a binary format that allows regenerative repeaters to distinguish valid input from line noise. You set the line coding parameter with one of three values:

- ami (alternate mark inversion)
- amizcs (ami zero code suppression)
- b8zs (bipolar 8-bit zero code)

ami (alternate mark inversion)

Alternate mark inversion (AMI) is a format whereby the binary value of 1, represented by a square wave (pulse), alternates between positive and negative polarity.

A DS1 signal that uses AMI line coding and appears at a DS1 interface is required to meet specific ones density standards. These standards require that at least one pulse be transmitted within any 8-bit sequence.

Since AMI does not provide any form of pulse density assurance, use the AMI line code with applications guaranteed to meet the standards.

For example, voice applications meet ones density requirements because of the consistent bit patterns that represent speech. However, computer data applications are not always guaranteed to meet ones density requirements because computer data is highly variable in size and content.

amizcs (ami zero code suppression)

AMI zero code suppression (amizcs) accommodates the ones density requirements. AMI zero code suppression requires inserting (at the DS1 source) a “1” in bit 7 of any all-zeros DS0 byte.

b8zs (bipolar 8-bit zero code)

Bipolar 8-bit zero code substitution (b8zs) accommodates the ones density requirements. This substitution requires inserting two intentional bipolar violations (BPVs) to break up long string of zeros. Use b8zs for most applications, unless connected to network elements (NEs) that do not support that line code.

Line build-out

Line build-out can be set to any of the following three values:

- short: 0 to 46 m (0 to 150 feet)
- medium: 47 to 137 m (151 to 450 feet)
- long: 138 to 200 m (451 to 655 feet)

Frame format

Framing provides the orderly organization of the bits in the 1.544 Mb/s DS1 signal. The format for framing can be set to any of the following four values:

- superframe
- extended superframe
- digital loop carrier
- null

superframe

A superframe contains 12 DS1 frames, with the 193rd bit in each frame used as a control bit, which supplies frame and signal management.

extended superframe

The extended superframe (extended) contains 24 DS1 frames, with the 193rd bit in each frame used as a control bit. Of the 24 control bits,18 bits are reserved for the evaluation of circuit performance, and 6 bits provide frame and signal management.

digital loop carrier

The digital loop carrier (dlc) setting is used mainly with TR-08 DS1s associated with span A.

null

The null setting ensures that no framing bits are added.

Alarm encoding

When an all ones signal is received, the facility output can be provisioned to send an all ones or an all zeros signal on the output port.

Synchronization mode

In a synchronous systems, all clocks are locked onto a reference frequency; the elements of the system are synchronized to this external clock. Synchronous systems allow single-state multiplexing and demultiplexing. The result is direct payload visibility. A byte-synchronous setting maps a DS1 into the payload capacity of a VT1.5 SPS so that downstream SONET NEs can identify and access (DS0 visibility) the carried 24 DS0 channels.

Asynchronous systems require bit stuffing because the bit rates vary from equipment to equipment. Therefore, an asynchronous setting has no direct payload visibility.

Performance monitoring

This parameter enables or disables performance monitoring on DS1 facilities.

System setup forms

This section contains setup forms that are designed to provide the technician with the information needed to complete the procedures in this document.

Before a technician begins the process of bringing up a new system, a network administrator should fill out these form with the information the technician will need to bring up the system. To prepare the information, make copies of the blank forms provided in this section.

Forms provided

The following forms have been provided. They are:

Form	Purpose	Page
OPC Setup Form	To provide information for commissioning an OPC.	1-23
CNet Tracking Form	To record CNet connections in a system.	1-24
Host Provisioning Setup Form	To provide information for provisioning hosts in a system.	1-25
Circuit Packs Setup Form	To indicate the circuit packs that must be inserted into a copper distribution shelf, the slots where the packs should be placed, and the related I/O cards for each pack.	1-26
Optical Measurements Setup Form	To record optical information for ABM and TBM shelves, as well as calculate span loss.	1-31
ESI Clock Information Setup Form	To record parameters to be used to set signal format, frame format, and line coding.	1-32
CDS Shelf Setup Form	To indicate the PEC codes for the line cards that must be inserted into a CDS shelf and the slots for those cards.	1-33
Network Elements Setup Form	To provide information needed to commission the network elements in a system.	1-34
DS1 Assignments Setup Form	To provide information needed to set up all DS1 assignments in a system.	1-35

Data definitions

Table 1-3 lists the data fields on the System Setup Form in alphabetical order and gives a brief description of each one.

Table 1-3
Data definitions

Data field	Description
Alarm encoding	Specifies whether the output of a facility is provisioned to send all 1s (ones) or all 0s (zeros) on the output port. Use 1s. Alphanumeric; 5 characters.
Alarm management (Point-to-point system only)	Indicates whether alarm management is provided for the individual network element (NE level) or for the network element (system level). - Sys view enables alarm banner; - NE view enables NE alarm banner.
Backup OPC alias (optional)	Use the OPC name followed by the letter B. Alphanumeric; 7 characters.
Backup OPC location (optional)	The location of the shelf in which the backup OPC resides.
Backup OPC name (optional)	The name of the backup OPC. The name must be unique to the network.
Backup OPC serial number (optional)	The serial number for the backup OPC.
Backup OPC time zone (optional)	The time zone code for the backup OPC (same as the primary OPC).
Default gateway	Used in setting up a LAN connection when the OPC is connected to a router. The gateway defaults to the IP address, or it can be the router address.
Facil. ID (optional)	The identifier for the facility. Alphanumeric; 38 characters maximum.
Frame format	Specifies the organization of the framing bits in the 1.544 mb/s DS1 signal. Use extended superframe. Alphanumeric; 10 characters.
Group	Identifier for a circuit pack group. A group contains a DS1/VT mapper in the lower level of the common equipment shelf and has two associated input/output cards in the upper level of the common equipment shelf.
Host name	The common language location identifier (CLLI) for the host office.

—continued—

Table 1-3 (continued)
Data definitions

Data field	Description
Host interface	Your options are: GR-303 DMS or GR-303 MVI.
IDT	Integrated digital terminal. Get this information from your switching administrator.
IG number	Interface group for integrated GR-303 links (1 to 5 values). Numeric; 1 character.
IP address	Internet protocol address, which is the network address associated with the OPC.
LBO	Line build out. Distance from the DS1 cross-connect. You have three options: - short (0-150 feet), - medium (150-450 feet), or - long (450-655 feet). Alphanumeric; 6 characters maximum.
Line coding	You have three options: B8ZS, AMI, or AMIZCS.
Link No.	Link number within the interface group.
NE location	The geographic location of the network element.
NE name	A unique network element name. The first character must be alpha, not numeric. 32 characters alphanumeric.
NE number	The identifier for the network element, which can be a number from 1 to 9999. This number must be unique to your network.
OPC present	Indicates whether an OPC will reside in this network element. Your options are: - No OPC, - Primary OPC, or - Backup OPC.
OPC span of control	A group of up to 16 network elements that are controlled by a primary OPC.
OPC span of control system name	The name of the group of up to 16 network elements that are controlled by a primary OPC.
Perf. mon.	Performance monitoring, which enables or disables performance monitoring statistics on the network element facilities. The default is enable; disable is the other option. Alphanumeric; 7 characters.
—continued—	

Table 1-3 (continued)
Data definitions

Data field	Description
Primary OPC alias	Use the OPC name followed by the letter P. 8 alphanumeric characters.
Primary OPC location	The network element in which the OPC resides.
Primary OPC name	The name of the primary OPC. Format is “OPCxxxx,” where xxxx is the OPC number.The name must be unique to your network. Alphanumeric; 7 characters.
Primary OPC serial number	The serial number for the primary OPC.
Primary OPC time zone	The time zone code for the primary OPC.
Port	The DS1 port on mapper 1 through 14.
Service assignment	The service that is to go to the facility. Your options are: Tandem, GR-303-DMS, GR-303 MVI, TR-08, VLCM, Data Direct, or unassigned.
Shelf serial number	The serial number for the shelf. The number is located in the upper right corner of the common equipment shelf.
Software version	The version of the software (for example, AN17).
System name (optional)	The name of the OPC span of control system. 32 characters, alphanumeric.
TIC port	Transport interface card (TIC) ports 1 through 28 on the terminated TIC.
TID	Terminal identifier, which is the name of the network element that is the target of a TL1 message. 20 characters, starting with alphanumeric.
Transmission rate	Transmission rate. Use OC-3/OC-12.
—end—	

Time zone codes

The following table lists time zones, their associated time zone codes, and their offsets from Greenwich Mean Time (GMT).

Table 1-4
Time zone codes and GMT offsets

Time zone	Country: region	Time zone code	GMT offset in minutes
Hawaiian Standard Time Hawaiian Daylight Time	United States: Hawaii	HST10	-600 -540*
Aleutian Standard Time Aleutian Daylight Time	United States: Alaska (parts)	AST10ADT	-600 -540*
Yukon Standard Time Yukon Daylight Time	United States: Alaska (parts)	YST9YDT	-540 -480*
Pacific Standard Time Pacific Daylight Time	Canada: British Columbia	PST8PDT#Canada	-480 -420*
Pacific Standard Time Pacific Daylight Time	United States: California, Idaho (parts), Nevada, Oregon (parts), Washington	PST8PDT	-480 -420*
Mountain Standard Time Mountain Daylight Time	Canada: Alberta, Saskatchewan (parts)	MST7MDT#Canada	-480 -360*
Mountain Standard Time Mountain Daylight Time	United States: Colorado, Idaho (parts), Kansas (parts), Montana, Nebraska (parts), New Mexico, North Dakota (parts), Oregon (parts), South Dakota (parts), Texas (parts), Utah, Wyoming	MST7MDT	-480 -360*
Mountain Standard Time Mountain Daylight Time	United States: Arizona	MST7	-420 -360*
Central Standard Time Central Daylight Time	Canada: Manitoba, Ontario (parts), Saskatchewan (parts)	CST6CDT#Canada	-360 -300*
Note: Offsets marked with an asterisk denote the network element offset that should be used when the Daylight Saving Time is observed in the corresponding region. Daylight Saving Time change is automatically updated by the software.			

—continued—

Table 1-4 (continued)
Time zone codes and GMT offsets

Time zone	Country: region	Time zone code	GMT offset in minutes
Central Standard Time Central Daylight Time	United States: Alabama, Arkansas, Florida (parts), Illinois, Iowa, Kansas, Kentucky (parts), Louisiana, Michigan (parts), Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, Tennessee (parts), Texas, Wisconsin	CST6CDT	-360 -300*
Central Standard Time Central Daylight Time	United States: Indiana (most)	EST5CDT	-300 -240*
Eastern Standard Time Eastern Daylight Time	Canada: Ontario (parts), Quebec (parts)	EST5EDT#Canada	-300 -240*
Eastern Standard Time Eastern Daylight Time	United States: Connecticut, Delaware, District of Columbia, Florida, Georgia, Kentucky, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee (parts), Vermont, Virginia, West Virginia	EST5EDT	-300 -240*
Atlantic Standard Time Atlantic Daylight Time	Canada: Newfoundland (parts), Nova Scotia, Prince Edward Island, Quebec (parts)	AST4ADT	-240 -180*
Newfoundland Standard Time Newfoundland Daylight Time	Canada: Newfoundland (parts)	NST3:30NDT	-210 -150*
Western European Time Western European Daylight Time	Great Britain, Ireland	WETOWETDST	0 60*
Note: Offsets marked with an asterisk denote the network element offset that should be used when the Daylight Saving Time is observed in the corresponding region. Daylight Saving Time change is automatically updated by the software.			
—continued—			

Table 1-4 (continued)
Time zone codes and GMT offsets

Time zone	Country: region	Time zone code	GMT offset in minutes
Portuguese Winter Time Portuguese Summer Time	Portugal	PWTOPST	0 60*
Middle European Time Middle European Daylight Time	Austria, Belgium, Bosnia-Herzegovina, Denmark, Croatia, Czech Republic, France, Germany, Hungary, Italy, Luxembourg, Poland, Slovakia, Slovenia, Spain, Sweden, Switzerland, Yugoslavia	MET-1METDST	60 120*
South Africa Standard Time South Africa Daylight Time	South Africa	SAST-2SADT	120 180*
Japan Standard Time	Japan	JST-9	540
Australian Western Standard Time	Australia: Western Australia	WST-8:00	480
Australian Central Standard Time	Australia: Northern Territory	CST-9:30	570
Australian Eastern Standard Time	Australia: Queensland	EST-10	600
Australian Central Standard Time Australian Central Daylight Time	Australia: South Australia	CST-9:30CDT	570 630*
Australian Eastern Standard Time Australian Eastern Daylight Time	Australia: New South Wales, Victoria	EDT-10EDT	600 660*
Note: Offsets marked with an asterisk denote the network element offset that should be used when the Daylight Saving Time is observed in the corresponding region. Daylight Saving Time change is automatically updated by the software.			
—end—			

OPC Setup Form

Date: _____

Network name: _____ **System name:** _____

System type: _____ **IP address:** _____

Software version: _____ **IP netmask:** _____

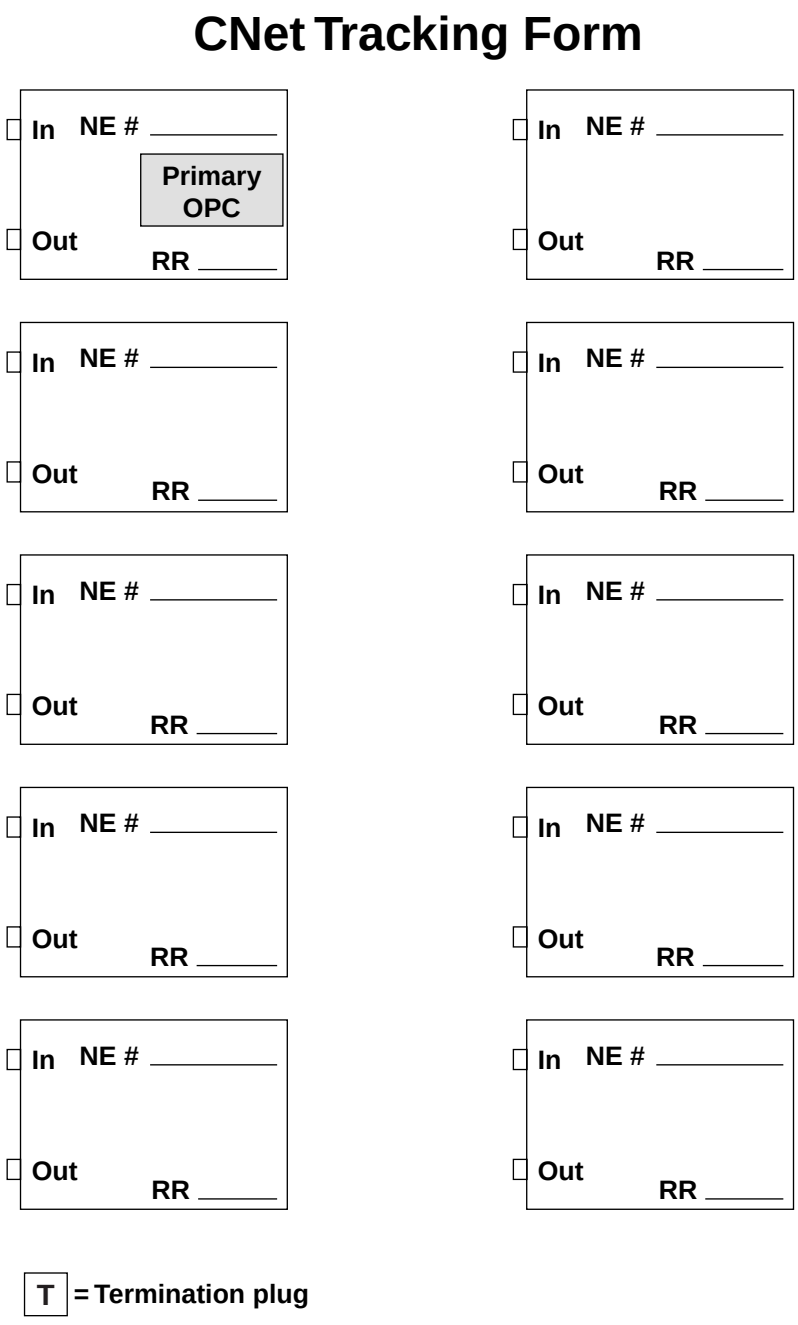
OPC span of control name: **Terminal identifier (TID):** _____
_____

Default gateway: _____

	OPC information	
	Primary OPC	**Backup OPC**
Name:		
Serial number:		
Alias:		
Time zone:		
Location:		

CNet Tracking Form

The CNet Tracking Form allows you to record the CNet connections on a system. To use the form, enter the network element number into the appropriate box, and draw lines to connect the In and Out ports.



Host Provisioning Setup Form

Host name	Host type	Integrated digital terminal (IDT) number	Interface group (IG) number
	- GR-303 DMS - GR-303 MVI		
	- GR-303 DMS - GR-303 MVI		
	- GR-303 DMS - GR-303 MVI		
	- GR-303 DMS - GR-303 MVI		
	- GR-303 DMS - GR-303 MVI		
	- GR-303 DMS - GR-303 MVI		
	- GR-303 DMS - GR-303 MVI		
	- GR-303 DMS - GR-303 MVI		
	- GR-303 DMS - GR-303 MVI		
	- GR-303 DMS - GR-303 MVI		

Circuit Packs Setup Forms

There are four Circuit Packs Setup Forms, two for the required circuit packs (TBM and ABM shelf), and two for the optional circuit packs (TBM and ABM shelf). To provide the technician with information about the circuit packs you want installed in the system, give the technician the appropriate forms.

Required circuit packs form

The Required Circuit Packs Form lists all the required circuit packs and the slots in which they must be installed. Some circuit packs have associated input/output cards that must also be installed in the appropriate input/output slots. This form has all the necessary information for a technician to install the circuit packs and the related I/O cards. The form does not require any preparation.

Optional circuit packs form

The Optional Circuit Packs Form lists all the optional circuit packs and the slots in which they can be installed. Some circuit packs have associated input/output cards that must also be installed in the appropriate input/output slots.

If you want one of the optional circuit packs to be installed, put a check mark in the “Install this card” column.

Required TBM Circuit Packs Form

Slot	Required circuit pack	PEC code	Associated input/output cards	PEC code	Input/output slot
1	DS1 mapper	NT7E04	DS1 In	NT4K32	30
			DS1 Out	NT4K33	32
3	Protection DS1 mapper	NT7E04	DS1 Protection Bridge	NT4K31	34
9	Fiber (G1)	NT7E01 (OC-3) NT7E02 (OC-12)	Not applicable	Not applicable	Not applicable
10	Fiber (G2)	NT7E01 (OC-3) NT7E02 (OC-12)	Not applicable	Not applicable	Not applicable
19	ESI carrier	NT7E19A	NT7E27A (2 cards)	NT7E19AA	19
19	ESI card			NT7E27DA	19
20	Maintenance interface card	NT4K53	Not applicable	Not applicable	Not applicable
21	Processor card (A)	NT4K52	Not applicable	Not applicable	Not applicable

Optional TBM Circuit Packs Form

Install this card	Slot	Optional circuit pack	PEC code	Associated input/output cards	PEC code	Input/output slot
	5	DS1 mapper or OPC ***Note:*** If an OPC is used, it occupies slots 5 through 8.	NT7E04 or NT7E24	Not applicable	Not applicable	Not applicable
	6	DS1 mapper or OPC ***Note:*** If an OPC is used, it occupies slots 5 through 8.	NT7E04 or NT7E24	Not applicable	Not applicable	Not applicable
	7	DS1 mapper or OPC ***Note:*** If an OPC is used, it occupies slots 5 through 8.	NT7E04 or NT7E24	Not applicable	Not applicable	Not applicable
	8	DS1 mapper or OPC ***Note:*** If an OPC is used, it occupies slots 5 through 8.	NT7E04 or NT7E24	Not applicable	Not applicable	Not applicable
	22	Processor card (B)	NT4K52	Not applicable	Not applicable	Not applicable

Required ABM Circuit Packs Form

Slot	Required circuit pack	PEC code	Associated input/output cards	PEC code	Input/output slot
1	DS1 mapper	NT7E04	DS1 In	NT4K32	30
			DS1 Out	NT4K33	32
3	Protection DS1 mapper	NT7E04	DS1 Protection Bridge	NT4K31	34
			DS1 Protection Bridge	NT4K31	36
9	Fiber (G1)	NT4K75	Not applicable	Not applicable	Not applicable
10	Fiber (G2)	NT4K75	Not applicable	Not applicable	Not applicable
11	Transport interface card (A)	NT4K56	Not applicable	Not applicable	Not applicable
13	Access interface card (A)	NT4K55	Not applicable	Not applicable	Not applicable
14	Transport interface card (B)	NT4K56	Not applicable	Not applicable	Not applicable
16	Access interface card (B)	NT4K55	Not applicable	Not applicable	Not applicable
17	Processor card (A)	NT4K52	Not applicable	Not applicable	Not applicable
18	Processor card (B)	NT4K52	Not applicable	Not applicable	Not applicable
19	Maintenance interface card	NT4K53	Not applicable	Not applicable	Not applicable
20	Test access card	NT4K54	Not applicable	Not applicable	Not applicable

Optional ABM Circuit Packs Form

Install this card	Slot	Optional circuit pack	PEC code	Associated input/output cards	PEC code	Input/output slot
	2	DS1 mapper	NT7E04	DS1 In	NT4K32	31
				DS1 Out	NT4K33	33
	4	DS1 mapper	NT7E04	DS1 In	NT4K32	35
				DS1 Out	NT4K33	37
	5	DS1 mapper or OPC ***Note:*** If an OPC is used, it occupies slots 5 through 8. The input/output information is then not applicable.	NT7E04 or NT7E24	DS1 In	NT4K32	38
				DS1 Out	NT4K33	40
	6	DS1 mapper or OPC ***Note:*** If an OPC is used, it occupies slots 5 through 8. The input/output information is then not applicable.	NT7E04 or NT7E24	DS1 In	NT4K32	39
				DS1 Out	NT4K33	41
	7	DS1 mapper or OPC ***Note:*** If an OPC is used, it occupies slots 5 through 8. The input/output information is then not applicable.	NT7E04 or NT7E24	DS1 In	NT4K32	42
				DS1 Out	NT4K33	43
	8	DS1 mapper or OPC ***Note:*** If an OPC is used, it occupies slots 5 through 8. The input/output information is then not applicable.	NT7E04 or NT7E24	DS1 In	NT4K32	44
				DS1 Out	NT4K33	45
	12	This slot is not used.	Not applicable	Not applicable	Not applicable	Not applicable
	15	This slot is not used.	Not applicable	Not applicable	Not applicable	Not applicable
	21	Integrated remote test unit	NT4K57	Not applicable	Not applicable	Not applicable

Optical Measurements Setup Form

TBM Shelf

			TX	**RCV**
G1	OC-3/OC-12	S/N	a.	b.
G2	OC-3/OC-12	S/N	c.	d.

ABM Shelf

			TX	**RCV**
G1	OC-3/OC-12	S/N	e.	f.
G2	OC-3/OC-12	S/N	g.	h.

Span Loss

TBM > ABM	ABM > TBM
Span G1 a - f =	e - b =
Span G2 c - h =	g - d =

ESI Clock Information Setup Form

To provision the ESI BITSA and BITSB parameter for the selected facility, complete the instructions in the following table.

Parameter	Value
signal format (DS1 or CC)	
frame format (superframe or extended)	
line coding (B8ZS or AMI)	

CDS Shelf Setup Form

Complete this form by filling in the code for the card that will occupy each slot; for example, E2WS (Epsilon) or O4WS (four-wire Omega).

Back of shelf							
Bottom		Top		Bottom		Top	
1			2	47			48
3			4	45			46
5			6	43			44
7			8	41			42
9			10	39			40
11			12	37			38
13			14	35			36
15			16	33			34
17			18	31			32
19			20	29			30
21			22	27			28
23			24	25			26
Bottom		Top		Bottom		Top	
Front of shelf							

Left drawer

Back of shelf							
Bottom		Top		Bottom		Top	
49			50	95			96
51			52	93			94
53			54	91			92
55			56	89			90
57			58	87			88
59			60	85			86
61			62	83			84
63			64	81			82
65			66	79			80
67			68	77			78
69			70	75			76
71			72	73			74
Bottom		Top		Bottom		Top	
Front of shelf							

Right drawer

Network Elements Setup Form

NE number	NE name	NE location	Shelf serial number	Software version	Transmission Rate	Is an OPC present?
						- No OPC - Primary OPC - Backup OPC
						- No OPC - Primary OPC - Backup OPC
						- No OPC - Primary OPC - Backup OPC
						- No OPC - Primary OPC - Backup OPC
						- No OPC - Primary OPC - Backup OPC
						- No OPC - Primary OPC - Backup OPC
						- No OPC - Primary OPC - Backup OPC
						- No OPC - Primary OPC - Backup OPC

DS1 Setup Form

NE number: _____

NE name: _____

NE location: _____

DS1 Service Assignments

End point A		End point Z				
Group (default = 3 or 4)	**Port**	**TIC**	**Subport**	**Service Assignment**	**IG**	**RDT Link No.**
3	1	1	1			
3	2	1	2			
3	3	1	3			
3	4	1	4			
3	5	1	5			
3	6	1	6			
3	7	1	7			
3	8	1	8			
3	9	1	9			
3	10	1	10			
3	11	1	11			
3	12	1	12			
3	13	1	13			
3	14	1	14			
4	1	1	15			
4	2	1	16			
4	3	1	17			
4	4	1	18			
4	5	1	19			

4	6	1	20			
4	7	1	21			
4	8	1	22			
4	9	1	23			
4	10	1	24			
4	11	1	25			
4	12	1	26			
4	13	1	27			
4	14	1	28			

DS1 Parameters

Group (default = 3 or 4)	Port	Facil. ID	Line Coding	Frame Format	Alarm Encoding	Synch. mode	Line build out	Perf. mon.
3	1							
3	2							
3	3							
3	4							
3	5							
3	6							
3	7							
3	8							
3	9							
3	10							
3	11							
3	12							
3	13							
3	14							
4	1							
4	2							
4	3							

4	4							
4	5							
4	6							
4	7							
4	8							
4	9							
4	10							
4	11							
4	12							
4	13							
4	14							

Powering up the equipment

Use the procedures in this chapter to install and power up the common equipment prior to commissioning.

Chapter task list

This chapter includes the following tasks.

Procedure 2-1
Inspecting the network element (TBM shelf)

Use this procedure to visually inspect the network element that is equipped with an TBM shelf.

Note: For proper electromagnetic interference (EMI) protection, the shelf cover must be replaced after you have finished the procedure.

Requirements

The following requirements must be met before starting this procedure:

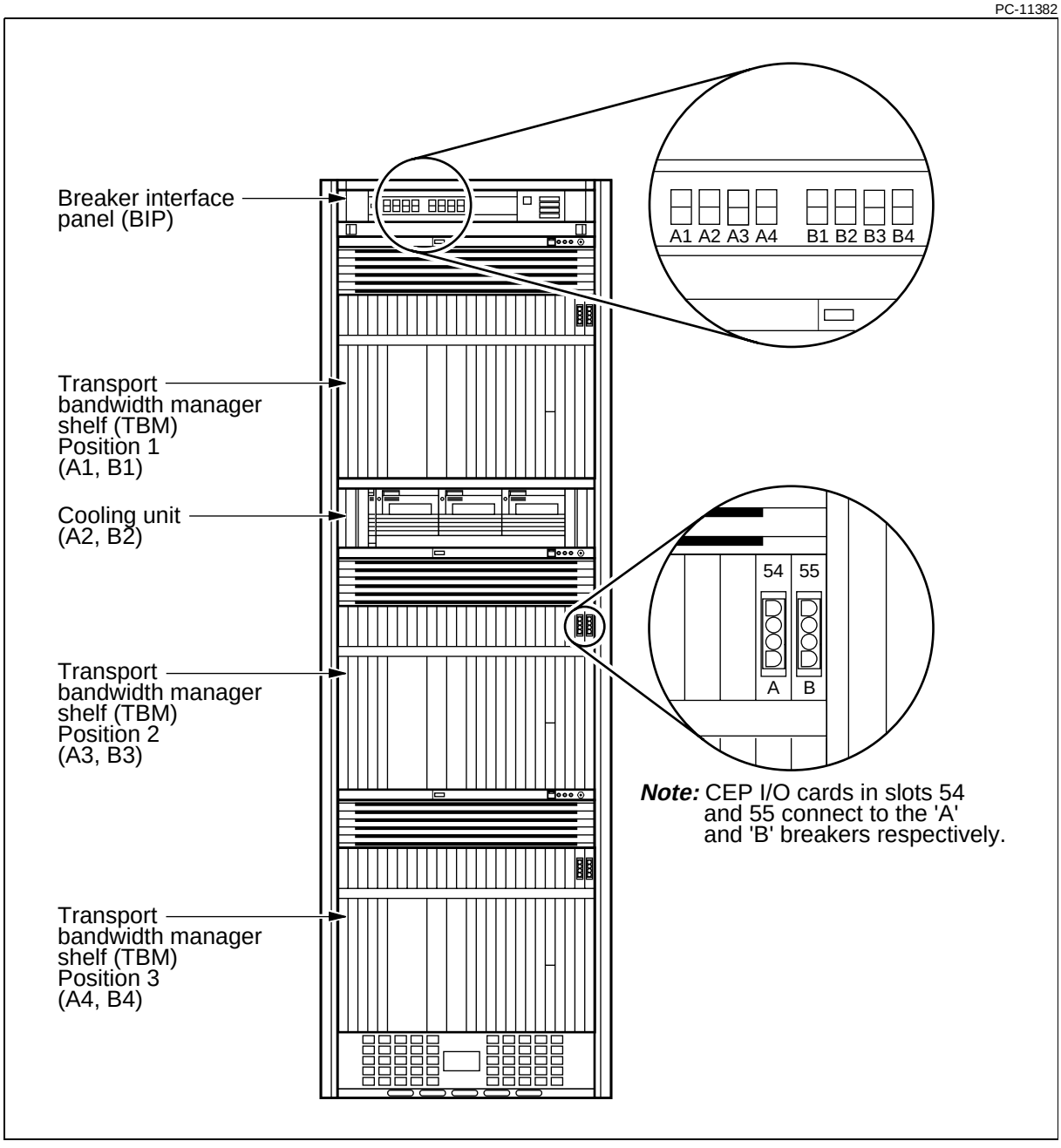
- obtain adequate lighting, such as an approved portable work light.
- make sure the system is not in service.

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel and equipment.

—continued—

Procedure 2-1 (continued)
Inspecting the network element (TBM shelf)

Figure 2-1
TBM configuration



—continued—

Procedure 2-1 (continued)
Inspecting the network element (TBM shelf)

Step	Action

1 Locate the TBM bay. Refer to Figure 2-1 on page 2-3.

If the shelf is	Then
the only TBM shelf in the bay	Remove the BIP cover and set all the circuit breakers on the BIP to the 0 position. Go to step 2.
in a bay with other powered shelves	Remove the BIP cover and set the circuit breakers on the BIP for the new point-to-point components *only*, to the 0 position. Use the table listed below to determine which breakers to set.

TBM shelf position	TBM shelf circuit breakers
1	A1 and B1
2	A3 and B3
3	A4 and B4
Note: The cooling unit circuit breakers are designated A2 and B2	

2 Is the AccessNode equipment installed at a central office and connected to the office alarm system?

If	Then
yes	go to step 3
no	go to step 4

3 Deactivate the visible and audible alarms by locating the TBM shelf in the bay and removing the office alarm fuses that are located elsewhere in the central office.

—continued—

Procedure 2-1 (continued)
Inspecting the network element

Step	Action
4	Remove the remaining cover while conducting tests. Refer to *Routine Maintenance Procedures,* 323-3001-546, in *Maintenance,* Volume 5C for the procedure on removing the TBM shelf cover.
5	Examine all shelf backplanes (inside and outside) for warping, cracking, or bent pins.

CAUTION
Risk of equipment damage
During initial setup of the system, Nortel Networks recommends that the equipment side remains disconnected from the outside plant subscriber loops (at the protection modules) until the line cards are installed and powered up. For example, when using five-pin protector modules, pull the modules out slightly, to the first detent position.

CAUTION
Risk of processor reboot failure
Make sure the I/O cards are correctly installed to prevent processor reboot failure.

6	Check that all cable connections and mechanical connections are secure for each of the following: • breaker interface panel (BIP) • TBM shelf, including both the main shelf and upper shelf having the input/output (I/O) cards • cooling unit (bay configuration) or cable organizer panel cooling unit (COPCU on the multiple-shelf enhanced TBM bay) • local craft access panel (LCAP) • air filter for TBM shelf • alarm leads (to office alarms, if required) • ground connections from the AccessNode bay to the office ground system are installed according to the chapter that describes power and ground distribution, in *Site Installation Planning and Engineering*, 323-3001-200, in *Engineering, Configuration, and Ordering Guide,* Volume 1.
7	Repeat this procedure for any other TBM shelves.

—end—

Procedure 2-2
Verifying power at the BIP (TBM shelf)

This procedure verifies that

- power is connected at the breaker interface panel (BIP).
- power is present at the BIP in the correct voltage and polarity.
- voltage is supplied at the two power feeds: once with the BIP circuit breakers open and again with the BIP circuit breakers closed.

Requirements

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel and equipment.

The following requirements must be met before starting this procedure:

- complete installation of the –48 V dc power feeds from the central office –48 V dc battery distribution fuse bay (BDFB) or power distribution frame to the BIP at the top of the system frame.
- make sure there are no circuit packs in the shelf. (If there are circuit packs in the shelf, they should not be inserted into the backplane connectors.)

Tools and materials

The following equipment is required:

- one digital multimeter, for example, Fluke 85
- one small flat-head (slotted) screwdriver 0.10 inch
- electronically-safe stepladder

Action

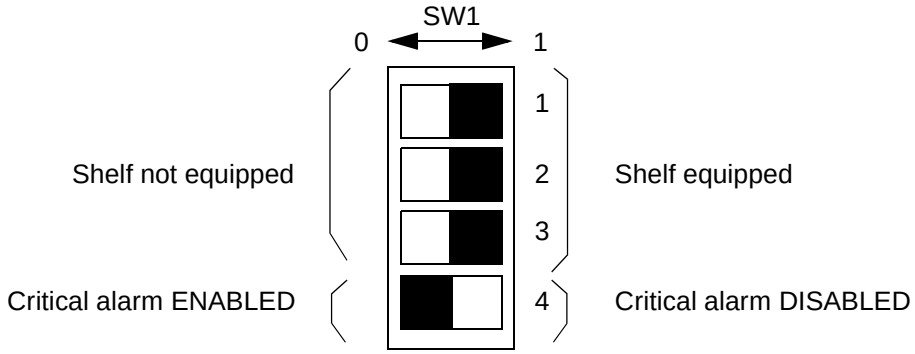
Step	Action
	Note: Ensure the TBM alarming is enabled in the bay BIP by checking the BIP dip switches.

—continued—

Procedure 2-2 (continued)
Verifying power at the BIP (TBM shelf)

Step	Action
1	Set DIP switches on the TBM BIP, as shown in Figure 2-2.

Figure 2-2
Configuring the TBM BIP



Switch section SW1	Setting
1	If shelf position #1 is equipped, set to position 1, otherwise set to position 0.
2	If shelf position #2 is equipped, set to position 1, otherwise set to position 0.
3	If shelf position #3 is equipped, set to position 1, otherwise set to position 0.
4	If critical alarms are to be transmitted to the central office, set to position 0. *Note*: This switch enables the critical office alarms. During installation, set this switch to the disabled position (1). When installation is complete, set this switch to the enabled position (0).

—continued—

Procedure 2-2 (continued)
Verifying power at the BIP (TBM shelf)

Step	Action
2	Determine whether or not there are powered TBM shelves in the same bay as the TBM shelf you are commissioning.

If the shelf is	Then
the only TBM shelf in the bay	go to step 3
in a bay with powered TBM shelves	go to the next procedure

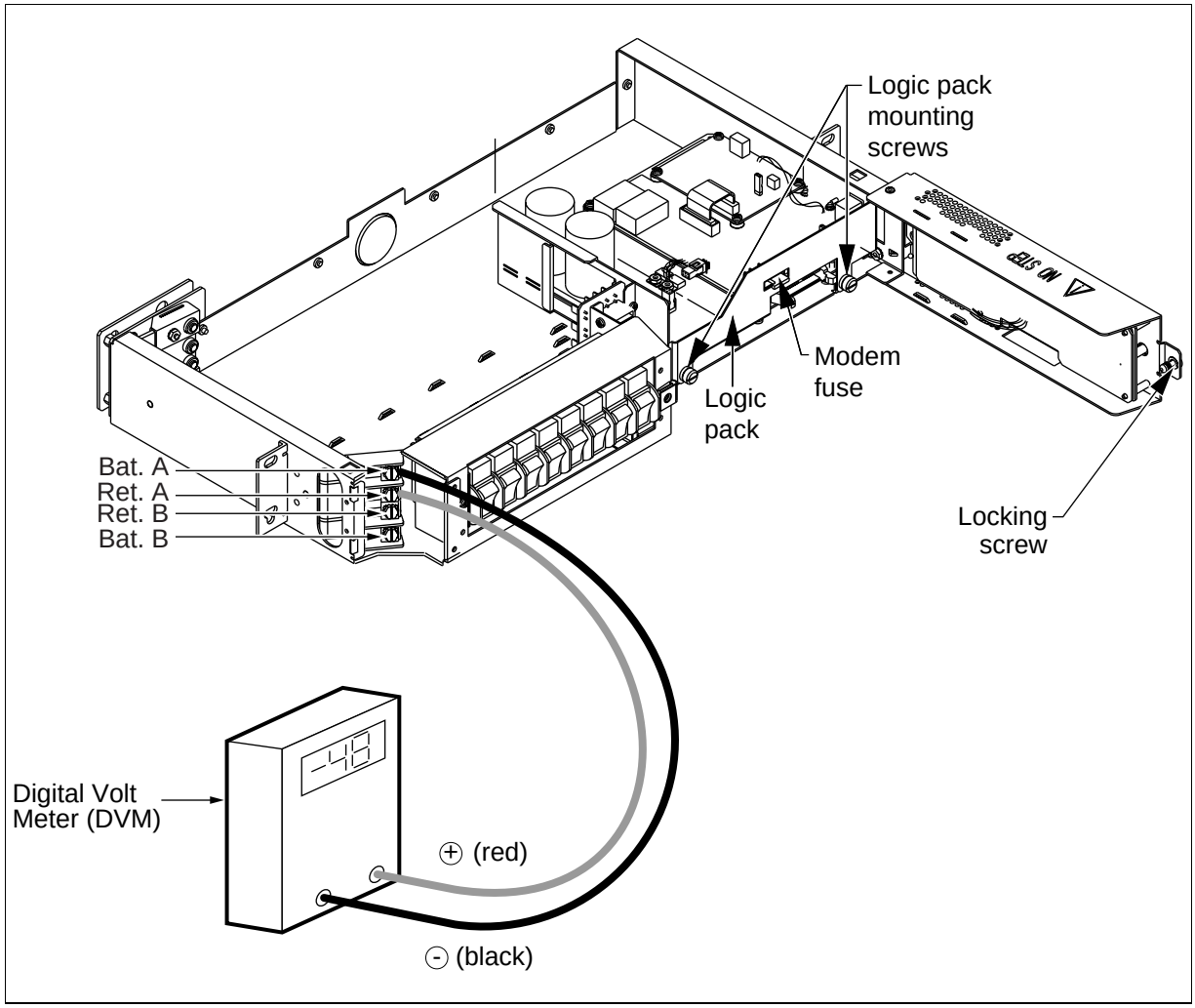
3	Locate the locking screw in the center of the front section of the BIP. Use the small flat-head screwdriver to release the locking screw by turning it counterclockwise. See Figure 2-3 on page 2-9. Swing open the hinged panel.
4	If the power is not already on, apply power to both A and B power feeds by inserting the fuses or switching the breakers to the on position at the battery distribution fuse bay (BDFB).
5	Use the digital multimeter to measure the voltage and polarity of the A feed at the BIP power terminal block. Note the polarity in Figure 2-3.

—continued—

Procedure 2-2 (continued)
Verifying power at the BIP (TBM shelf)

Step	Action

Figure 2-3
Connecting a multimeter



—continued—

Procedure 2-2 (continued)
Verifying power at the BIP (TBM shelf)

Step	Action

6 Refer to Figure 2-3 on page 2-9. Record the result.

BIP Power terminal blocks	Required voltage reading	Results step 5	Results step 9
Across A– and A+	–48 to –56 V		
Across B– and B+	–48 to –56 V		

7 Repeat steps 5 and 6 for the B feed.

8 Set the A circuit breaker to the on (1) position at the BIP.

9 Measure the voltage on the A feed at the BIP power terminal block. Record the result.

Requirement: The voltage measurement is the same, or nearly the same, as the voltage measured in step 5. The measurement should be within +/- 5 V.

10 Open the A circuit breaker.

11 Set the B circuit breaker to the on (1) position at the BIP.

12 Measure the voltage on the B feed at the BIP power terminal block. Record the result.

13 Open the B circuit breaker.

14 Disconnect power from the A and B feeds at the BDFB.

15 Close the hinged panel on the BIP and re-set the locking screw by turning it clockwise with the small flat-head screwdriver.

—end—

Procedure 2-3
Inserting circuit packs (TBM shelf)

Use this procedure to place the common-equipment circuit packs in the transport bandwidth manager (TBM) shelf at a fiber central office terminal (FCOT).

The FCOT shelf function supports DS1, DS3, and OC-3 tributaries. However, due to slot limitations, not all of these can be supported on the same shelf. Refer to *Mapper Layouts Planning Guide*, 323-3001-154, in *Engineering, Configuration, and Ordering Guide,* Volume 1.

Setup form

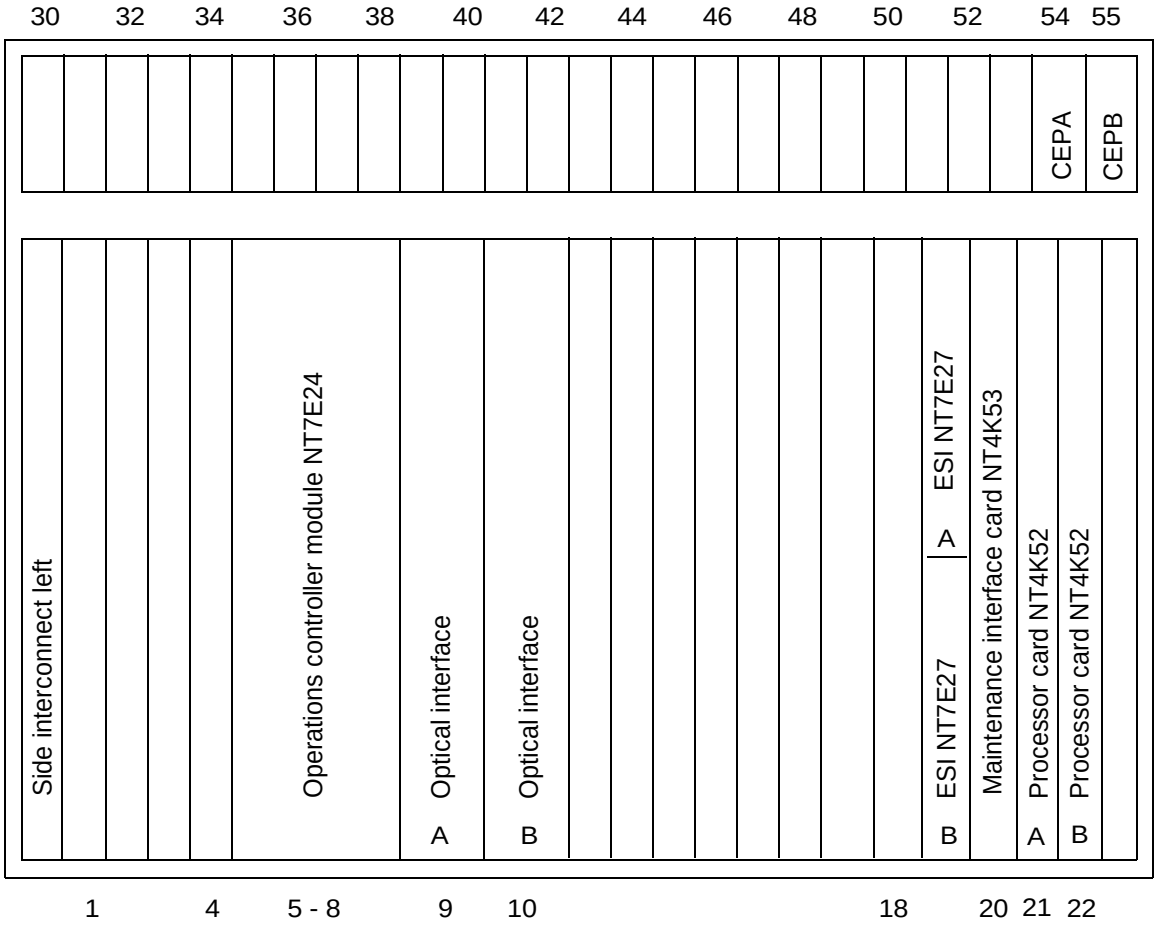
To determine the required circuit packs, see the Required TBM Circuit Packs Form in Chapter 1 prepared by your system administrator.

Table 2-1
Circuit pack product engineering codes (PECs)

Circuit Pack	PEC	Possible slot #(s)	Name on card
Common equipment power	NT4K58MA	54, 55	CE PWR
DS1 input card	NT4K32	30, 31, 35, 38, 39, 42, 43	DS1 IN
DS1 output card	NT4K33	32, 33, 37, 40, 41, 44, 45	DS1 OUT
DS1 protection bridge card	NT4K31	34, 36	DS1 Prot Bridge
DS1 mapper	NT7E04	1, 2, 3, 4, 5, 6, 7, 8	DS1 Sync VT Mapper
Maintenance interface card (MIC)	NT4K53	20	Maint IF
ESI carrier	NT7E19AA	19	
ESI cards	NT7E27DA	ESI carrier in 19	
Operations controller module (OPC)	NT7E24	5-8	OPC Module
Processor card	NT4K52	21, 22	Proc
OC-3/OC-12	NT7E01 (OC-3) NT7E02 (OC-12)	9, 10	OC-3 OC-12

Procedure 2-3 (continued)
Inserting circuit packs (TBM shelf)

Figure 2-4
TBM/FCOT circuit pack layout in fiber-fed systems



Note 1: Slots 1 to 4 and 11 to 18 are allocated for DS1/VT, DS3 mappers, or OC-3 tributaries.

Note 2: Slots 9 and 10 are allocated for OC-3/OC-12 circuit packs in point-to-point systems.

—continued—

Procedure 2-3 (continued)
Inserting circuit packs (TBM shelf)

Step	Action
1	The steps below guide you through inserting circuit packs in a TBM shelf. Skip the steps you do not need to perform if the circuit pack is not required for your system.
2	If this shelf does not house the primary OPC, verify that the CNET cables have been run.

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel and equipment.

3	Verify that input and output cards are already installed in the I/O section, as described in the *Bay in Central Office Installation Manual—TBM*, 323-3001-202 and that all cables are installed, except the OPC Ethernet cable, NT4K86L series.

CAUTION
Service-affecting action
Do not place an OC-3 optical pack into slots 17 or 18 if the TBM shelf has any DS1 lines. Doing so may cause DS1 traffic to be lost.

Slots 17 and 18 share the backplane with DS1 protection slots and placing the OC-3 optical pack in these slots interrupts the DS1 clock signals.

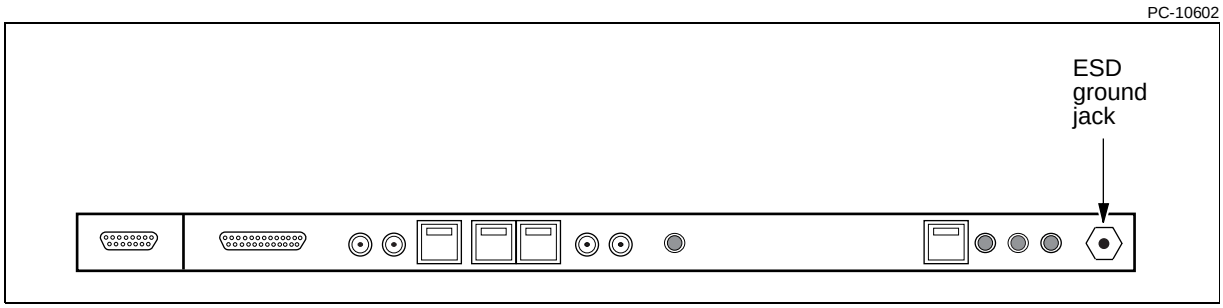
Note: Figure 2-4 on page 2-12 shows the circuit pack layout for fiber-fed systems.

—continued—

Procedure 2-3 (continued)
Inserting circuit packs (TBM shelf)

Step	Action
4	Put on the antistatic wrist strap and make sure it is properly grounded to the electrostatic discharge (ESD) jack on the local craft access panel (LCAP) as shown in Figure 2-5 below.

Figure 2-5
LCAP for the transport bandwidth manager shelf



Inserting the processor (Proc) circuit packs

5 Carefully unwrap the Proc circuit packs and check for physical damage. Replace any damaged circuit packs. Do this for all circuit packs.

6 With the top and bottom latches in the closed position, place the Proc circuit pack(s) into slots 21 and 22 in the TBM shelf. Leave the Proc circuit packs(s) disengaged.

Note: A circuit pack is in the disengaged position when the closed latches prevent full insertion of the circuit pack into the back plane slot. Do not force the circuit pack when you insert it. Apply pressure upwards to release the latches and then push out. Push the circuit pack only as far as the closed latches allow it to go.

CAUTION
Risk of equipment damage
Do not install the shelf cover with the circuit packs in the disengaged position as damage to circuit packs can result.

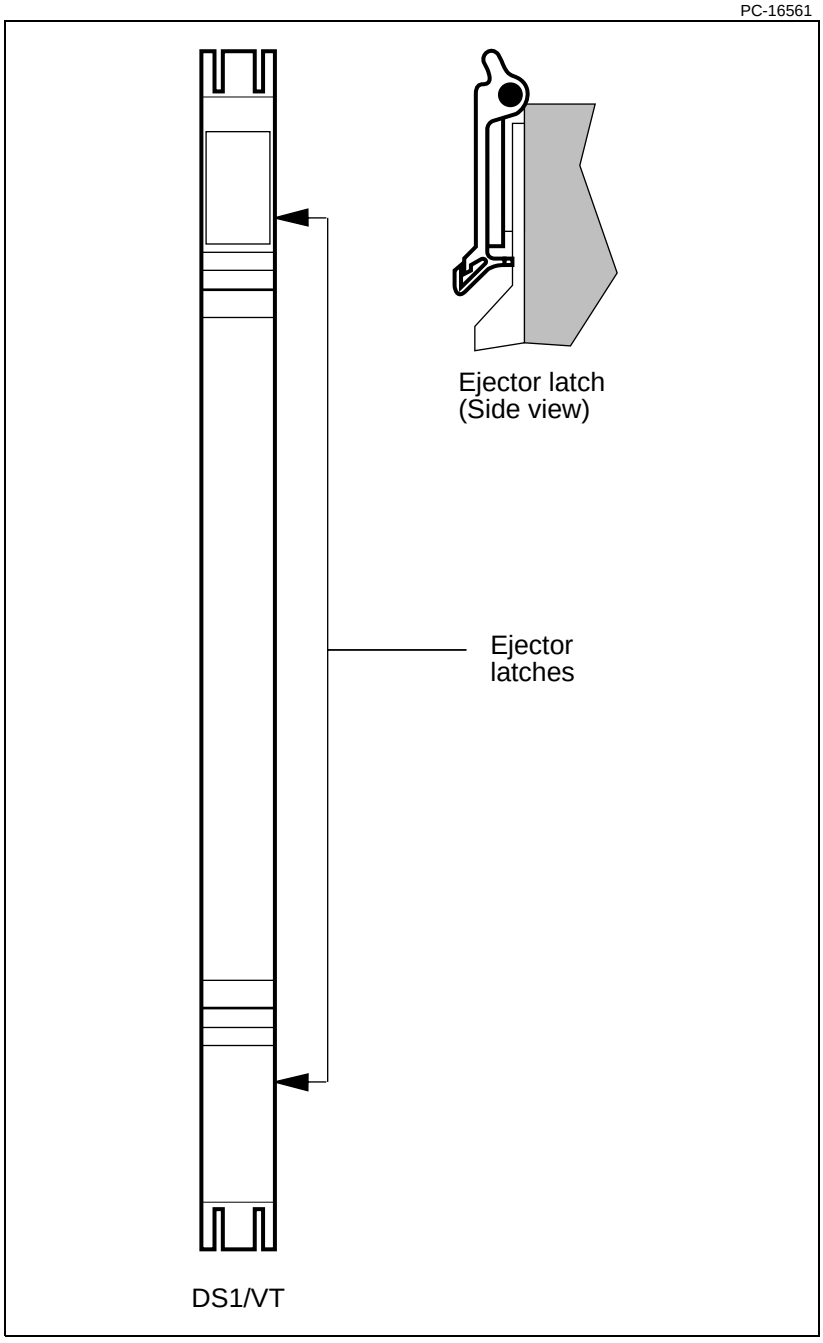
7 With the latches in the closed position, place the MIC in slot 20 of the TBM shelf. Leave the MIC disengaged.

—continued—

Procedure 2-3 (continued)
Inserting circuit packs (TBM shelf)

Step	Action

Figure 2-6
Circuit pack latches



—continued—

Procedure 2-3 (continued)
Inserting circuit packs (TBM shelf)

Step	Action
8	Write down the serial number shown on the right side of the operations controller (OPC) near the bottom of the motherboard, on the OPC Setup Form in Chapter 1. You will need it later in the Commissioning section.
9	If the primary OPC is not in the TBM shelf to be commissioned, run a CNET cable.
10	If a backup OPC, or no OPC, is to be installed in the TBM shelf, ensure a CNET cable runs from the primary OPC shelf to the TBM shelf.
11	If the TBM shelf is to house a backup OPC, do not install at this time. The backup OPC will be installed after the point-to-point system is in service, using Procedure 6-1.
12	If it is not already connected, connect a CNET cable (NT7E44JC/JK) from the CNET port on the left side of the primary OPC shelf to the CNET port of the backup OPC shelf. Ensure that the CNET termination connectors (NT7E5072) are inserted into the unused CNET ports on the left side of the primary and backup OPC shelves.

CAUTION
Risk of equipment damage
The OPC is very heavy, so handle it carefully to avoid dropping it or damaging equipment guides.

13	With the latches in the closed position carefully place the primary OPC in slots 5 to 8, but leave it disengaged. If the Ethernet cable is installed, plug its connector into the Ethernet jack on the faceplate of the OPC.
14	With the latches in the closed position, carefully place the two OC-3, or two OC-12 interface circuit packs (depending on your configuration) in slots 9 and 10, but leave them disengaged. ***Note:*** You should connect the fiber optic cables to the OC-3/OC-12 circuit packs.

—continued—

Procedure 2-3 (continued)
Inserting circuit packs (TBM shelf)

Step	Action

DS1, DS3, and OC-3 tributaries

15 With the latches in the closed position, carefully place each required DS1 or DS3 mapper, or OC-3 tributaries (if applicable) into its slot, but leave it disengaged. The mapper layout forms show where mapper circuit packs should be installed.

TBM/FCOT	ABM/RFT
G1 XMIT	G1 RCV
G1 RCV	G1 XMIT
G2 XMIT	G2 RCV
G2 RCV	G2 XMIT

Note: TR-08 services require both working and protection DS1 mappers to be of the type NT7E04CA (or later), otherwise a circuit pack mismatch alarm will occur. To avoid this alarm, make sure the first NT7E04CA mapper is placed in the shelf as the protection mapper.

CAUTION
If you have a fiber-fed system that is not provisioned for maximum DS1/DS3 capacity and you plan to expand from a DS1 or DS3 configuration to a DS1/DS3 mix configuration in the future, the mappers should be installed in specific slots. This avoids unnecessary removal and retesting of the circuit packs at a later date.

16 Insert the ESI carrier card into slot 19 and insert the ESI cards into the carrier, but leave them disengaged.

17 Check that all circuit packs required for your configuration are placed in their correct slots.

18 Update the utility card located in the TBM shelf cover between the handles. Record information pertinent to your system.

—end—

Procedure 2-4
Powering up the common equipment (TBM shelf)

To avoid damage to the equipment use this procedure when powering up the transport bandwidth manager (TBM) shelf. The following list describes the objectives of this procedure:

- verify A and B power supply wiring between the breaker interface panel (BIP) and the common-equipment shelf.
- make sure each A and B power supply can independently power the shelf.
- verify cooling unit operation where applicable.

Requirements

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel and equipment.

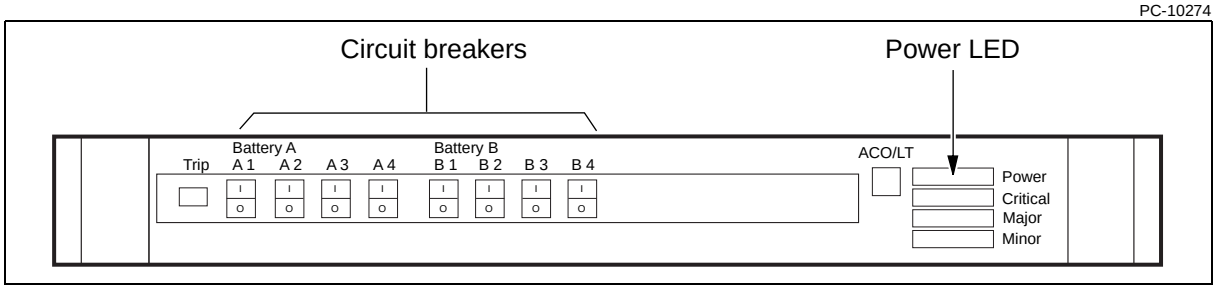
CAUTION
Risk of equipment damage
If the common-equipment shelf has an OPC module and is powered down without first performing the OPC shutdown procedure, the OPC disk drive could be damaged.

CAUTION
Service-affecting action
Do not place an OC-3 optical pack into slots 17 or 18 if the TBM shelf has any DS1 lines. Doing so can cause DS1 traffic to be lost.This is because slots 17 and 18 share the backplane with DS1 protection slots and placing the OC-3 optical pack in these slots interrupts the DS1 clock signals.

—continued—

Procedure 2-4 (continued)
Powering up the common equipment (TBM shelf))

Figure 2-7
BIP for the TBM shelf



Action

Step	Action

1 Put on the antistatic wrist strap and make sure it is properly grounded to the electrostatic discharge (ESD) jack on the local craft access panel (LCAP) adjacent to the right end-guard as shown in Figure 2-7 above.

If the TBM shelf is	Then go to
the only powered TBM shelf in the bay	At the dc power source (battery distribution fuse bay, power distribution panel or modular power package), close the circuit breakers that supply power to the BIP on this bay. Continue to step 2.
in a bay with other powered TBM shelves	Continue to step 2.

2 On the new TBM common-equipment shelf, fully engage the Proc circuit packs as follows:

a. Pull open the top and bottom latches on the circuit pack.

b. Insert the circuit pack, close the latches, and seat the circuit pack to engage it on the backplane connector.

A circuit pack is engaged when it is fully inserted, with its latches closed.

—continued—

Procedure 2-4 (continued)
Powering up the common equipment (TBM shelf)

Step **Action**

CAUTION
Risk of equipment damage
When seating the circuit pack on the backplane pins, do not force the circuit pack, as that can damage the pins. If you have trouble seating the circuit pack, check that it is in the right slot. If it is in the right slot, pull the circuit pack back out, and try again to seat it, pressing gently.

3 Disconnect the B modular power connector on the CEP I/O card located in I/O slot 55 of the common-equipment shelf. See Figure 2-8 on page 2-21 and Table 2-2 on page 2-33 for the location of these slots on the shelf.

4 Fully engage the maintenance interface card (MIC) circuit pack.

5 Close only the A circuit breaker associated with the shelf position by moving it to the 1 position (see table below).

TBM shelf position	TBM shelf circuit breakers
1	A1 and B1
2	A3 and B3
3	A4 and B4
Note: The cooling unit circuit breakers are designated A2 and B2	

6 Verify that power is being supplied to the shelf by observing the MIC and Proc LED activity. The shelf position/circuit breaker association is given in the following table and in Figure 2-8.

If	Then go to
there is NO LED lamp activity	step 7
at least one LED lamp lit up	step 9

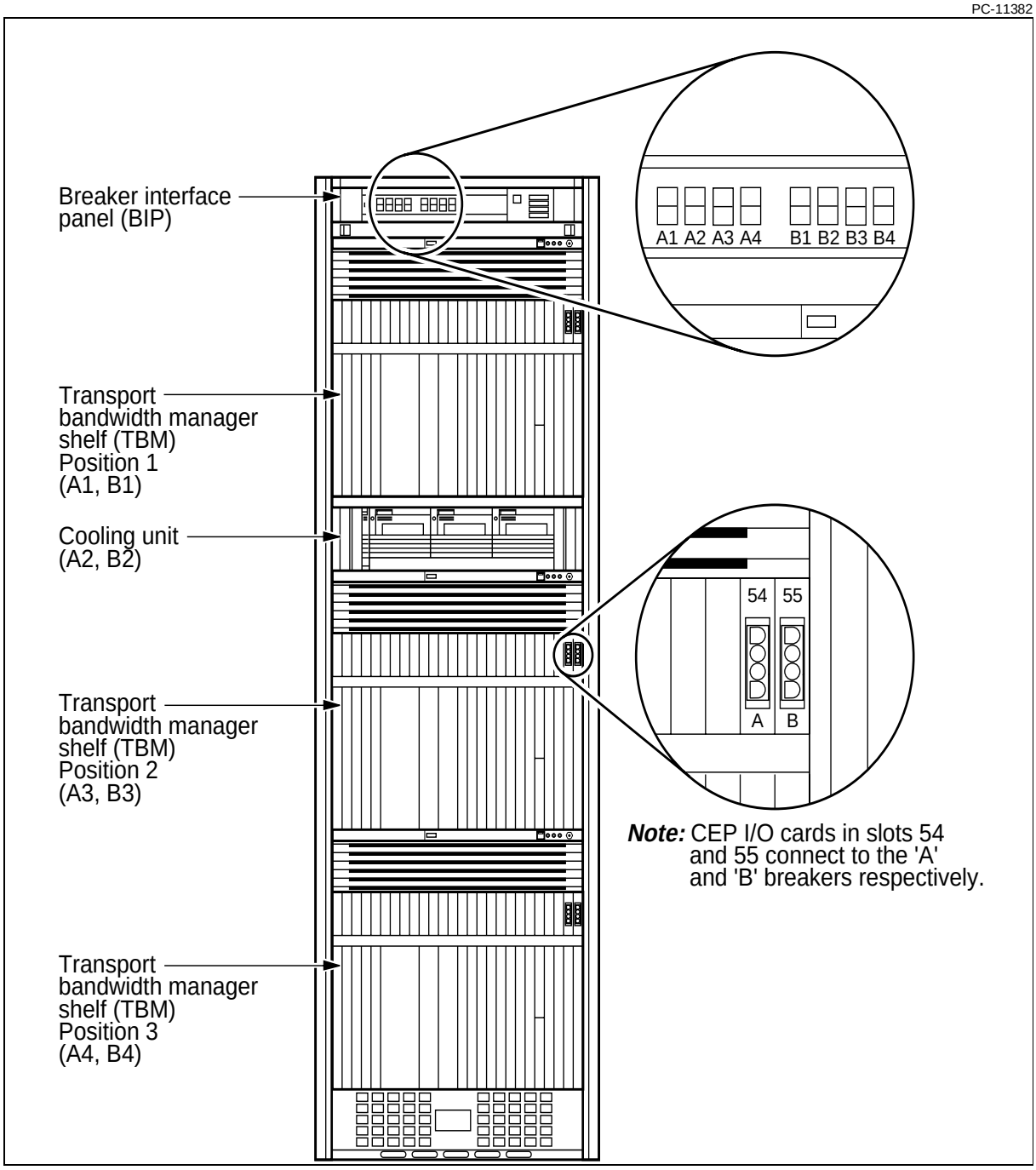
Note: It is not the intent of this procedure to make sure specific LEDs light up, but to verify that power is being applied to the shelf. In fact, the actual LED indicator(s) should be ignored since the system is not yet commissioned.

—continued—

Procedure 2-4 (continued)
Powering up the common equipment (TBM shelf)

Figure 2-8
Association between the TBM shelf position and the TBM shelf circuit breakers

PC-11382



Note: CEP I/O cards in slots 54 and 55 connect to the 'A' and 'B' breakers respectively.

—continued—

Procedure 2-4 (continued)
Powering up the common equipment (TBM shelf)

Step	Action
7	Make sure the CEP I/O card in slot 54 is connected to the A breaker and that the CEP I/O card in slot 55 is connected to the B breaker.
8	Repeat steps 5 and 7.
9	Once the MIC and Proc LEDs are verified, open the circuit breaker that was closed in the previous step.
10	Reconnect any disconnected CEP I/O card power connectors.
11	Disconnect the A modular power connector on the CEP I/O card located in I/O slot 54 of the common-equipment shelf.
12	Close only the B circuit breaker associated with the shelf position by moving it to the 1 position. Verify that power is being applied to the shelf by observing the MIC and Proc LED activity. See the table below for the circuit breakers associated with each shelf position.

If	Then go to
there is NO LED lamp activity	step 13
at least one LED lamp lit up	step 15

Note: It is not the intent of this procedure to make sure specific LEDs light up, but to verify that power is being applied to the shelf. In fact, the actual LED indicator(s) should be ignored since the system is not yet commissioned.

13	Make sure the CEP I/O card in slot 54 is connected to the A breaker and that the CEP I/O card in slot 55 is connected to the B breaker.
14	Repeat steps 12 and 13.
15	Once the MIC and Proc LEDs are verified, open the B circuit breaker that was closed in the previous step.
16	Reconnect the disconnected A CEP I/O card power connector.
17	Close the A side circuit breaker of the shelf.
18	Wait ten seconds, then close the B side circuit breaker.

—continued—

Procedure 2-4 (continued)
Powering up the common equipment (TBM shelf)

Step	Action

CAUTION
Risk of equipment damage
When seating the circuit pack on the backplane pins, do not force the circuit pack, as that can damage the pins. If you have trouble seating the circuit pack, check that it is in the right slot. If it is in the right slot, pull the circuit pack out, and try again to seat it, pressing gently.

Use the tabs to insert and seat circuit packs.

19 Fully engage all remaining circuit packs, one at a time, on the common-equipment shelf. Wait approximately ten seconds between each circuit pack engagement.

CAUTION
The OPC is not installed at this time if it is the system's backup OPC.

Once all circuit packs are engaged, proceed as follows:

If this is a new TBM shelf on a	Then go to
bay that is NOT previously equipped	step 20
previously equipped bay	go to the next procedure

Note: The OPC is not installed at this time if it is the system's backup OPC.

20 On the TBM BIP, close only the A2 circuit breaker by moving it to the 1 position.

The fans in the cooling unit should start to operate. If the fans do not operate, check for power coming from the power source and check the power supply cable for correct polarity.

21 Open the A2 circuit breaker by moving it to the 0 position.

The fans in the cooling unit shut off.

22 On the TBM BIP, close only the B2 circuit breaker by moving it to the 1 position.

The fans in the cooling unit should start to operate. If the fans do not operate, check the power coming from the power source and check the power supply cable for correct polarity.

23 Open the B2 circuit breaker by moving it to the 0 position.

The fans in the cooling unit shut off.

—continued—

Procedure 2-4 (continued)
Powering up the common equipment (TBM shelf)

Step	Action
24	If they are in the open (0) position, close the cooling unit breakers labeled A2 and B2. Make sure the fans on the cooling unit are operating and that the air flow through the equipment is not obstructed. ***Note:*** Leave all unused circuit breakers in the open (0) position.
25	This completes the power up of the TBM shelf. You can repeat Procedure 2-1 through Procedure 2-4 for other TBM shelves or you can proceed to the ABM power procedures (next procedure). **—end—**

Procedure 2-5
Inspecting the network element (ABM shelf)

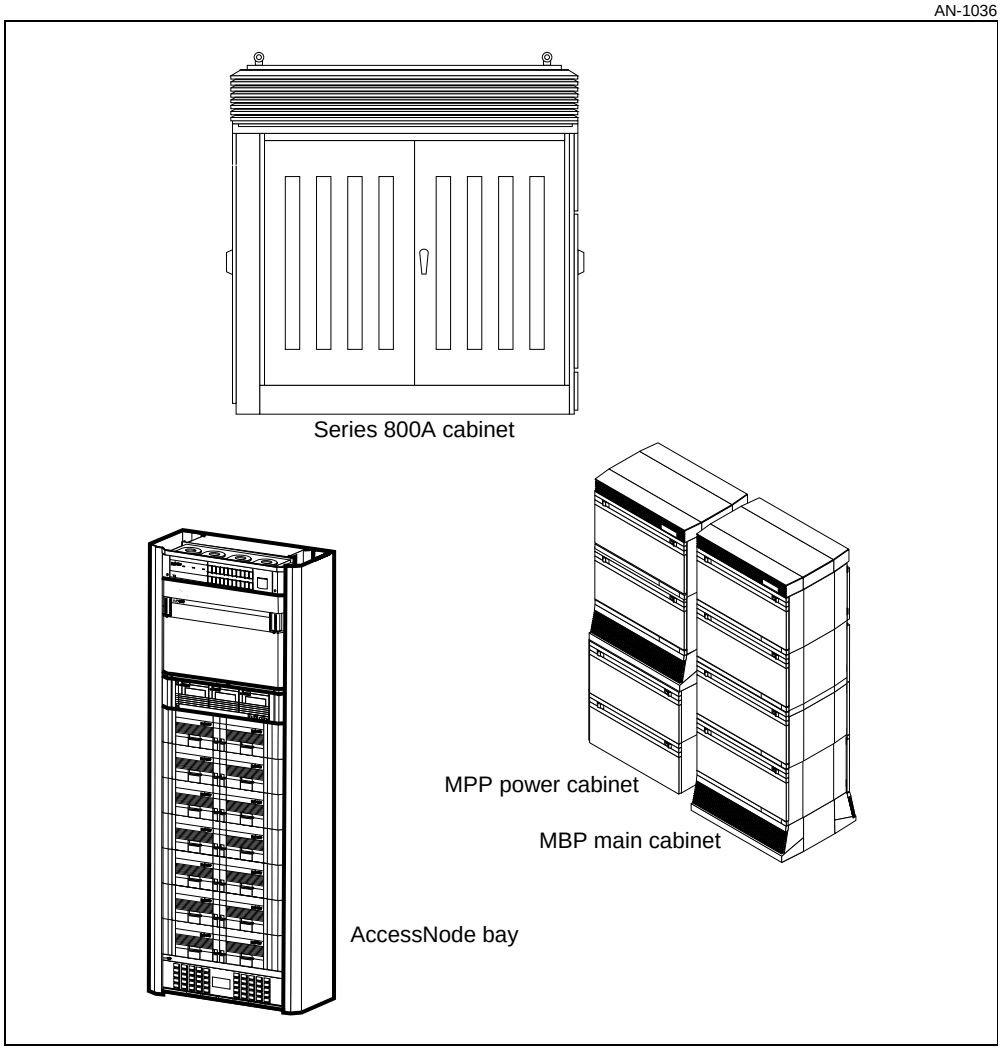
Use this procedure to visually inspect the network element.

Note: For proper electromagnetic interference (EMI) protection, the shelf cover must be replaced after you have finished the procedure.

View of the cabinets

Figure 2-9
View of the cabinets

AN-1036



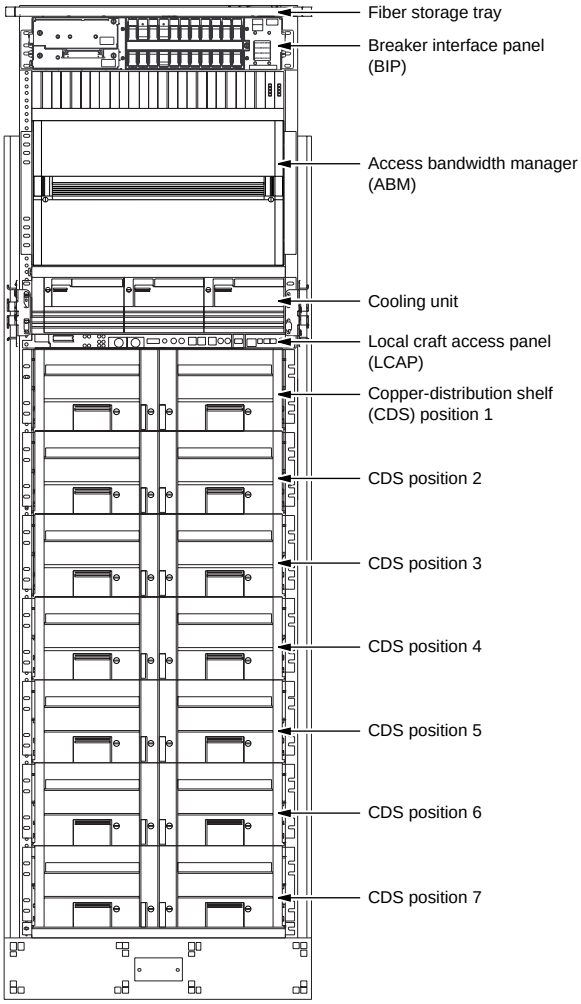
—continued—

Procedure 2-5 (continued)
Inspecting the network element (ABM shelf)

View of the network element

Figure 2-10
View of the network element

AN-1039



—continued—

Procedure 2-5 (continued)
Inspecting the network element (ABM shelf)

Action

Step	Action

1 Remove the BIP cover and set all the circuit breakers on the BIP to the 0 position.

2 Remove the remaining cover (or covers) while conducting tests.

If this is a	Then
bay configuration	remove the cover of the common-equipment shelf according to the procedure “Removing the common-equipment shelf cover” in *Routine Maintenance Procedures,* 323-3001-546, in *Maintenance,* Volume 5C.
MBP or MPP	remove the cabinet covers, pedestal grilles, and cover of the common-equipment shelf, according to the procedures “Removing the MBP cabinet covers” and “Removing the common-equipment shelf cover” in *Modular Business Package Installation Manual*, 323-3001-206.
Series 800A outside plant cabinet	open the cabinet doors and remove the cover of the common-equipment shelf, according to the procedures “Opening the doors of the Series 800A outside plant cabinet” and “Removing the common-equipment shelf cover” in *Series 800A Outside Plant Cabinet Installation Manual*, 323-3001-210.

—continued—

Procedure 2-5 (continued)
Inspecting the network element (ABM shelf)

Step	Action

3 Examine all shelf backplanes (inside and outside) for warping, cracking, or bent pins. If you are inspecting an NE with an ABM shelf and CDSs, then verify that the equipment side remains disconnected from the outside plant subscriber loops (at the protection modules).

CAUTION
Risk of equipment damage
During initial setup of the system, Nortel Networks recommends that the equipment side remains disconnected from the outside plant subscriber loops (at the protection modules) until the line cards are installed and powered up. For example, when using five-pin protector modules, pull the modules out slightly, to the first detent position.

CAUTION
Risk of processor reboot failure
Make sure the I/O cards are correctly installed to prevent processor reboot failure.

4 Check that all cable connections and mechanical connections are secure for each of the following:

- breaker interface panel (BIP)
- common-equipment shelf, including both the main shelf and upper shelf having the input/output (I/O) cards
- cooling unit (bay configuration), blower unit (MBP/MPP), or cooling fans (Series 800A outside plant cabinet)
- local craft access panel (LCAP)
- all copper-distribution shelves (CDS) (if installed)
- air filter
- alarm leads (to office alarms, if required)
- ground connections from the AccessNode bay to the office ground system are installed according to the chapter that describes power and ground distribution, in *Site Installation Planning and Engineering*, 323-3001-200, in *Engineering, Configuration, and Ordering Guide,* Volume 1.

5 Finish repairs before going on to the next procedure.

—end—

Procedure 2-6
Verifying power at the BIP (ABM shelf)

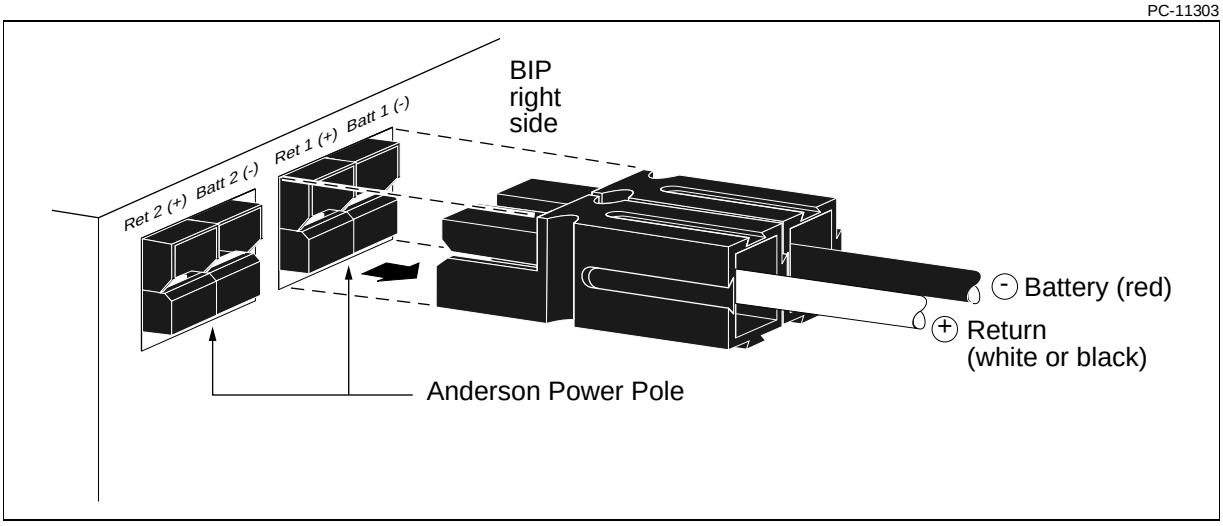
Precautions

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel and equipment.

Action

Step	Action
1	Make sure all the circuit breakers at the Breaker Distribution Fuse Board (BDFB) and the Breaker Interface Panel (BIP) are in the off (0) position and the power indicator lamp at the BIP is off.
2	Remove the power cable from the Batt1/Ret1 connector, at the right side of the BIP, as shown below.

PC-11303



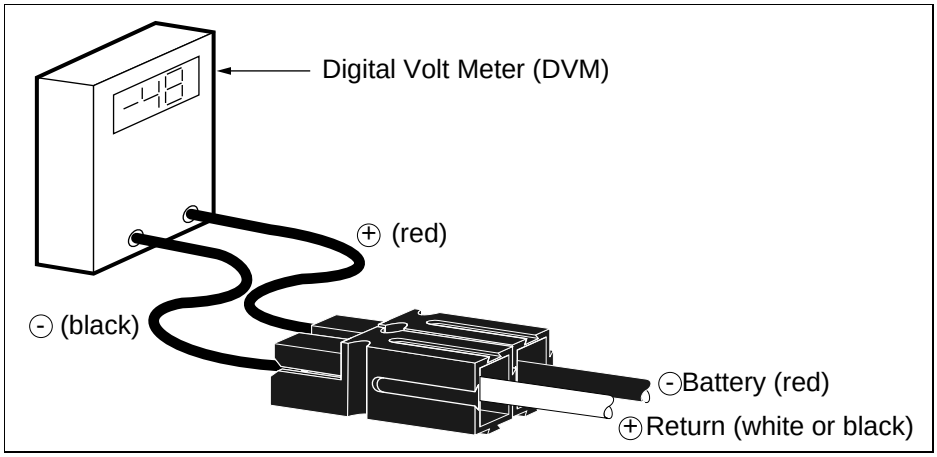
3	Connect a digital multimeter across the power cable connector, as shown below.

—continued—

Procedure 2-6 (continued)
Verifying power at the BIP (ABM shelf)

Step	Action

PC-10342



4 Apply power to the battery/return pair (Batt1/Ret1) at the dc power source (BDFB), by inserting the fuse or switching the breaker to the on position.

5 Measure the voltage. The required voltage between Batt and Ret: is -48 to -56 vdc.

6 Remove power to the battery/return pair (Batt1/Ret1) at the dc power source (BDFB), by removing the fuse or switching the breaker to the off position.

7 Reinsert the power cable into the Batt1/Ret1 connector, matching the red wire to the Batt (-) and the white or black wire to the Ret (+) on the side of the BIP.

8 Repeat steps 2 through 7 for Batt2/Ret2 on the left side of the BIP, and Batt3/Ret3, Batt4/Ret4 on the right side of the BIP.

9 Repeat steps 10 through 18 for each unequipped CDS/UE9000 shelf on its associated CE and TB breakers.

10 Remove the breaker retaining bar between the two rows of breakers by loosening the captive screw on the right side of the bar. Swing the bar up from the right side until the left side disengages.

11 Remove the Pwr breaker associated with the unequipped CDS shelf by lifting out of the way the retaining tabs that hold the breaker.

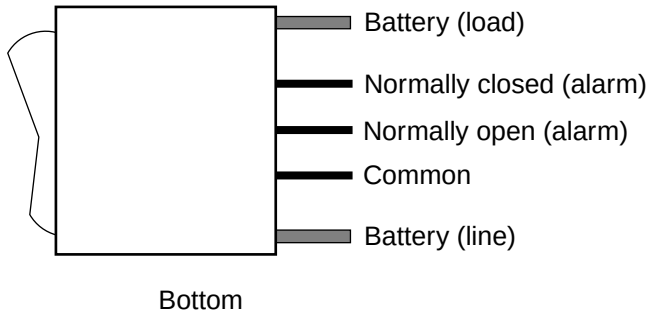
Use a flat-head (slotted) screwdriver to lift the tab on the top of the top breakers and the tab on the bottom of the bottom breakers.

—continued—

Procedure 2-6 (continued)
Verifying power at the BIP (ABM shelf)

Step	Action
	With the retaining tabs out of the way, pull the breaker out until you gain access to the wire connectors at the back of the breaker.
12	Using a pair of electrician's insulated needle-nose pliers, transfer the connector from the 'Normally closed (alarm)' position to the 'Normally open (alarm)' position. The following figure shows the side view of a circuit breaker and the orientation.

Circuit breaker: side view



13	Insert the circuit breaker back into its slot until it snaps into place under the retaining tab.
14	Repeat steps 11 through 13 for the TB breaker for the same CDS.
15	Repeat steps 11 through 14 for the breakers associated with each additional unequipped CDS.
16	Replace the breaker retaining bar by hooking the left side of the bar into place and moving the right side down until the captive screw aligns with the screw hole.
17	Use a flat-head (slotted) screwdriver to fasten the captive screw on the retaining bar into place.
18	Apply power to Batt1/Ret1, Batt2/Ret2, Batt3/Ret3, and Batt4/Ret4 at the Breaker Distribution Fuse Board (BDFB) by inserting fuses or switching the breakers to the on position.

—end—

Procedure 2-7
Equipping the ABM and CDS shelves with circuit packs

Use this procedure to install common-equipment circuit packs in the ABM shelf and the CDSs.

Requirements

The following requirements must be met before performing this procedure.

- make sure all circuit breakers on the BIP are in the 0 (off) position.
- make sure that cabinets or bays and shelves are installed and inspected for damage
- make sure that all cables are installed, except for the OPC Ethernet cable (NT4K86L series)
- make sure that all necessary cards are installed in the DS1 I/O slots at the top of the common equipment shelf, according to the Circuit Packs Setup Form.

Refer to the Figure 2-13 on page 2-37 showing the circuit pack layout in point-to-point systems.

Setup form

To view the circuit pack layout for your system, see the Circuit Packs Setup Forms in Chapter 1 prepared by your system administrator.

To place circuit packs in the appropriate location in the bay, refer to Table 2-2 on page 2-33.

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel or equipment.

Circuit packs

The following table lists the circuit packs that can be used in an ABM shelf. It also lists the product engineering codes (PECs) for the circuit packs, the slot positions that each kind of circuit pack can occupy, and the label that appears on the label of each kind of circuit pack.

—continued—

Procedure 2-7 (continued)
Equipping the ABM and CDS shelves with circuit packs

Table 2-2
Circuit pack product engineering codes (PECs)

Circuit Pack	PEC	Possible slot #(s)	Name on card
Access interface card (AIC)	NT4K55	13, 16	Access IF
Common equipment power	NT4K58MA	54, 55	CE PWR
DS1 input card	NT4K32	30, 31, 35, 38, 39, 42, 43	DS1 IN
DS1 output card	NT4K33	32, 33, 37, 40, 41, 44, 45	DS1 OUT
DS1 protection bridge card	NT4K31	34, 36	DS1 Prot Bridge
DS1 mapper	NT7E04	1, 2, 3, 4, 5, 6, 7, 8	DS1 Sync VT Mapper
Integrated remote test unit (IRTU)	NT4K57	21	Integ Remote Test
Maintenance interface card (MIC)	NT4K53	19	Maint IF
Operations controller module (OPC)	NT7E24	5	OPC Module
Processor card	NT4K52	17, 18	Proc
Serial I/O	NT4K58LA	38, 40	Serial I/O
Test access card (TAC)	NT4K54	20	Test Access
Test access path card	NT4K58KA	53	TAP I/O
OC-3/OC-12	NT7E01 (OC-3) NT7E02 (OC-12)	9, 10	OC-3 OC-12
Transport interface card	NT4K56	11, 14	Trans IF

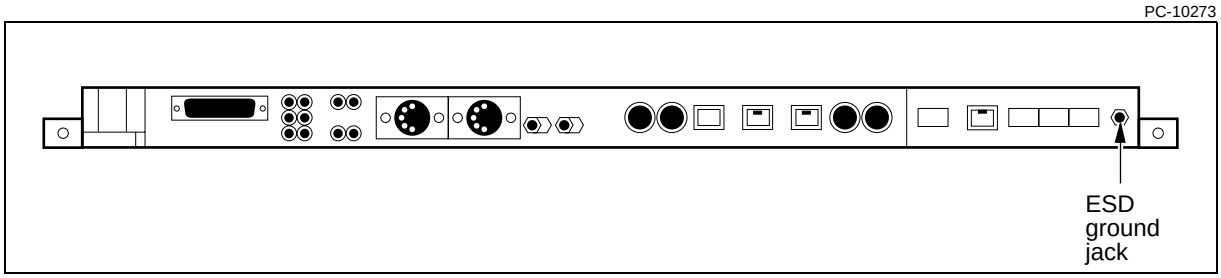
—continued—

Procedure 2-7 (continued)
Equipping the ABM and CDS shelves with circuit packs

Action

Step	Action
1	Put on the antistatic wrist strap. Make sure it is correctly grounded to the electrostatic discharge (ESD) jack on the LCAP as shown in Figure 2-11.

Figure 2-11
LCAP for the access bandwidth manager shelf



2	Carefully unwrap the circuit pack(s) and check them for physical damage. If any processor is damaged, replace it.
3	With the top and bottom ejector latches in the closed position, carefully place the processor circuit pack(s) into the appropriate slots in the ABM shelf as shown in Figure 2-13, but leave the circuit pack(s) disengaged. As you position the circuit packs, match the PEC codes with the slot position as listed in Table 2-2 on page 2-33.
4	Repeat steps 2 and 3 for all ABM circuit packs on the Circuit Packs Setup Forms. ***Note:*** A circuit pack is in the disengaged position when the latches are closed and prevent full insertion of the circuit pack. Do not force the disengaged circuit pack when you insert it. Apply pressure upwards to release the latches and then push out. Push it only as far as the closed latches allow it to go. Refer to Figure 2-12 on page 2-36.

CAUTION
Risk of equipment damage
Do not install the shelf cover with the circuit packs in the disengaged position, as damage to circuit packs can result.

—continued—

Procedure 2-7 (continued)
Equipping the ABM and CDS shelves with circuit packs

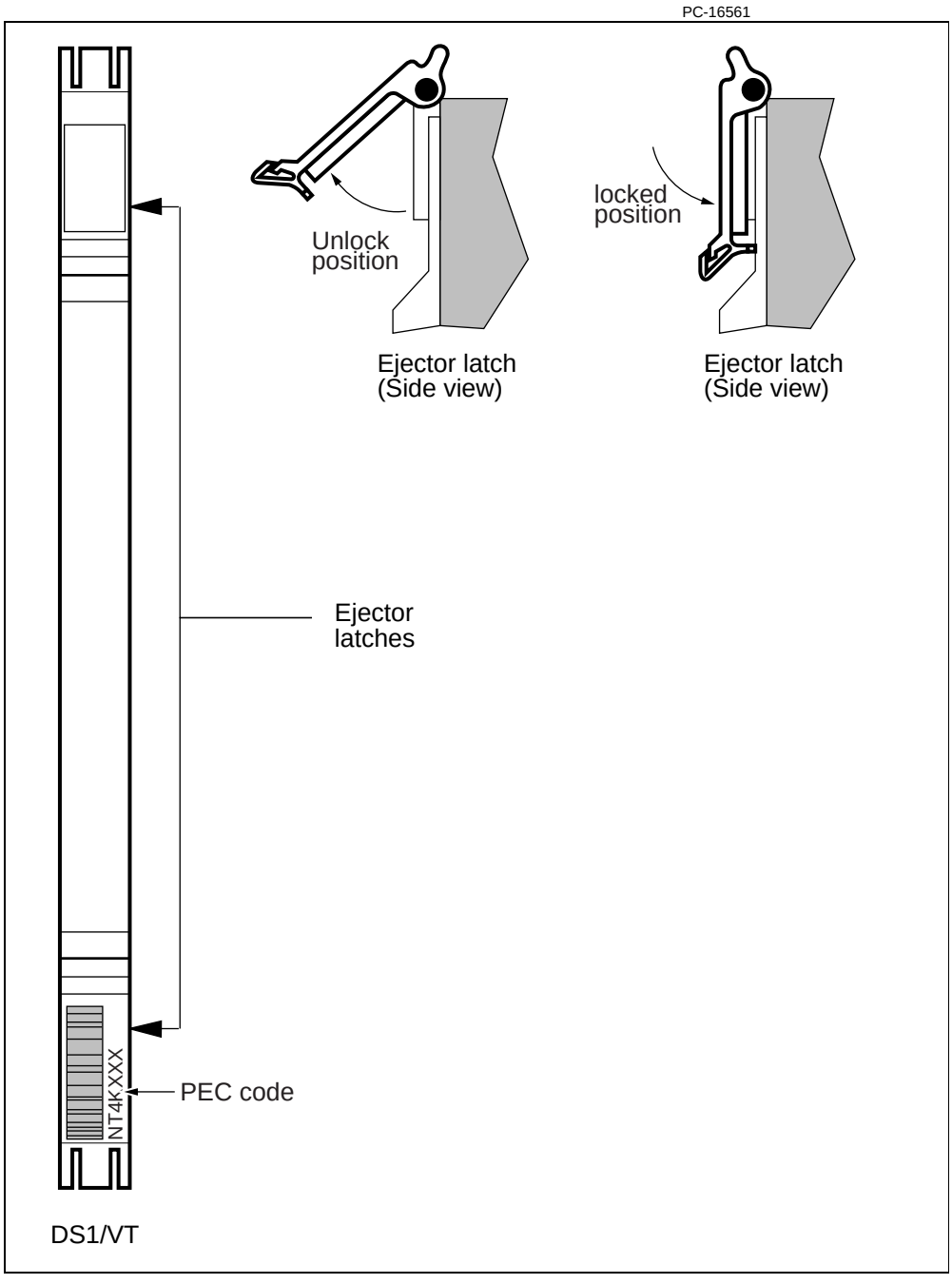
Step	Action
5	Insert the OC-3/OC-12 circuit packs into slots 9 and 10. ***Note:*** You should connect the fiber optic cables to the OC-3/OC-12 circuit packs at this time. See the table below:

TBM/FCOT	ABM/RFT
G1 XMIT	G1 RCV
G1 RCV	G1 XMIT
G2 XMIT	G2 RCV
G2 RCV	G2 XMIT

—continued—

Procedure 2-7 (continued)
Equipping the ABM and CDS shelves with circuit packs

Figure 2-12
Circuit pack latches



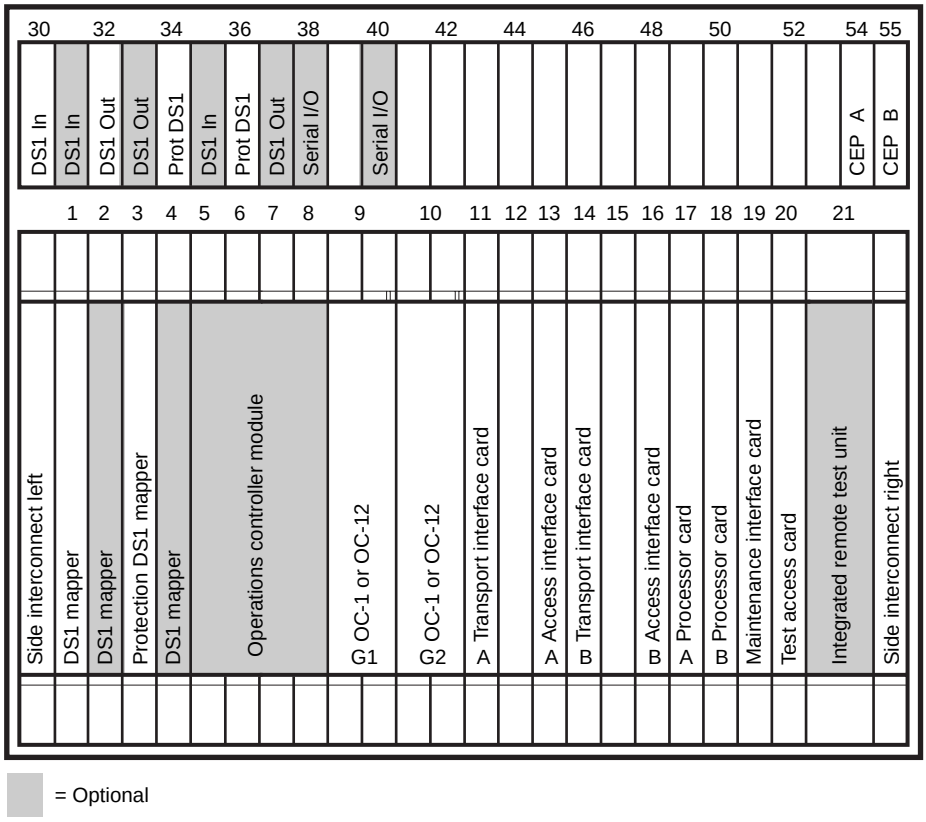
—continued—

Procedure 2-7 (continued)
Equipping the ABM and CDS shelves with circuit packs

Step	Action

Figure 2-13
ABM circuit pack layout of the RFT in point-to-point systems

AN-1070



Note: RFTs located at the central office can house the OPC; therefore, the shelf layout above would also include the OPC in slots 5 through 8.

Note: TR-08 services require the working and protection DS1 mappers to be type NT7E04CA or NT7E94EA. If the mappers are not this type, a circuit pack mismatch alarm occurs. To avoid this alarm, make sure the first NT7E04CA mapper is installed as the protection mapper.

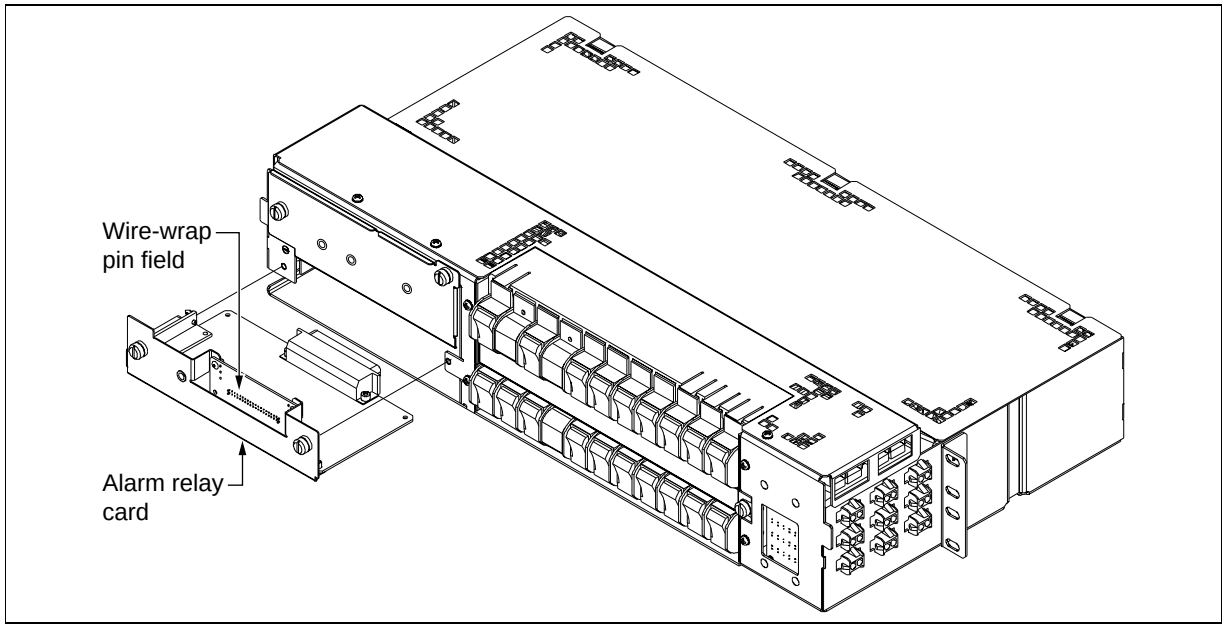
—continued—

Procedure 2-7 (continued)
Equipping the ABM and CDS shelves with circuit packs

Step	Action
6	If this network element contains an OPC, read the OPC serial number from the motherboard of the OPC, and record it on the OPC Setup Form.
7	Insert the alarm relay card. Push the card in until it clicks and is flush with the adjacent cards. See Figure 2-14.
8	Connect the alarm relay cable to the connector on the side of the alarm relay card.
9	Tighten the screw-in knobs on the front of the alarm relay card. ***Note:*** Make sure that the talk battery filter card is not engaged.

Figure 2-14
Alarm relay card on the ABM BIP

PC-16500



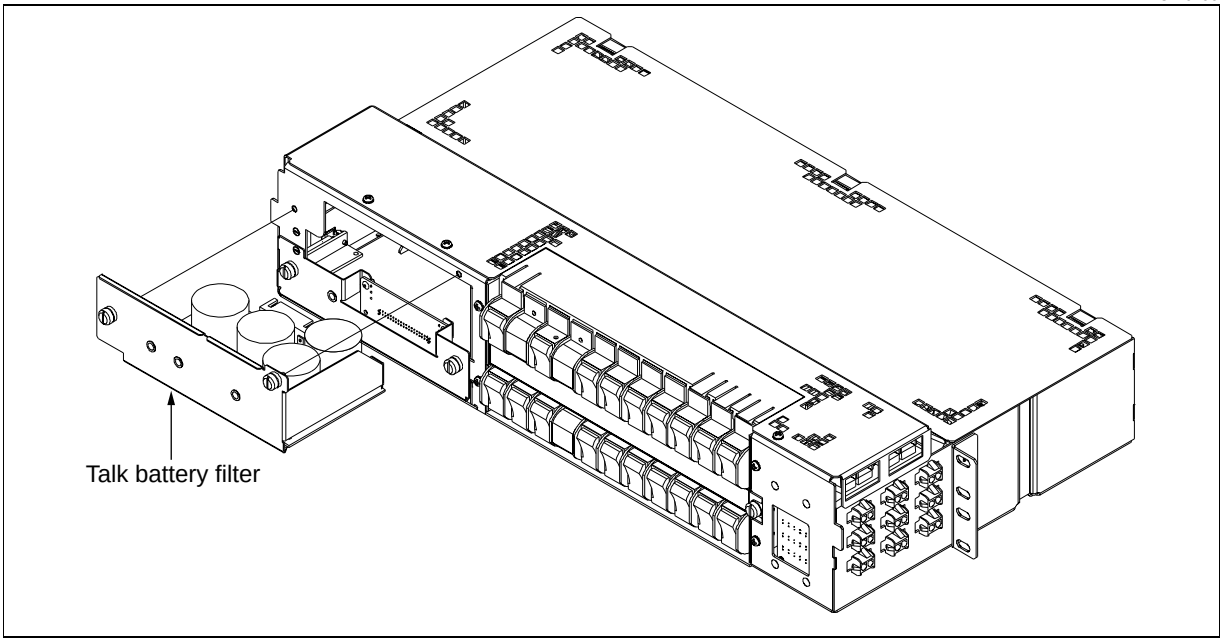
—continued—

Procedure 2-7 (continued)
Equipping the ABM and CDS shelves with circuit packs

Step	Action

Figure 2-15
Talk battery filter card on the ABM BIP

PC-16499



10 Update the utility card, located in the ABM shelf cover between the two handles. Record information pertinent to your organization's methods and operations.

If this NE is	Then go to
equipped with CDS/UE9000s	step 11
not equipped with CDS/UE9000s	step 20

Inserting circuit packs into the CDS shelves

11 Unlock the left drawer of the first CDS (CDS 1), using a small screwdriver to turn the locking knob one-quarter turn to the left. Grasp the handle and pull open the drawer.

12 Insert and engage the metallic test access card (MTA) in the slot labeled MTA A (see Figure 2-16 on page 2-40).

13 Insert and engage the two narrowband line interface cards (NLICs) in slots LIC A and LIC B. Refer to Figure 2-16 on page 2-40.

Note: The MTA and NLIC are full-height cards.

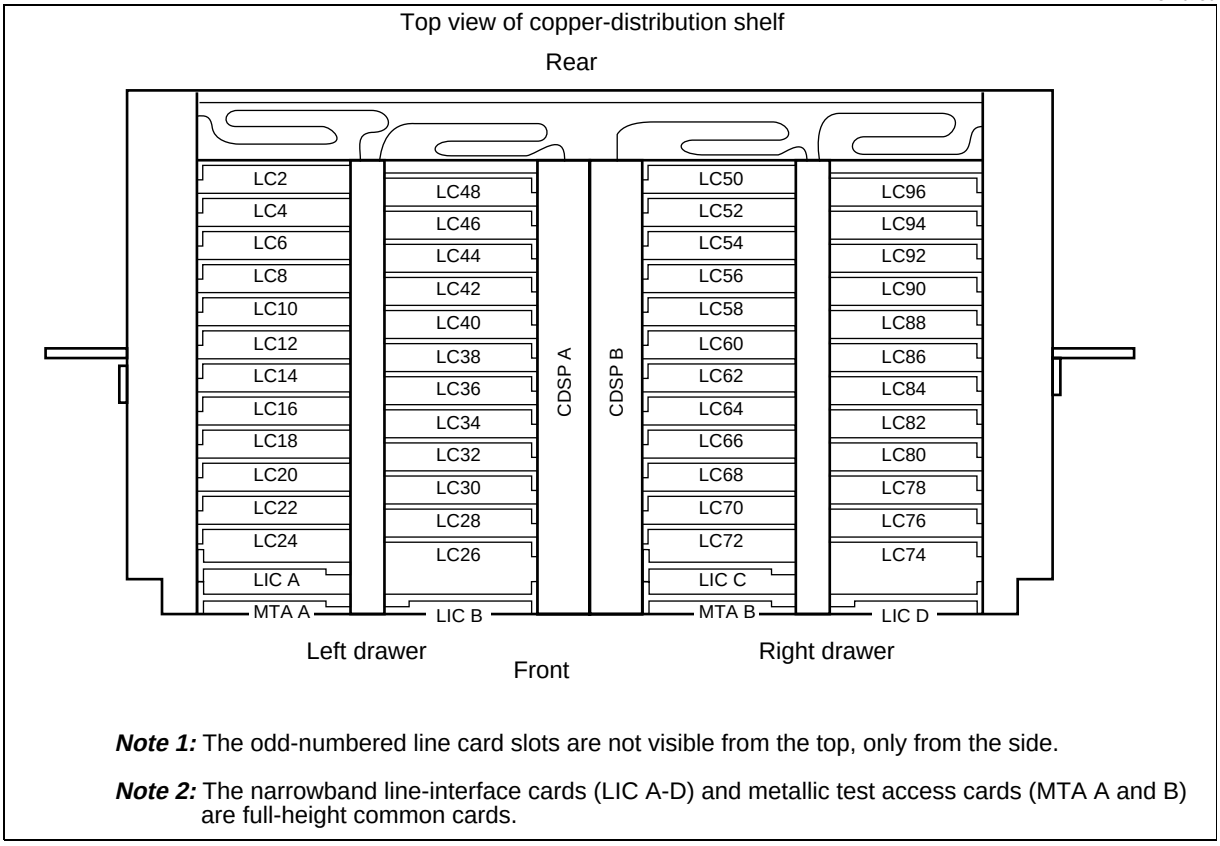
—continued—

Procedure 2-7 (continued)
Equipping the ABM and CDS shelves with circuit packs

Step	Action

Figure 2-16
Top view of the copper-distribution shelf

PC-10750



Note 1: The odd-numbered line card slots are not visible from the top, only from the side.

Note 2: The narrowband line-interface cards (LIC A-D) and metallic test access cards (MTA A and B) are full-height common cards.

14 Close the left drawer.

15 Unlock the right drawer as you did the left drawer in step 11 and open the right drawer.

16 Insert and engage the MTA in slot MTA B. Make sure the MTA is fully engaged.

17 Insert and engage the two NLICs in slots LIC C and LIC D. Make sure the NLICs are fully engaged.

18 Close the right drawer.

19 Insert the CDS power cards in slots CDSP A and CDSP B located between the two line card drawers. To lock each power card in position, use a small screwdriver to turn the locking knob one-quarter turn or until the dots are aligned.

—continued—

Procedure 2-7 (continued)
Equipping the ABM and CDS shelves with circuit packs

Step	Action
	Note: Line cards may be installed later; please see your System setup forms in Chapter 1.
20	Repeat steps 11 through 19 for CDS 2 to CDS 7, if the shelves are present. After all circuit packs are installed or placed in the appropriate shelves, remove the antistatic wrist strap you are wearing.

—end—

Procedure 2-8
Powering up the ABM common equipment shelf

Use this procedure when powering up the ABM common equipment shelf to verify the following:

- the operation of each circuit breaker before applying power to all of the common equipment and cooling to the power units
- power connections from the two power feeds to the common-equipment shelf are not reversed, and the Processor (Proc) cards and maintenance interface card (MIC) are powered from both power feeds

Requirements

Before you start this procedure, make sure that the circuit packs for this configuration are installed in the ABM shelf but not engaged according to Procedure 2-7 on page 2-32.

CAUTION
Risk of equipment damage
If the common-equipment shelf contains an OPC module and you power it down without first performing the OPC shutdown procedure, then the OPC disk drive can be damaged.

Action

Step	Action
1	Put on the antistatic wrist strap. Make sure it is properly grounded to the ESD jack on the local craft access panel LCAP as shown in Figure 2-11 on page 2-34.
2	On the new ABM common-equipment shelf, fully engage the processor circuit packs as follows: **a.** Pull open the top and bottom latches on the circuit pack.

—continued—

Procedure 2-8 (continued)
Powering up the ABM common equipment shelf

Step	Action

b. Close the latches to rotate the tabs into the shelf grooves and firmly seat the circuit pack on the backplane connector.

CAUTION
Risk of equipment damage
When seating the circuit pack on the backplane pins, do not force the circuit pack, as that can damage the pins. If you have trouble seating the circuit pack, check that it is in the right slot. If it is in the right slot, pull the circuit pack back out, then try again to seat it, pressing gently.

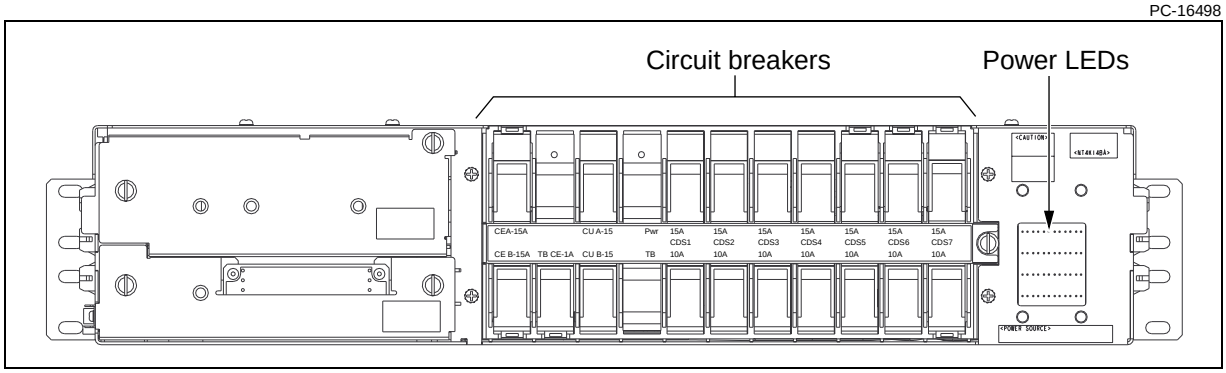
CAUTION
Risk of equipment damage
Once the processor is engaged, it undergoes an initialization process. This could take up to 25 minutes. Do not remove the processor during this time. It could affect the operation of the circuit pack.

3 Disconnect the B modular power connector on the common-equipment power (CEP) I/O card in slot 55 of the ABM shelf.

4 Fully engage the maintenance interface card (MIC) circuit pack in slot 19 of the ABM shelf.

Figure 2-17
BIP for the ABM shelf

PC-16498



5 Set the CE_A circuit breaker to the 1 position. Verify that power is being supplied to the shelf by observing the MIC and processor LED activity. Make sure the power LEDs on the BIP light up.

Note: It is not the intent of this procedure to make sure specific LEDs light up, but to verify that power is being supplied to the shelf. In fact, the actual LED indicator(s) should be ignored since the system is not yet commissioned.

—continued—

Procedure 2-8 (continued)
Powering up the ABM common equipment shelf

Step	Action
6	After verifying the MIC and processor LEDs, set the CE_A circuit breaker to the 0 position.

If	Then go to
there was no LED lamp activity	step 7
at least one LED lamp lit up	step 8

7	Make sure the CEP I/O card in slot 54 is connected to the CE_A breaker and that the CEP I/O card in slot 55 is connected to the CE_B breaker. Then, repeat steps 5 and 6.
8	Reconnect any disconnected CEP I/O card power connectors in slot 55.
9	Disconnect the A modular power connector on the CEP I/O card in slot 54 of the ABM shelf.
10	Set the CE_B circuit breaker associated with the shelf position to the 1 position. Verify that power is being supplied to the shelf by observing the MIC and processor LED activity. ***Note:*** It is not the intent of this procedure to make sure specific LEDs light up, but to verify that power is being supplied to the shelf. In fact, the actual LED indicator(s) should be ignored since the system is not commissioned.
11	After verifying the MIC and processor LEDs, set the CE_B circuit breaker to the 0 position.

If	Then go to
there was no LED lamp activity	step 12
at least one LED lamp lit up	step 13

12	Make sure the CEP I/O card in slot 54 is connected to the CE_A breaker and that the CEP I/O card in slot 55 is connected to the CE_B breaker. Then repeat steps 10 and 11.
13	Reconnect the disconnected A CEP I/O card power connector in slot 54.

—continued—

Procedure 2-8 (continued)
Powering up the ABM common equipment shelf

Step	Action
14	Set the CE_A circuit breaker on the shelf to the 1 position. Wait ten seconds and then set the CE_B circuit breaker to the 1 position.
15	Fully engage all remaining circuit packs, one at a time, on the common-equipment shelf. Wait ten seconds between engaging circuit packs

CAUTION
Risk of equipment damage
When seating the circuit pack on the backplane pins do not force the circuit pack. Forcing the circuit pack can damage the pins. If you have trouble seating the circuit pack, check that it is in the right slot. If it is in the right slot, pull the circuit pack out of its slot and try to seat it again, pressing gently.

—continued—

Procedure 2-8 (continued)
Powering up the ABM common equipment shelf

Step	Action
16	Proceed according to the following tasks:

If the NE is	Then
an RFT mounted in a Series 800A outside plant cabinet	**a.** close both circuit breakers CU A and CU B on the BIP. **b.** remove the cover of the thermostat and write down the thermostat setting. The thermostat is located on the inside right wall of the cabinet when accessed from the front. **c.** turn down the thermostat until all fans start operating. If the fans fail to operate, check the wiring. If you cannot identify the problem, call your Nortel Networks representative. **d.** turn the thermostat to its original setting and reinstall the thermostat cover.
in an ABM bay	**a.** on the ABM BIP, close only the CU A circuit breaker by moving it to the 1 position. *The fans in the cooling unit should start to operate. If the fans do not operate, check that there is power coming from the power source and check the power supply cable for correct polarity.* **b.** open the CU A circuit breaker by moving it to the 0 position. *The fans in the cooling unit shut off.* **c.** on the ABM BIP close only the CU B circuit breaker by moving it to the 1 position. *The fans in the cooling unit should start to operate. If the fans do not operate, check that there is power coming from the power source and check the power supply cable for correct polarity.* **d.** open the CU B circuit breaker by moving it to the 0 position. *The fans in the cooling unit shut off.* **e.** close the CU A circuit breaker by moving it to the 1position. *The fans in the cooling unit turn on.* **f.** close the CU B circuit breaker by moving it to the 1position.
—continued—	

—continued—

Procedure 2-8 (continued)
Powering up the ABM common equipment shelf

Step Action

If the NE is	Then
in an MBP	**a.** turn on the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet. Circuit breaker CB2 is not used. To access the blower unit, remove the front pedestal cover. Refer to the procedure for removing MBP covers in *Modular Business Package Installation Manual*, 323-3001-206. T*he fans in the cooling unit should start to operate. If the fans do not operate, check that there is power coming from the power source and check the power supply cable for correct polarity.* **b.** turn off the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet. *The fans in the cooling unit shut off.* **c.** turn on the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet. *The fans in the cooling unit should start to operate. If the fans do not operate, check that there is power coming from the power source and check the power supply cable for correct polarity.* **d.** turn off the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet. *The fans in the cooling unit shut off*
—end—	

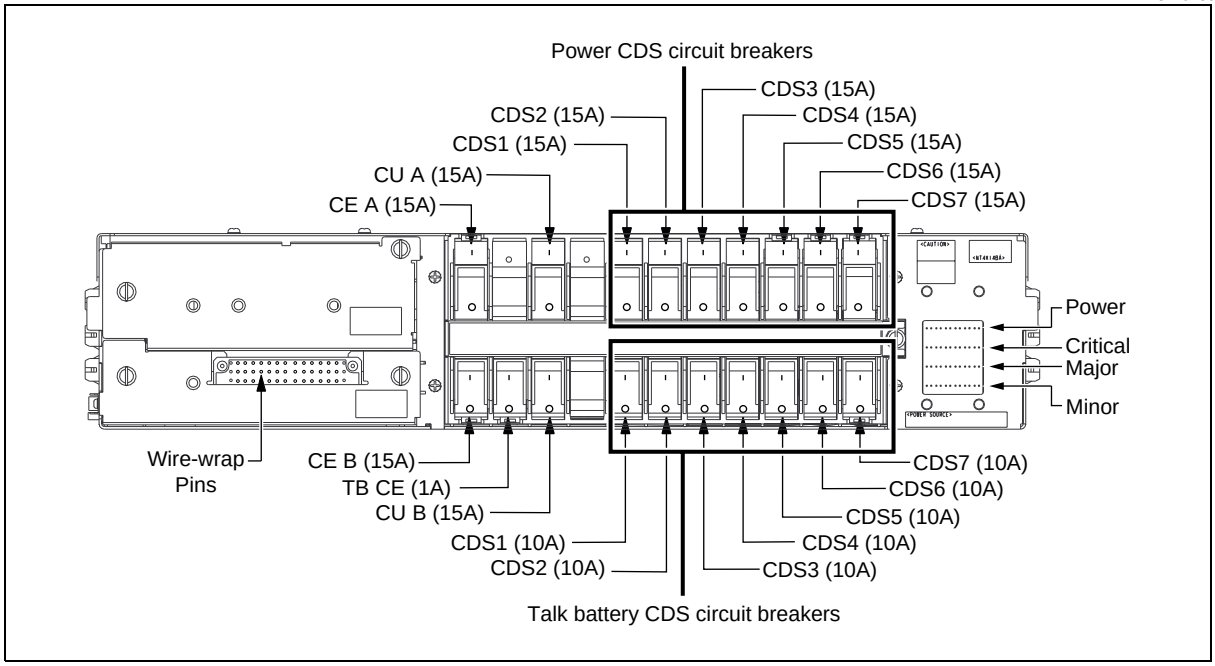
—continued—

Procedure 2-8 (continued)
Powering up the ABM common equipment shelf

Step	Action
17	Make sure the fans on the cooling unit are operating and that airflow through the equipment is not obstructed.
18	On the breaker interface panel (BIP), set the circuit breaker labeled TB CE-1A to the 1 position (the talk battery power to the test access card). The breaker interface panel (BIP) is shown in Figure 2-18.

Figure 2-18
Breaker interface panel (BIP)

PC-16489



19	Set the circuit breaker labeled Power CDS 1 to the 1 position. This circuit breaker provides shelf power to the copper-distribution shelf 1 (CDS 1).
20	Close the circuit breaker labeled TB CDS1, which provides talk battery to copper-distribution shelf 1 (CDS 1).
21	If the bay is equipped with CDSs, engage the talk battery filter card into the shelf. Refer to Figure 2-15 on page 2-39 for an example of the talk battery filter card.
22	Repeat steps 19 and 20 for each equipped CDS shelf, CDS 2 through CDS 7.

—continued—

Procedure 2-8 (continued)
Powering up the ABM common equipment shelf

Step	Action

23 Do one of the following:

If the NE is	Then
an RFT mounted in a Series 800A outside plant cabinet	go to step 24.
in an MBP cabinet	go to step 27.
in an ABM bay	This procedure is complete. Go to the next procedure.

24 Check all rectifiers for the ON/RFA LED conditions.

If any rectifier ON/RFA LED is red, slowly adjust its FLT potentiometer slightly clockwise until the ON/RFA LED turns green.

Note: When the adjusted output voltage of a rectifier is lower than that of the other rectifiers, its ON/RFA LED is red because its output current drops below 0.1 A.

25 Check the ammeters of all rectifiers and balance the amperage supplied by all rectifiers.

Note: Balanced load sharing among all rectifiers is difficult to achieve if one or more rectifiers have open sensing leads.

CAUTION
Risk of equipment damage
If the rectifier voltage is adjusted higher than –56.0 V dc, the powered equipment can be damaged. For example, a rectifier voltage of –58.0 V dc can damage that equipment.

on any rectifier with a higher current	slowly adjust its FLT potentiometer counterclockwise to decrease its ammeter value toward the average value of all ammeters.
on any rectifier with a lower current	slowly adjust its FLT potentiometer clockwise to increase its ammeter value toward the average value of all ammeters.

—continued—

Procedure 2-8 (continued)
Powering up the ABM common equipment shelf

Step	Action
26	Repeat steps 24 and 25 until all rectifier ammeters display approximately the same current level and until all rectifier ON/RFA LEDs are green. *The digital meter on the faceplate of the dc distribution shelf displays the value of float voltage from all rectifiers.*
27	If this is an MBP site equipped with an external battery string, verify that the battery string does the following: • supplies uninterrupted power to the MBP cabinets when the commercial ac power source fails, according to the manufacturer's recommended procedures. • recharges from the rectifiers, according to the manufacturer's recommended procedures.

—end—

Procedure 2-9
Measuring transmitted optical power

Use this procedure to verify that the OC-3/OC-12 circuit pack meets the specification for transmitted optical power.

Setup form

To record the optical measurements, see the Circuit Packs Setup Forms in Chapter 1 prepared by your system administrator.

Requirements

The following requirements must be met before starting this procedure:

- make sure the facility to be measured is not in service.
- obtain an optical power meter, 1310/1550 nm (or equivalent) with range –50 to +5 dB
- obtain one (1) optical test cord, single-mode, 5 m (16 ft) long, as follows:
  - NT7E46AA for biconic connectors
  - NT7E46BA for FC connectors
  - NT7E46CA for ST connectors
  - NT7E46FA for SC connectors
- calibrate the optical power meter using the manufacturer's instructions.

DANGER
Risk of exposure to laser light
Avoid direct exposure to laser beam or fiber. Invisible light that can blind is present. Keep all optical connectors capped.

—continued—

Procedure 2-9 (continued)
Measuring transmitted optical power

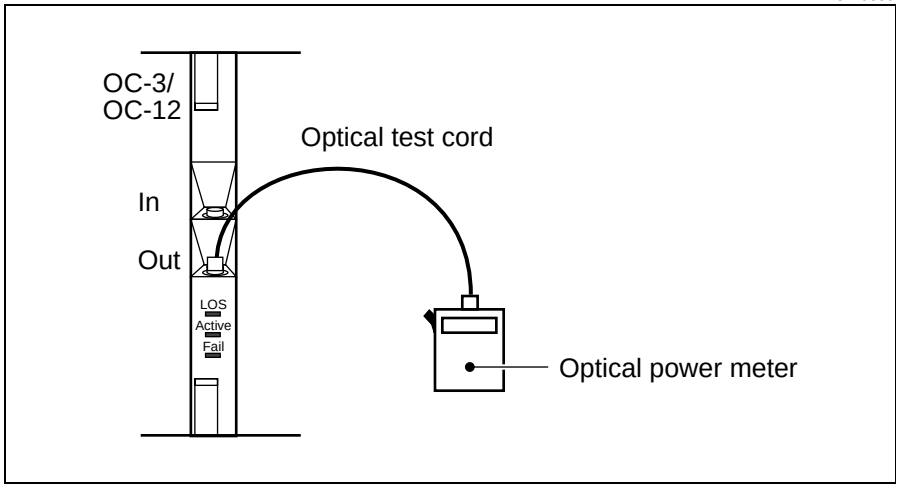
CAUTION
Risk of signal degradation
Clean optical connectors to minimize signal attenuation and test errors caused by impurities. Clean all connectors, prior to insertion in mating sleeves.

CAUTION
Risk of damaging circuit packs
Avoid touching any components on the printed circuit board. Electrostatic discharge can damage electrostatic sensitive devices. Always ground yourself before handling the circuit packs.

Action

Step	Action
1	At the ABM/RFT, select the G1 OC-3/OC-12 optical interface circuit pack you want to test and remove the optical fibers if these are connected.
2	Set the optical power meter to measure the appropriate wavelength of the transmitter, as shown on the circuit pack faceplate.
3	Connect one end of the optical test cord to the optical power meter and the other end to the transmit (Out) optical connector on the G1 OC-3/OC-12 interface circuit pack, as shown below.

PC-10539



—continued—

Procedure 2-9 (continued)
Measuring transmitted optical power

Step	Action

4 Measure the optical power.

The measured value should meet or exceed (measure closer to zero) the minimum optical power specified in the following table.

PEC	Module	Minimum transmitter power ($P_{T\ min}$)
NT7E01GB/CC/CD	OC-3 LR	– 5.0 dBm
NT7E01GA/DC/DD	OC-3 IR	– 15.0 dBm
NT7E02GB/KC/KD	OC-12 LR	– 3.0 dBm
NT7E02GA/LC/LD	OC-12 IR	– 4.5 dBm

If	Then
the requirement is not met	try one or all of the following in the list below • reseat the optical test cord by reconnecting it • clean the optical connectors on both ends of the optical test cord • replace the optical test cord • reseat the OC-3/OC-12 interface circuit pack • replace the OC-3/OC-12 interface circuit pack

5 Disconnect the optical test cord from the transmit (Out) connector of the circuit pack.

6 Repeat this procedure for the G2 OC-3/OC-12 interface circuit pack.

7 Record the results on the Optical Measurements Setup Form in Chapter 1.

—end—

Procedure 2-10
Measuring the received optical power

Use this procedure to verify that the OC-3/OC-12 circuit pack meets the specification for received optical power.

Setup form

To show completion of the procedure, see the Optical Measurements Setup Form in Chapter 1 prepared by your system administrator.

Requirements

The following requirements must be met before starting this procedure:

- make sure the facility to be measured is not in service.
- obtain an optical power meter, 1310/1550 nm (or equivalent) with range –50 to +5 dB
- obtain one (1) optical test cord, single-mode, 5 m (16 ft) long, as follows:
  - NT7E46AA for biconic connectors
  - NT7E46BA for FC connectors
  - NT7E46CA for ST connectors
  - NT7E46FA for SC connectors
- calibrate the optical power meter using the manufacturer's instructions.

DANGER
Risk of exposure to laser light
Avoid direct exposure to laser beam or fiber. Invisible light that can blind is present. Keep all optical connectors capped.

CAUTION
Risk of signal degradation
Clean optical connectors to minimize signal attenuation and test errors caused by impurities. Clean all connectors, prior to insertion in mating sleeves.

—continued—

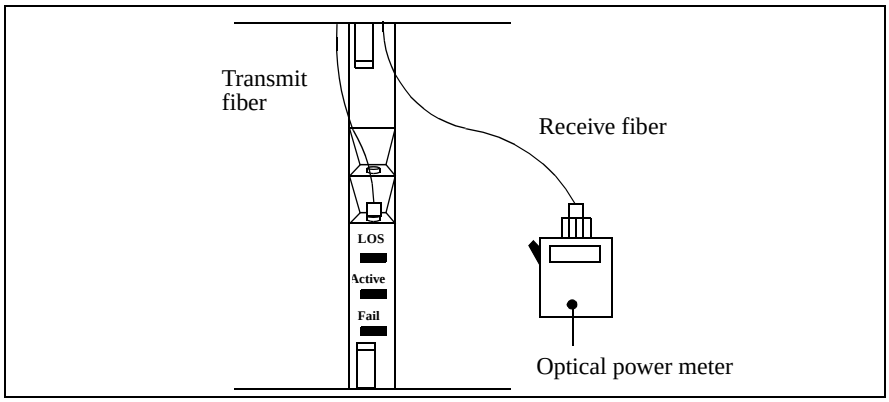
Procedure 2-10 (continued)
Measuring the received optical power

CAUTION
Risk of damaging circuit packs
Avoid touching any components on the printed circuit board. Electrostatic discharge can damage electrostatic sensitive devices. Always ground yourself before handling the circuit packs.

Action

Step	Action

1 At the ABM/RFT, disconnect the receive patch cord from the G1 OC-3/OC-12 optical interface circuit pack under test and connect it to the optical power meter, as shown below.



2 Measure the receive optical power and record the value on the Optical Measurements Setup Form in Chapter 1.

The measured value must be greater than or equal to the following:

PEC	Module	Minimum receiver power ($P_{R\ min}$)	Maximum receiver power ($P_{R\ max}$)
NT7E01GB/CC/CD	OC-3 LR	– 34.0 dBm	– 10.0 dBm
NT7E01GA/DC/DD	OC-3 IR	– 28.0 dBm	– 8.0 dBm
NT7E02GB/KC/KD	OC-12 LR	– 32.0 dBm	– 6.0 dBm
NT7E02GA/LC/LD	OC-12 IR	– 24.5 dBm	– 2.0 dBm

—continued—

Procedure 2-10 (continued)
Measuring the received optical power

Step	Action

3 If the requirement is not met, clean the fiber connectors using the regular cleaning procedure. If necessary, verify the optical meter calibration, the fiber pigtail connections, the fiber link, and the OC-3/OC-12 transmitter at the other end.

CAUTION
Risk of connector damage
Make sure optical connections are clean and properly connected. Follow the procedure for cleaning and assembling connectors, found in *Site Testing Procedures*, 323-3001-221, in Volume 3B.

4 Repeat steps 1 through 3 for the G2 OC3/OC12 optical interface circuit pack.

5 Reconnect the fiber pigtails to the OC-3/OC-12 optical interfaces.

CAUTION
Risk of receiver damage
Insert sufficient attenuation between the optical transmitter and receiver to prevent overload of the optical receiver. Optical power must not exceed –10.0 dBm and –6.0 dBm for the OC-3 and OC-12 long-reach (LR) interfaces respectively, and -8.0 dBm and -2.0 dBm for the OC-3 and OC-12 intermediate-reach (IR) interfaces respectively.

6 Note the completion of the procedure on the Optical Measurements Setup Form in Chapter 1.

7 Perform Procedures 2-9 and 2-10 on the TBM/FCOT and then go to Procedure 3-1.

—end—

Commissioning the system

This chapter has the procedures for commissioning a new point-to-point system.

Note: A backup OPC may be added at any time after the initial installation.

Chapter task list

This chapter includes the following tasks.

Note: For the primary OPC location, perform Procedures 3-1 through 3-6. For adding NEs to an existing span of control, perform Procedures 3-7 through 3-12.

Procedure 3-1
Detecting existing software on the primary OPC

Use this procedure to detect if an operations controller (OPC) software load exists on an OPC. This procedure applies to any new or spare OPC that is currently not in use, and is valid only if you have a primary OPC with tape and no backup.

CAUTION
Do not perform Procedure 3-1 through 3-12 if you are adding a point-to-point system to an existing span of control. Go to Procedure 3-5.

Setup form

To determine the location of the primary OPC, see the OPC Setup Form in Chapter 1 prepared by your system administrator.

Requirements

The following requirements must be met before starting this procedure:

- make sure the system is not in service.
- access a VT100-compatible terminal connected to OPC port 1 (or port B). Refer to *OPC User Interface Description*, 323-3001-301, and *Data Administration Procedures*, 323-3001-304, in *Operations, Administration, and Provisioning*, Volume 4A.
- obtain a tape or tapes with the correct OPC software load and network element (NE) software loads.
- obtain the slat or root passwords.
- OPC is installed and the bay is powered up.

Read the command conventions in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A. In some of the following steps, you enter UNIX commands at the opc> prompt. Enter the text as shown in bold in this procedure and press the Return key when you see the ↵ symbol.

—continued—

Procedure 3-1 (continued)
Detecting existing software on the primary OPC

CAUTION
Enter UNIX commands carefully
If you enter a UNIX command incorrectly, it may be difficult to recover from the error. Be sure to read this procedure carefully, to distinguish between similar symbols, such as**!**, |, and /; or - and =. Commands shown in lower case must be entered in lower case. Contact Nortel Networks if support is required.

Action

Step	Action

1 Determine the location of the primary OPC by looking at the OPC Setup Form in Chapter 1.

2 Log in to the OPC. For steps to log in to the OPC, see Procedure 5-1, “Logging in to the OPC”, in “Appendix A: Common commissioning procedures”.

3 Check whether the OPC has a software load on it. Enter:

opcui ↵

If the	Then the
OPC response shows that the command is not found	OPC software is NOT loaded. You are finished with this procedure. Go to Procedure 3-3 on page 3-7.
User Session Manager is displayed (after a minute)	OPC software is loaded. Go to step 4.

If the OPC software is loaded

4 Check the OPC software load. Open the OPC Status tool by pressing **Ctrl_T 2**.

5 Examine the contents of the SW Version field. The SW Version field identifies the software version currently running in this OPC.

If the OPC	Then
has the correct software	• press **Ctrl_T 0** to the User Session Manager screen • go to Procedure 3-4 on page 3-9.
does not have the correct software	go to Procedure 3-2 on page 3-4.

—end—

Procedure 3-2
Removing existing software on the primary OPC

Action

Step	Action
1	Carefully insert the tape with the correct OPC software load into the OPC tape drive, as shown in Figure 3-1. This tape contains the RMOPCLD script, which is required to remove existing OPC software from an OPC.

CAUTION
Risk of equipment damage
Forcing the tape into the tape drive can damage the drive and you may not be able to remove the tape. If you cannot insert the tape easily, it could be oriented the wrong way. Refer to Figure 3-1 for the correct orientation of the tape.

2 Extract the RMOPCLD file from tape by typing the following two commands:

cd /tmp ↵

The "opc>" prompt appears.

dd if=/dev/rdt/tape2 bs=20b | tar xf - ↵

Either the message Broken pipe appears or a message similar to the following appears (the numbers may vary).

```
439+4 blocks in
439+4 blocks out
```

The "opc>" prompt appears.

3 Execute the RMOPCLD script by typing the following two commands:

cd /install ↵

The "opc>" prompt appears.

4 Enter

cd rmopclddir

5 Enter

cd hpux_8.0

6 Uncompress by entering

uncompress rmopcld_basesys.tar.Z↵

7 Uncompress by entering

uncompress rmopcld_popc.tar.Z↵

—continued—

Procedure 3-2 (continued)
Removing existing software on the primary OPC

Step	Action
8	Execute the RMOPCLD script by typing the following two commands: **cd /tmp/install** ↵ *The "opc>" prompt appears.* **rmopcld** ↵ *A warning message appears with a prompt to confirm the removal of the OPC load:* `You are about to wipe out the OPC load. Please confirm (Y/N).`
9	Type **y** ↵ to continue. *OPC processes are stopped. A message appears which gives you the option of aborting the removal of the OPC load.*
10	Type **c** and press **Enter** to continue. *The script removes the existing software version. The OPC reboots automatically.*
11	Wait until the login prompt appears on the screen. When the OPC has rebooted, log in again, using the **root** user ID. *"TERM=(VT100)" appears.* Press the Return key. *The "opc>" prompt appears.*

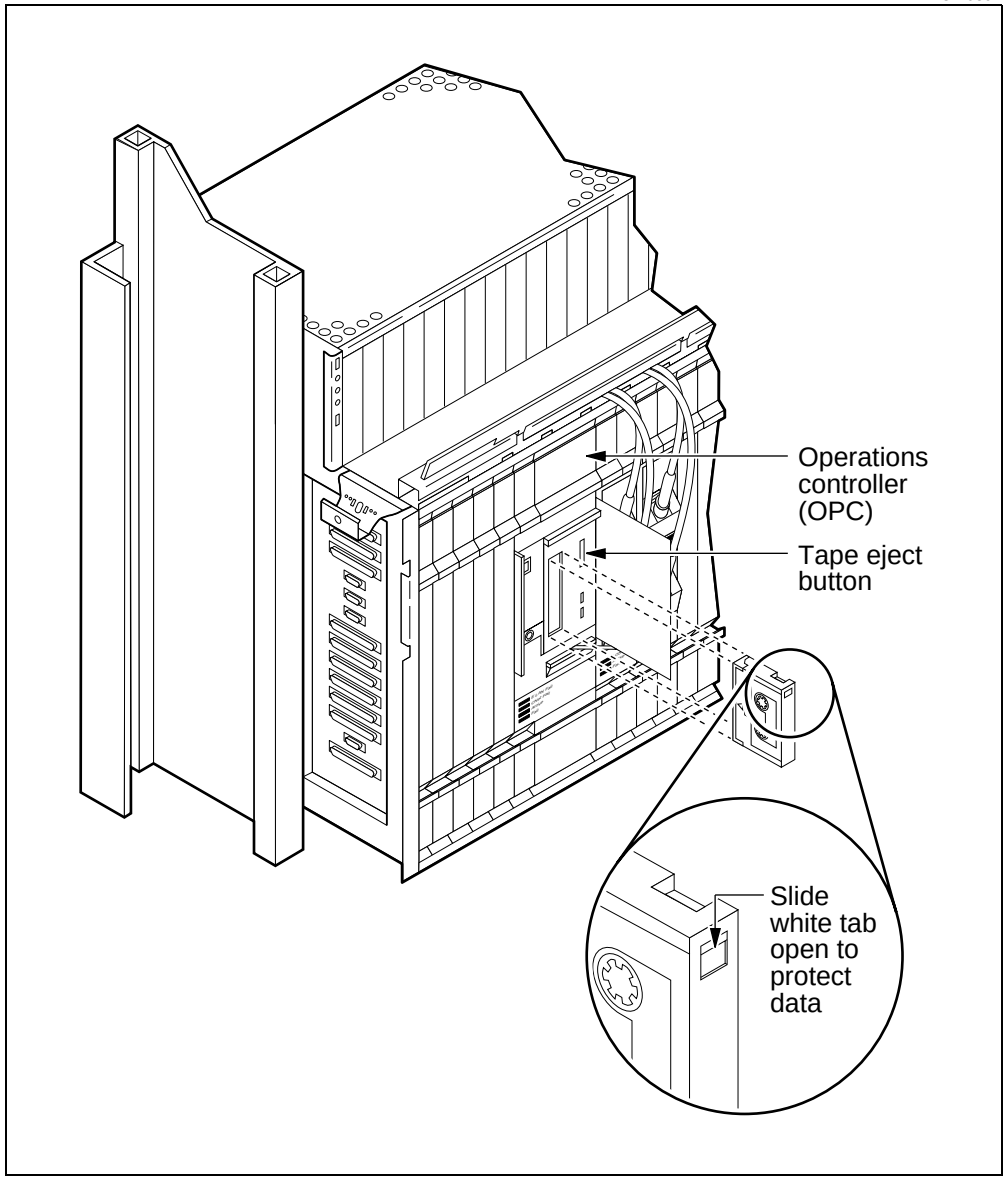
—continued—

Procedure 3-2 (continued)
Removing existing software on the primary OPC

Step Action

Figure 3-1
Inserting and ejecting the tape from the OPC (NT7E24BA)

PC-10864



—end—

Procedure 3-3
Installing software on a local OPC and NE from tape

Use this procedure to perform the initial transfer of operations controller (OPC) software and network element (NE) software from tape to a local OPC, before you commission a system and its NEs.

Do not use this procedure as part of the process for upgrading the software in an in-service OPC. This procedure applies to a new or spare OPC that is currently not in use, including modular (shelf) primary and backup OPCs.

Do not perform this procedure if you are adding a point-to-point system to an existing span of control.

Requirements

Before starting this procedure, a tape or tapes with the correct OPC software load and NE software loads must be installed.

Action

Step	Action
1	Log in to the OPC. For steps to log in to the OPC, see Procedure 5-1 in "Appendix A: Common commissioning procedures."

CAUTION
Risk of equipment damage
If you force the tape into the tape drive, you can damage the drive and you may not be able to remove the tape. If you cannot easily insert the tape, it may be oriented the wrong way.
Refer to Figure 3-1 on page 3-6 for the correct orientation of the tape.

CAUTION
Enter UNIX commands carefully
If you enter a UNIX command incorrectly, it can be difficult to recover from the error. Be sure to read this procedure carefully, to distinguish between similar symbols, such as **!**, **|**, and ***l***; or - and =. Commands shown in lower case must be entered in lower case. Contact Nortel Networks if you need support.

—continued—

Procedure 3-3 (continued)
Installing software on a local OPC and NE from tape

Step	Action
	Installing the OPC software
2	To begin the installation of the AccessNode software into the OPC, enter: **cd /tmp** ↵ *The "opc>" prompt appears.*
3	Enter: **dd if=/dev/rdt/tape2 bs=20b | tar xvf -** ↵ *Either the message Broken pipe appears or a message similar to the following appears (the numbers may vary).* `439+4 blocks in` `439+4 blocks out` *The "opc>" prompt appears.*
4	Enter: **cd /tmp/install** ↵ *The "opc>" prompt appears.*
5	Enter: **install_release -f**↵ ***Note:*** This command is case sensitive and must be typed exactly as shown. *The system displays a message that it is installing the software and shows the percentage of software installation completed. The rest of the installation takes approximately 1 hour.* **a.** When the application software has been loaded, the OPC automatically reboots.When the login prompt appears, log back in to the OPC, using the **root** userID.
6	Enter **opcui** *The system displays the User Session Manager main window.*
7	Press the tape eject button to release the tape.

—end—

Procedure 3-4
Commissioning the OPC

Use this procedure to commission the OPC and enter information about its span of control.

Setup form

To view the system and network names, see the OPC Setup Form in Chapter 1.

Action

Step	Action
1	Tab to the Available tools section of the User Session Manager window.
2	Arrow down to the Commissioning Manager tool.
3	Open the Commissioning Manager tool by pressing **Ctrl_A**. *The Commissioning Manager main window is displayed.*
4	Read the serial number of the OPC you are logged into, as displayed in the upper right corner of the Commissioning Manager main window.
5	Compare the OPC serial number viewed online with that obtained from the bar code label of the main printed circuit board of the OPC. These serial numbers must be identical. If not, the number on the OPC Setup Form in Chapter 1 must be changed. ***Note:*** Ignore the prefix “NNTM” on the OPC serial number label.
6	Select the Commission new system option, and open with **Ctrl_A**. *The System Commissioning Data dialog appears and the cursor is placed in the Network name field.* The following terms are used in the System Commissioning Data dialog. Network — refers to the broad collection of multi-vendor products that are used to service a given administrative region. System — refers to the cluster of Nortel Networks NEs that are controlled by a single OPC, also known as a span of control. ***Note:*** The Network number and System ID fields are automatically filled with a default value of 1 and cannot be changed.
7	Optional step. To specify a network name, enter a unique name, up to 32 alphanumeric characters long (for example, “SouthwestRegion01”).

—continued—

Procedure 3-4 (continued)
Commissioning the OPC

Step	Action
8	Optional step. To specify a system name, tab to the System name field and enter a unique name, up to 32 alphanumeric characters long (for example, “CentralBankHeadquarters”).
9	Tab to the OPC name field. ***Note:*** The System type field is autofilled with the name AccessNode and cannot be changed in this dialog.
10	At the OPC name field, enter a node name for the primary/backup OPC pair. OPC node names must be unique within the system and have the following format: **OPC <xxxx>** **where** <xxxx> integers from 0 to 9 or alphanumeric characters. (Example: OPC27JF)
11	Tab to the Primary OPC serial number field. The serial number of the OPC you are logged into appears in this field by default. The serial number of the OPC you are logged into is displayed in the upper right corner of the Commissioning Manager main window.
12	Optional step. To specify an alias for the primary OPC, tab to the Primary OPC alias field and enter a name up to eight alphanumeric characters long. The default alias is the OPC name followed by P (for primary) or B (for backup).
13	To complete the entry of system-level commissioning data, tab to the OK button and select it by pressing **Ctrl_A**. *When you select the OK button and the information is entered correctly, the System Commissioning Data dialog is removed and the name of the system being commissioned is displayed in the upper left corner of the main window. The arrow (=>) indicator in the main window moves to Commission new network element.*

If	Then
any essential data is missing or entered incorrectly else, continue	• an error dialog explaining the nature of the problem is displayed. • the System Commissioning Data dialog remains displayed and fields with missing or erroneous data are marked with an “X”.

14	Use **Ctrl_L W** to display the Exit menu.
15	Select Exit by pressing the **space bar**. *The User Session Manager screen appears.*

—end—

Procedure 3-5
Commissioning a network element

Use this procedure to begin the commissioning of an NE. This procedure should be performed prior to transferring the NE software to the OPC, and should be repeated for every NE in the span of control. The order in which the NEs are commissioned is not critical.

Note: Perform this procedure for both the TBM and ABM shelves.

Setup form

To identify the NE number, see the Network Elements Setup Form in Chapter 1 prepared by your system administrator.

Action

Step	Action
1	From the User Session Manager, tab to the Available Tools list. Press the down arrow to go to the Commissioning Manager. Open the Commissioning Manager by pressing **Ctrl_A**. *The Commissioning Manager main window appears.* ***Note:*** First do the FCOT as shown in the table below.
2	Select the **Commission new network element** from the Commissioning Manager main window by pressing **Ctrl_A**. *The Network Element Commissioning Data dialog is displayed.*
3	The cursor should be at the start of the Network element number field (NEID). At this field, enter a number (1 to 9999) that is unique within this system. This number should be assigned according to the NE numbering plan for this system that is recorded on the Network Elements Setup Form.
4	Record the NE number on a write-on label. Place the write-on label in the area marked “place NE label here” on the label plate of the common equipment shelf.

—continued—

Procedure 3-5 (continued)
Commissioning a network element

Step	Action

5 For each of the data fields appearing on the screen, refer to the following table:

If you have	Shelf type is	Shelf function is	Transmission rate is	Software release is
an FCOT	TBM or ABM	FCOT	OC-3/OC-12	As displayed
an RFT	ABM	RFT	OC-3/OC-12	As displayed

Note: To enter the data into the fields, do substeps a and b.

a. Tab to the data field. Press **Ctrl_L** and a forward slash (**/**) to display the chooser menu.

A chooser menu appears.

b. Press the arrow keys to move to the appropriate selection and select it by pressing the **space bar**.

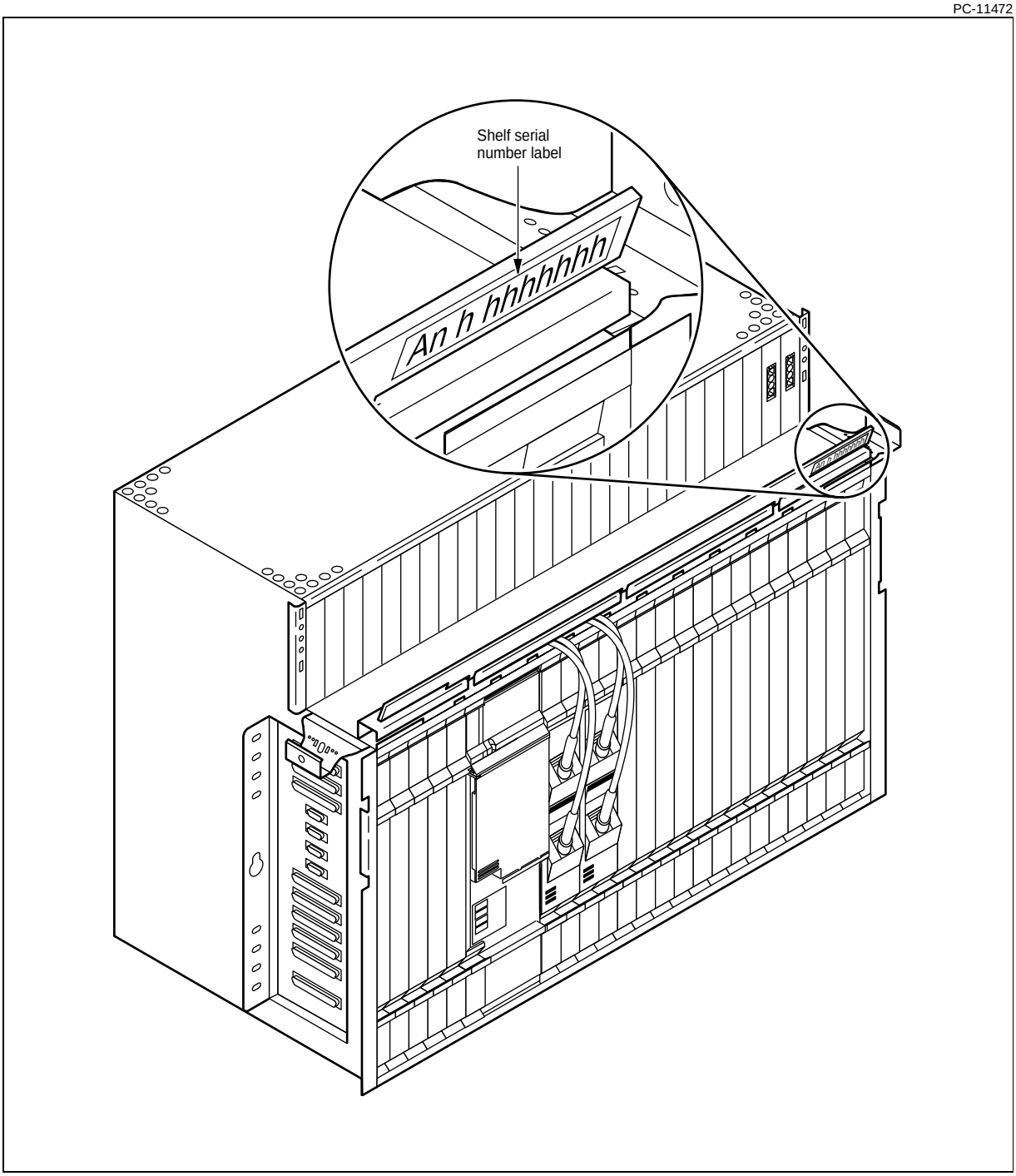
6 Tab to the Shelf Serial Number field. Read the serial number on the upper right corner of the equipment shelf, and enter it into the Shelf Serial Number field. See Figure 3-2 on page 3-13.

—continued—

Procedure 3-5 (continued)
Commissioning a network element

Figure 3-2
Shelf serial number label

PC-11472



—continued—

Procedure 3-5 (continued)
Commissioning a network element

Step	Action
7	Tab to the area of the screen named “This network element contains.” *The cursor moves to the “No OPC” selection.*
8	To choose a selection other than “No OPC,” use the arrow key to move the cursor.
9	Press **Ctrl_A**.
10	Tab to the OK_Return button, and press **Ctrl_A** to select it. *The Commissioning Manager main window is displayed, showing the network element that was commissioned.*
11	Do one of the following:

If	Then
you want to commission another network element	repeat this procedure for the RFT, beginning at step 2.
you do not want to commission another network element	• close the Commissioning Manager by pressing **Ctrl_L** and the letter **W.** • select Exit from the displayed menu by pressing the **space bar**. *The User Session Manager appears.*

12 Do one of the following:

If you are commissioning an NE	Then
in a new OPC span of control	go to step 13
in an existing OPC span of control	go to step 20

13 Close the Commissioning Manager by entering **Ctrl_L W.**

14 Select Exit from the displayed menu by pressing the **space bar**.
The User Session Manager appears.

15 Enter **Ctrl_T 3** ↵
The OPC prompt appears.

—continued—

Procedure 3-5 (continued)
Commissioning a network element

Step	Action
16	Enter **cd /tmp** ↵
17	Enter **setmbr** ↵ *The system displays messages saying that it is setting the software release, followed by a message that the set OPC release was successful and the OPC prompt.*
18	Enter **Ctrl_T 0**↵ *The User Session Manager main window is displayed.*
19	This procedure is complete. Go to the next procedure.
20	Enter **Ctrl_T 3**↵. *The OPC prompt is displayed.*
21	Enter **cd /tmp** ↵. *The OPC prompt is displayed.*
22	Enter the following command **lomui setNE_release -p <product> -r REL_<xxxx> -n <NE_ID>** ↵ **where** <product> is the type of NE (access, OC3, OC12) <xxxx> is the number of the current NE release <NE_ID> is the identification number of the NE *The OPC prompt is displayed.*
23	Enter **Ctrl_T 0** ↵. *The User Session Manager is displayed.*

—end—

Procedure 3-6
Adding a point-to-point configuration

Use this procedure to create configuration data for a point-to-point system. The following procedure describes how to create a configuration by:

- specifying the transmission rate (OC-3 or OC-12)
- adding network elements to the configuration
- saving the configuration to the primary and backup operations controller (OPC) databases

Action

Step	Action
1	Tab to the Available tools section of the User Session Manager window.
2	Use the arrow keys to move to the Configuration Manager.
3	Open the Configuration Manager tool with **Ctrl_A**. *The Configuration Manager window appears.*
4	To display the list menu, press **Ctrl_L** */* (or Keypad **3**). *The list menu appears.*
5	Highlight the **Add** command. *A cascade menu appears, displaying the options AccessNode: Ring, AccessNode: Point-to-Point, or Help.*
6	Using the arrow keys, move to the AccessNode: Point-to-Point option, then press the **space bar** (or Keypad **0**). *The Configuration Manager: Point-to-Point window appears in the add configuration mode. The Type and Topology fields are already filled in. The Alarm Management field is disabled. The default transmission rate of OC-12 is selected.*
7	Enter a name for the point-to-point system (up to 18 alphanumeric characters).

—continued—

Procedure 3-6 (continued)
Adding a point-to-point configuration

Step	Action

8 Complete the following instructions based on the configuration you are adding:

If you are adding	Then
an OC-3 rate configuration	• Tab to the **Rate** buttons to change the transmission rate • Using the arrow keys, move to the required rate, then press **Ctrl_A** (or Keypad **0**). *The required rate button is selected.* • go to step 9.
an OC-12 rate configuration	go to step 9.

9 Tab to the FCOT Network Element field, then press **Ctrl_L /** (or Keypad **3**).

The chooser menu appears.

10 Move to the network element you want to add to the configuration, then press the **space bar** (or Keypad **0**).

The network element ID appears in the FCOT Network Element field.

11 Tab to the RFT Network Element, then press **Ctrl_L /** (or Keypad **3**) to display the chooser menu.

12 Move to the network element you want to add to the configuration, then press the **space bar** (or Keypad **0**).

The network element ID appears in the RFT Network Element field.

13 Tab to the **Save Configuration** button, then press **Ctrl_A** (or Keypad **0**).

The confirmation dialog appears.

14 To close the dialog, press **Ctrl_A** (or Keypad **0**) to select the **OK** button.

The Configuration Manager: Point-to-Point window appears in the edit mode.

15 Tab to the Alarm Management field.

The level defaults to network level.

16 Use the down arrow key to position on the System Level Alarm and set by pressing **Ctrl_A**.

17 Tab to the Set Alarm Level field.

18 Set the alarm level by pressing **Ctrl_A**.

19 To close the Configuration Manager: Point-to-Point window (edit mode), press **Ctrl_L W** (or Keypad **6**) to display the window menu.

—continued—

Procedure 3-6 (continued)
Adding a point-to-point configuration

Step	Action
20	To select the **Exit** command, press the **space bar** (or Keypad **0**).
21	To close the Configuration Manager window, press **Ctrl_L W**.
22	To select the **Exit** command, press the **space bar** (or Keypad **0**). *The User Session Manager window appears.*

—end—

Procedure 3-7
Monitoring the loading of software to a network element

Use this procedure to monitor the downloading of software from the commissioning OPC to an NE.

The software download automatically begins when all of the following are completed:

- The processors are installed in the shelf.
- The system and NE commissioning data are loaded on the OPC.
- The OPC is connected to the NE by using a CNet connection or by installing the OPC in the shelf.

When software is downloading, the Reboot Load Manager tool can be used to monitor, but not control, the download.

Action

Step	Action
1	From the User Session Manager, press the arrow key to move to the Available Tools list. Open the Reboot/Load Manager tool by pressing **Ctrl_A**. *The Reboot/Load Manager main window appears.*

CAUTION
Risk of equipment damage
The following steps involve the handling of circuit packs. Use an antistatic strap (or other static protection device) to protect against damage due to electrostatic discharge.

2	The OPC with system and NE commissioning data begins downloading software when the OPC is engaged or connected to the shelf and a processor circuit pack is installed.
3	Review the download progress using the OPC Reboot/Load Manager tool. *The download starts. The yellow initialization (Init) LED lights up on the maintenance interface card (MIC) while the processor card is loading software.* ***Note:*** The OPC Fail LED may be illuminated until the **approve** command is issued on the TBM shelf.

—continued—

Procedure 3-7 (continued)
Monitoring the loading of software to a network element

Step	Action
	After several minutes, "In Progress" appears in the Reboot/Load Manager main window. The download process takes 5 to 10 minutes. While the download process continues, a question mark is displayed in front of the NE number on the screen.
4	Wait for the question mark to disappear, then go to step 5. If you are commissioning more than one NE, wait for the question marks to disappear before all the NEs you are commissioning.
5	Close the Reboot/Load Manager tool. **a.** Display the Window menu by pressing **Ctrl_L W**. *The Window menu is displayed.* **b.** Select the Exit command by pressing the **space bar**. *The User Session Manager screen appears.*
	Note: Steps 6 through 11 apply only to a TBM shelf.
6	Log in to the NEUI. For steps to log in to the NEUI, see Procedure 5-2 in "Appendix A: Common commissioning procedures".
7	Issue the Approve command from any NEUI screen by entering: **approve** ↵ *The system prompts you for confirmation.*
8	Confirm the command: **yes** ↵ *This forces a system restart. The system restarts with the new configuration data.* Allow sufficient time (up to three minutes) for the NE initialization after the restart is completed.
9	Log in to the NEUI again. For steps to log in to the NEUI, see Procedure 5-2 in "Appendix A: Common commissioning procedures".
10	Verify that the Proc card is successfully rebooted. *The "Database not restored. Type Q APPROVE at NE" alarm should be cleared.*
11	Confirm that the Approve command is successful by issuing the command again. *The request should be denied and the NEUI displays the following message:* `Not applicable at this time.`
12	Log out of the S/DMS Nodes screen.

—continued—

Procedure 3-7 (continued)
Monitoring the loading of software to a network element

Step	Action
13	Select the NE Login manager by pressing **Ctrl_L W**.
14	Close the tool by pressing the space bar.
15	Select Exit. ***Note:*** Wait 30 minutes before performing the next procedure.

—end—

Procedure 3-8
Adding a new host to an RFT

Use this procedure to add a new host switch or a new interface group (IG) to a specific RFT. Two kinds of host switches are supported: GR-303 MVI hosts and GR-303 DMS hosts. Each RFT can have a maximum of five hosts. After five hosts are added, the Add button is disabled.

If there are no GR-303 DMS or GR-303 MVI links to assign, skip this procedure, and go to procedure 3-9.

After you add the host, you can assign DS1s to the host through the Manage Facility Assignments dialog in the Connection Manager tool.

Setup form

To view the host name and IDT value, see the Host Provisioning Setup Form in Chapter 1 prepared by your system administrator.

Action

Step	Action
1	On the User Session Manager main window, tab to the Available Tools menu.
2	Position the cursor on the Host Provisioning Manager, and press **Ctrl_A**. *The Host Provisioning Manager main window is displayed.*
3	To display the chooser menu, press **Ctrl_L** ***l***. *The chooser menu appears showing the RFTs that are in the OPC span of control.*
4	Use the arrow keys to move to the RFT you want to add a host to, then press the **space bar**.
5	Tab to the **Add** button, and press **Ctrl_A**. *The Add Interface Group Information dialog appears.* ***Note:*** You can add up to five hosts to an RFT. Therefore, if you have already added five hosts to the selected RFT, the Add button is disabled, and you cannot add any more hosts to this RFT.

—continued—

Procedure 3-8 (continued)
Adding a new host to an RFT

Step	Action

6 In the Host name field, enter the name of the host you want to add, then enter the value of the IDT that will be used for the new interface in the IDT field. Refer to the Host Provisioning Setup Form in Chapter 1 for the host name and IDT value.

CAUTION
The Host Provisioning Manager does not verify the accuracy of the host name or the IDT, but these two names must be correct.

Be careful in entering the names. The names have to be exact; for example, do not substitute a letter o for the number 0.

If you make an incorrect entry while provisioning a	Then
GR-303 DMS interface	you cannot establish an association between the intended DMS host and the AccessNode, even though the physical connections are in place.
GR-303 MVI interface	you can establish an association between the intended MVI host and the AccessNode as long as the physical connections are in place.

7 Tab to the button (**GR-303 DMS** or **GR-303 MVI**) that applies to the type of host interface you are adding, then press **Ctrl_A**.

The selected interface type is marked by a solid diamond.

8 Tab to the **OK** button, then press **Ctrl_A**.

The new Host CLLI appears in the provisioned hosts list on the Host Provisioning Manager screen.

—continued—

Procedure 3-8 (continued)
Adding a new host to an RFT

Step	Action

9 Do one of the following:

If	Then
you want to assign hosts to other RFTs	repeat this procedure for each RFT beginning at step 2.
you do not want to assign hosts to other RFTs	close the Host Provisioning Manager tool. To close the tool, enter **Ctrl_L** and the letter **W**. Then choose exit from the displayed menu by pressing the **space bar**. *The screen displays the User Session Manager main window.*
you want to add hosts to the same RFT	go to steps 5.

—end—

Procedure 3-9
Provisioning default connections on point-to-point systems

Use this procedure to provision default end-to-end default connections for network elements (NEs) in a point-to-point configuration.

> ***Note:*** If you are provisioning non-default connections on an OC-3/OC-12 point-to-point system, skip this procedure and complete Procedure 3-10.

The standard default provisioning is shown below:

Table 3-1
Default provisioning

TBM	ABM	STS Channel
G3,G4	TIC1	STS-1
G5,G6	G1,G2	STS-2
G9,G10	G5,G6	STS-3

Action

Step	Action
1	Tab to the Available tools section of the User Session Manager window.
2	Use the arrow keys to select the Connection Manager.
3	Open the Connection Manager with **Ctrl_A**. *The Connection Manager window appears.*
4	To display the Options menu, press **Ctrl_L T**, then press **Shift +**. *The Options menu appears.*
5	Move to the **Manage default/STS-1 cross connects** command, then press the **space bar** (or Keypad **0**). *The Manage Default/STS-1 Cross Connects dialog appears.*
6	In the Network Element field, press **Ctrl_L /** (or Keypad **3**) to display the chooser menu. *The chooser menu appears, listing the available NEs.*

—continued—

Procedure 3-9 (continued)
Provisioning default connections on point-to-point systems

Step	Action
7	Use the arrow key to move to the NE (TBM shelf) you want, then press the **space bar** (or Keypad **0**). *The NE appears in the Network Element field. The Shelf Function and Transmission Rate fields are automatically filled in for the selected NE. The **Provision End-to-End Default Connections** button is activated.* ***Note:*** The **Provision End-to-End Default Connections** button changes to a **Convert Nodal Default Connections** button if you did not follow the requirements of this procedure and provisioned nodal default connections before putting the FCOT and RFT into a point-to-point configuration. For this situation, select the **Convert Nodal Default Connections** button to convert the existing nodal connections for the network elements into end-to-end connections. After you select the **Yes** command indicating you want to proceed, the converted connections appear in the Connection Manager main window.
8	Tab to the **Provision End-to-End Default Connections** button, then press **Ctrl_A** (or Keypad **0**). *A confirmation dialog appears.*
9	Tab to the **Yes** button, then press **Ctrl_A** (or Keypad **0**). *A message displays when the provisioning is done correctly.*
10	Press **Ctrl_A** (or Keypad **0**) to select the **OK** button. *The Manage Default Cross Connects dialog appears listing the default connections.*
11	Tab to the **Done** button, then press **Ctrl_A** (or Keypad **0**). *The Connection Manager main window appears.*

—end—

Procedure 3-10
Provisioning non-default connections on point-to-point systems

Use this procedure to provision non-default STS-1 connections on an OC-3 point-to-point system. Non-default provisioning will increase the DS1 Transport capacity of the OC-3 point-to-point system from 28 DS1's to 56 DS1's. Non-default provisioning is not necessary for an OC-12 point-to-point system as it already has the maximum possible bandwidth provisioned by default.

> ***Note:*** If you are provisioning default connections, skip this procedure after completing Procedure 3-9.

The standard non-default provisioning is shown below:

Table 3-2
Non-default provisioning

TBM	ABM	STS Channel
G3,G4	TIC1	STS-1
G5,G6	G1,G2	STS-2
G9,G10	G5,G6	STS-3

Action

Step	Action
1	Tab to the Available tools section of the User Session Manager window.
2	Use the arrow keys to move to the Connection Manager tool.
3	Open the Connection Manager tool by pressing **Ctrl_A**.
4	Tab to the Add button and select it by pressing **Ctrl_A**. ***Note:*** The connection ID field is optional.
Entering the DS1 to TIC facility connection for line terminations on STS-1	
5	Tab to the STS-1 channel field.
6	Enter the STS-1 channel 1: **1**
7	Tab to End NE A, and enter **Ctrl_L /** to get list of NE's in the chooser menu.

—continued—

Procedure 3-10 (continued)
Provisioning non-default connections on point-to-point systems

Step	Action
8	Choose the NE number (the FCOT for the point-to-point system that is being commissioned) by using the down arrow key to place the cursor on that NE number.
9	Press the **space bar** to select the number.
10	Tab to the Trib. type field, and press **Ctrl_L /** for the chooser menu.
11	Select **DS1** by pressing the **space bar**.
12	Tab to the Group field, and enter **Ctrl_L /** for the chooser menu
13	Use the arrow keys to put the cursor on G3,G4, and select it by pressing the **space bar**.
14	Tab to the Trib Type field under the End NE Z field.
15	Display the chooser menu by pressing **Ctrl_L /**.
16	Use the arrow keys to position the cursor on the TIC option, and select it by pressing the **space bar**.
17	Tab to the Apply button, and select it by pressing **Ctrl_A**. *A confirmation box appears.*
18	Tab to Yes and select it by pressing **Ctrl_A**.
19	Select **Ctrl_A** for the final confirmation box.
Entering the DS1 to DS1 facility on STS-2	
20	Tab to the STS-1 channel field.
21	Enter for the STS-1 channel 2: **2**
22	Tab to the End NE A, and press **Ctrl_L /** to get list of NE's in the chooser menu.
23	Choose the NE number that is the FCOT for the Point to point system being commissioned by using the down arrow key to place the cursor on that NE number.
24	Use the **space bar** to select it.
25	Tab to Trib. type, and press **Ctrl_L /** for the chooser menu.
26	Select DS1 by pressing the **space bar**.
27	Tab to the Group field, and enter **Ctrl_L /** for the chooser menu.
28	Use the arrow keys to put the cursor on G5,G6, and select it by pressing the **space bar**. ***Note:*** The DS1 group may show up as unequipped if no circuit pack is currently in the slot. The connection will still be provisioned and will be available for use when a DS1 mapper card is inserted in the associated slot. No alarms will occur if no mappers are added at this time.

—continued—

Procedure 3-10 (continued)
Provisioning non-default connections on point-to-point systems

Step	Action
29	Tab to the Trib Type field under the End NE Z field.
30	Display the chooser menu by pressing **Ctrl_L /**.
31	Select DS1 by pressing the **space bar**.
32	Tab to the group field, and press **Ctrl_L /** for the chooser menu.
33	Select G1,G2 by pressing the **space bar**. ***Note:*** The DS1 group may show up as unequipped if no circuit pack is currently in the slot. The connection will still be provisioned and will be available for use when a DS1 mapper card is inserted in the associated slot. No alarms will occur if no mappers are added at this time.
34	Tab to the Apply button and select it by pressing **Ctrl_A**. *A confirmation box appears.*
35	Tab to Yes and select it by pressing **Ctrl_A**.
36	Select **Ctrl_A** for the final confirmation box.
Entering the DS1 to DS1 facility on STS-3	
37	Tab to the STS-1 channel field.
38	Enter for STS-1 channel 3: **3**
39	Tab to the End NE A and enter **Ctrl_L /** to get list of NE's in the chooser menu.
40	Choose the NE number (the FCOT for the point-to-point system that is being commissioned) by using the down arrow key to place the cursor on that NE number.
41	Use the **space bar** to select it.
42	Tab to the Trib. type field, and press **Ctrl_L /** for chooser menu.
43	Select DS1 by pressing the **space bar**.
44	Tab to the Group field, and enter **Ctrl_L /** for the chooser menu.
45	Use the arrow keys to put the cursor on G9,G10, and select it by pressing the **space bar**. ***Note:*** The DS1 group may show up as unequipped if no circuit pack is currently in the slot. The connection will still be provisioned and will be available for use when a DS1 mapper card is inserted in the associated slot. No alarms will occur if no mappers are added at this time.
46	Tab to the Trib Type field under the End NE Z field.
47	Display the chooser menu by pressing **Ctrl_L /**.
48	Select DS1 by pressing the **space bar**.

—continued—

Procedure 3-10 (continued)
Provisioning non-default connections on point-to-point systems

Step	Action
49	Tab to the group field, and press **Ctrl_L /** for the chooser menu.
50	Use the down arrow key to position the cursor on G5,G6, and select it by pressing the **space bar**. ***Note:*** The DS1 group may show up as unequipped if no circuit pack is currently in the slot. The connection will still be provisioned and will be available for use when a DS1 mapper card is inserted in the associated slot. No alarms will occur if no mappers are added at this time.
51	Tab to the Ok button, and select it by pressing **Ctrl_A**. *A confirmation box appears.*
52	Tab to Yes, and select it by pressing **Ctrl_A**.
53	Select **Ctrl_A** for the final confirmation box.

—end—

Procedure 3-11
Provisioning DS1 facility assignments

Use this procedure to add, view, and change the facility assignments of DS1s/OC-3s connected to transport interface card (TIC) STS-1 #1 of a remote fiber terminal (RFT) in point-to-point systems. The TIC STS-1 #1 terminates up to 28 DS1 facilities.

Use the Manage Facility Assignments dialog in the Connection Manager tool to select a network element (NE) in NE pair in point-to-point systems. For the selected NE or NE pair, a list of existing facility assignments appears. You can change or unassign these assignments, or add new assignments.

CAUTION
Risk of equipment damage
Before unassigning the last two DS1 facilities to a switch, deprovision all subscriber lines to the switch. Do not unassign a DS1 facility while it is still in service. If the link terminates at the DMS-100 SuperNode, the link must first be removed from Subscriber Carrier Module-100 Access (SMA) table RDTINV.

Each DS1/OC-3 facility assignment includes the following information:

- the facility endpoints or virtual tributary number within AccessNode
- the type of external termination (TR-08, GR-303 DMS/MVI, DS1 tandem, virtual line concentrating module (VLCM), or Data Direct)
  - — TR-08 and GR-303 are Bellcore standards describing generic interfaces to switches.
  - — GR-303 MVI is the Nortel Networks feature on AccessNode that supports the GR-303 (and any GR-303 compliant LDS) multivendor interface to other vendors' switches (for example, Lucent 5ESS® and Siemen's EWSD®).
  - — GR-303 DMS is the Nortel Networks feature on AccessNode that supports the GR-303 standard functionality *plus enhancements* on DMS-100 SuperNode switches.
  - — DS1 tandem services are non-switched and non-locally switched connections to the Special Services Digital Network (SSDN).

—continued—

Procedure 3-11 (continued)
Provisioning DS1 facility assignments

  - — VLCM is a link that interfaces the AccessNode to a DMS-10 switch. The AccessNode emulates a remote line concentrating module (RLCM). For a translation table that shows how AccessNode lines translate to lines on the DMS-10NA switch, see *Line Card Provisioning Procedures*, 323-3001-315, in *Operations, Administration, and Provisioning*, Volume 4B.
  - — Data Direct links are used to bypass the public switched telephone network (PSTN) and route Internet-bound traffic to a dial-up switch.
- a unique link name (not required for DS1 tandem), that includes both the switch common language location identifier (CLLI) and integrated digital terminal (IDT) number, or the GR-303 interface group and link number, or the TR-08 system number and link number

Table 3-3 shows the relationship between ports on the two DS1/VT mappers in the TransportNode common equipment shelf and the VTs displayed on the Manage Facility Assignments dialog.

Note: The group numbers for the DS1/VT mappers in the first column of Table 3-3 on page 3-33 are shown as ***G****x* and ***G****y*. In the table, *x* and *y* indicate that the DS1/VT mappers can be located in more than one slot position.

Setup form

To get the DS1 assignments, see the DS1 Service Assignments in Chapter 1 prepared by your system administrator.

—continued—

Procedure 3-11 (continued)
Provisioning DS1 facility assignments

Table 3-3
Mapping VTs from the TransportNode NE to the point-to-point RFT

VT at FCOT		VT at RFT	
DS1/VT mapper group number	**Port**	**TIC/STS-1 number**	**VT number**
G3	1	1	1
G3	2	1	2
G3	3	1	3
G3	4	1	4
G3	5	1	5
G3	6	1	6
G3	7	1	7
G3	8	1	8
G3	9	1	9
G3	10	1	10
G3	11	1	11
G3	12	1	12
G3	13	1	13
G3	14	1	14
G4	1	1	15
G4	2	1	16
G4	3	1	17
G4	4	1	18
G4	5	1	19
G4	6	1	20
G4	7	1	21
G4	8	1	22
G4	9	1	23
G4	10	1	24
G4	11	1	25
G4	12	1	26
G4	13	1	27
G4	14	1	28

—continued—

Procedure 3-11 (continued)
Provisioning DS1 facility assignments

Action

Step	Action
1	At the Connection Manager tool screen, display the Options menu by pressing **Ctrl_L T**, then press **Shift +**. *The Options menu appears.*
2	To select the **Manage facility assignments** command use the arrow keys.
3	Open the dialog by pressing the **space bar** (or Keypad **0**). *The Manage Facility Assignments dialog appears.*
4	In the End NE A field, press **Ctrl_L /** (or Keypad **3**) to display the chooser menu. *The chooser menu appears, listing the available NEs.*
5	Use the down arrow key to move to the NE ID you want, then press the **space bar** (or Keypad **0**). *The NE appears in the End NE A field.*
6	If you select a point-to-point fiber central office terminal (FCOT) (or RFT), the corresponding RFT (or FCOT) automatically appears in the End NE Z field.
7	Tab twice to go to the Facilities screen.
8	Move to the DS1 for which you want to change the assignment, then press **Ctrl_A** (or Keypad **0**).
9	To display the List item menu, press **Ctrl_L** (or Keypad **Enter**). *The List item menu for the selected facility appears.*
10	Change the assignment for the facility.

If you want to change the facility assignment to	Then go to
tandem service	step 11
GR-303 DMS or GR-303 MVI service	step 12
TR-08 service	step 13
unassigned	step 14

11 To change the facility assignment to tandem service, move to the **Assign as Tandem** command, then press the **space bar** (or Keypad **0**).

The DS1 in the Facilities list on the main window changes to Tandem.

If you want to	Then go to
change another assignment	step 8
exit from the Manage Facility Assignments dialog	step 15

—continued—

Procedure 3-11 (continued)
Provisioning DS1 facility assignments

Step	Action
12	To change the OC-3/DS1 assignment to GR-303 DMS or GR-303 MVI service:

a. Move to either of the **Assign as GR-303** commands, then press the **space bar** (or Keypad **0**).

The GR-303 facilities dialog appears.

b. Move to the IG Number field, then press **Ctrl_L /** (or Keypad **3**) to display the chooser menu.

The chooser menu appears.

Note: The host must be defined using the OPC Host Provisioning Manager tool before the host name appears in the list.

c. Move to the IG number you want, then press the **space bar** (or Keypad **0**).

The host name appears in the Host Name field, the IDT number appears in the IDT number field, and a link number appears in the RDTLink Number field.

The host name and IDT number identify the IG to the system.

The RDTLink Number assigned to the DS1 port must match the RDTLink number assigned to the port (SMA port for a DMS) to which it is physically connected. Table RDTINV on the Host contains the RDTLink Number to the port pairings. This number is the next available logical line number for the Host.

d. Tab to the **OK** button, then press **Ctrl_A** (or Keypad **0).**

A warning screen appears.

e. Press **Ctrl_A** (or Keypad **0)** to clear the warning.

The OPC requests that the network element create the links.

If the following message appears, the network element cannot assign more links because the limit of 31 DS0 links have been assigned.

SC-10189

```
Attention

The network element has reached its communication overhead
(COH) channel limit. This link will not be assigned

Check your system manuals or contact your Northern Telecom
technical representatives.

[ Ok   ♦Return]
```

—continued—

Procedure 3-11 (continued)
Provisioning DS1 facility assignments

Step	Action

f. A network element must have two links assigned to it before it can communicate with the switch. Links one and two are used for messaging and traffic. Links three and higher are used only for traffic.

The link you just provisioned appears in the network element list.

Note: Repeat the procedure for the rest of the MVI or DMS host links.

g. Use the down arrow to move to **NE Login Mgr**.

The Network Element login Manager appears.

If you want to	Then go to
change another assignment	step 8
exit from the Manage Facility Assignments dialog	step 15

13 To change the DS1 assignment to TR-08 service:

a. Move to the **Assign as TR-08** command, then press the **space bar** (or Keypad **0**).

The TR-08 facilities dialog appears.

b. Tab to the System Number field, then press **Ctrl_L /** (or Keypad **3**) to display the chooser menu.

c. Use the arrow key to move to the system number you want, then press the **space bar** (or Keypad **0**).

The Link Id is filled in with a suggested letter.

The first link provisioned in a system must be the A-link, which carries the derived data link (DDL) format. Subsequent links can be B, C, or D.

If you	Then go to
want to change the suggested Link Id	step 13d
do not want to change the Link Id	step 13 f

d. Tab to the Link Id field, then press **Ctrl_L /** (or Keypad **3**) to display the chooser menu.

The chooser menu appears.

Note: Only TR-08 links (A, B, C, or D) that have not yet been selected are displayed.

e. Move to the Link Id number you want, then press **Space** (or Keypad **0**).

The A-link is allowed only on TIC VT1.5s 1, 5, 9, 13, 17, 21, and 25.

The first link provisioned in a system must be the A link, which carries the derived data link (DDL). Subsequent links can be B, C, or D.

—continued—

Procedure 3-11 (continued)
Provisioning DS1 facility assignments

Step	Action

f. Tab the **OK** button if you want to initiate the assignment of the TR-08 service for the selected DS1.

g. Select the OK button with **Ctrl_A**.

The assignment of the DS1 in the Facilities list in the main window is changed to the TR-08 system number (1 to 7) and the link number (A, B, C, or D).

Note: To use TR-08 systems 8 to 21, you must use the Nodal Connection Manager tool (see *Nodal Connection Manager Quick Reference Guide*).

If you want to	Then go to
change another assignment	step 8
exit the Manage Facility Assignments dialog	step 15

14 To remove the facility assignment:

a. Move to the **Unassign** command, then press the **space bar** (or Keypad **0**).

A confirmation dialog appears informing you that the selected DS1 will have its current assignment removed.

b. Tab to the **OK** button, then press **Ctrl_A** (or Keypad **0**).

The assignment in the Facilities list in the main window is removed (changed) to Unassigned.

CAUTION
Unexpected busy tone
Removing a facility assignment at the AccessNode without removing the corresponding link at the switch can produce a busy tone when your subscriber dials an idle circuit.

If you want to	Then go to
change another assignment	step 8
exit from the Manage Facility Assignments tool	step 15

15 To close the Manage Facility Assignments dialog, tab to the **Done** button, then press **Ctrl_A** (or Keypad **0**).

The Connection Manager main window appears.

—continued—

Procedure 3-11 (continued)
Provisioning DS1 facility assignments

Step	Action

16 To close the Connection Manager tool, press **Esc)**, or do the following:

To	Press
display the window menu	**Ctrl_L W** (or Keypad **6**) *The window menu appears.*
exit	**space bar** (or Keypad **0**)

—end—

Procedure 3-12
Setting the time zone, date, and time at the OPC

Use the following procedure to change the time zone, date, and time in an OPC. The time zone codes are listed within the OPC Date tool, and the appropriate code is selected using this procedure. Table 1-4 on page 1-20 also provides a list of valid time zones.

Note: This procedure is not required for an existing span of control.

The local time and date must be set during initial commissioning, and whenever the OPC clock battery has discharged. It should not be necessary to set the clock again unless the OPC is moved to a new time zone, or replaced. However, the OPC local time may require infrequent adjustment. Changing the time or date of an operational OPC involves shutting it down. The shutdown procedure is automatically initiated within the procedure to change the time.

The time-of-day clocks on the primary and backup OPCs must be set as closely to the same time as possible in their respective time zones. In case of primary OPC failure, the backup OPC clock becomes the time-of-day clock source.

Setup form

To find your time zone code, see the OPC Setup Form in Chapter 1 prepared by your system administrator.

—continued—

Procedure 3-12 (continued)
Setting the time zone, date, and time at the OPC

Action

Step	Action

1 On the User Session Manager main window, tab to the Available Tools menu.

2 Position the cursor on the OPC Date tool, and press **Ctrl_A**.

The OPC Date main window is displayed.

3 Decide whether you are changing the time by more than 30 minutes.

If you are changing the time by	Then go to
less than 30 minutes	step 4
more than 30 minutes	step 10

Adjust Time

4 Select the Adjust Time button by pressing **Ctrl_A**.

The time and date change dialog is displayed.

5 To change the date, enter a new value in the Date field in the form dd/mm/yyyy.

where

dd — is the day of the month (range 01 to 28, 29, 30, or 31, depending on the month)

mm — is the month (range 01 to 12)

yyyy — is the year (range 1976 to 2036)

The new date is displayed in the Date entry field.

Note 1: Make sure the old date is removed. Use the right arrow key to position the cursor after the old text and press the backspace key.

Note 2: When using the Adjust Time capability, you can only change the date to the day immediately preceding or following the current day, and only if the current time is within 30 minutes of the day change. Modifications to the date field at this point are required to support a 30 minute time advance near the end of the day.

—continued—

Procedure 3-12 (continued)
Setting the time zone, date, and time at the OPC

Step	Action
6	To change the time, tab to the Time field and enter a new value in the form hh:mm. **where** hh is the hour (range 00 to 23) mm is the minute (range 00 to 59) *The new time is displayed in the Time entry field.* ***Note 1:*** When using the Adjust Time capability, you can only change the time to within 30 minutes of the current value. ***Note 2:*** It is recommended that the current time of the primary OPC clock be used as the source of the correct time when setting the backup OPC clock.
7	Tab to the Update button and select it by pressing **Ctrl_A**. *The data you entered is validated. If the data is incorrect, an error dialog is displayed telling you what to do. If the data is correct, you are returned to the OPC Date main window.* If you select the Cancel button, the changes you make are not saved.
8	Press **Ctrl_L W**. *The system displays a selection menu.*
9	Select Exit by pressing the **space bar**. *The system displays the User Session Manager main window.* You are finished with this procedure.
Reset Time	
10	Select the Reset Time button from the OPC Date window by pressing **Ctrl_A**. *A confirmation dialog is displayed, indicating the amount of time required for shutting down the OPC and giving you a final chance to abort the shutdown.*
11	Tab to the Proceed button and select it by pressing **Ctrl_A**. *The OPC shutdown process starts. A console message is displayed to all users who are currently logged in to the OPC.* ***Note 1:*** The selection of the Proceed button commits the shutdown of the OPC, even if you decide later to abort the changes to the time and date. To stop the OPC shutdown procedure, select the Cancel button. ***Note 2:*** The OPC clock is reset to the time you specified when the last dialog is confirmed in step 17.

—continued—

Procedure 3-12 (continued)
Setting the time zone, date, and time at the OPC

Step	Action
12	Select the OK button by pressing **Ctrl_A**. *A shutdown progress message is displayed. As the shutdown progresses, the dots on the dialog are replaced with Xs.* The progress message indicates that the OPC is shutting down normally. Since the shutdown continues while the previous console message is displayed, the shutdown can complete before you select the OK button in this step. In this case, you do not see the progress message following. *This dialog is replaced by the following dialog when the shutdown is complete. The new dialog is displayed to all users who are currently logged in to the OPC.*
13	Select the Done button by pressing **Ctrl_A**. *The dialog is replaced by the Time and Date Change dialog.*
14	To change the date, tab to the Date field and enter a new value in the form dd/mm/yyyy. **where** dd — is the day of the month (range 01 to 28, 29, 30, or 31 depending on the month). mm — is the month (range 01 to 12). yyyy — is the year (range 1976 to 2036). *The new date is displayed in the Date entry field.* ***Note:*** Make sure old data is removed, by using the right arrow key to position the cursor ahead of old text and pressing the backspace key.
15	To change the time, tab to the Time field and enter a new value in the form hh:mm. **where** hh — is the hour (range 00 to 23). mm — is the minute (range 00 to 59).

—continued—

Procedure 3-12 (continued)
Setting the time zone, date, and time at the OPC

Step	Action
	The new time is displayed in the Time entry field.
	Note: It is recommended that the current time on the primary OPC clock be used when setting the backup OPC clock. The OPC clock is actually reset to the specified time when the last dialog is confirmed.
	To change the time zone, tab to the Time Zone list, use the arrow keys to move the cursor to the time zone code desired and select it by pressing **Ctrl_A**.
	The selected entry will be placed in the Time Zone field.
16	Tab to the Update button and select it by pressing **Ctrl_A**.
	A confirmation message is displayed, indicating that an error in selecting the new time and date would require a second OPC shutdown to correct.
	Note: If you select the Cancel button, the changes you have made are not saved and you are returned to the time and date change dialog.
17	Select the OK button by pressing **Ctrl_A**.
	The OPC clock is now set to the time you specified.
	The data you entered is validated. If incorrect, an error dialog is displayed that tells you what to do. If correct, the time and date information is saved and the OPC begins its reboot sequence. You can briefly see the User Session Manager screen.
	The reboot process takes about 5 to 10 minutes. When it is completed, the OPC login prompt (login:) is displayed.
	The shutdown of the OPC terminates all user login sessions and you have to log in again, after the OPC returns to service.
18	Log in to the OPC using the **root** user ID and password.
19	At the opc prompt, type **opcui**. The User Session Manager is displayed.

—end—

Provisioning the system

This chapter describes how to provision network elements (NEs) in a point-to-point system.

Chapter task list

This chapter includes the following tasks.

Before starting the provisioning process

Ensure that you have made the following preparations before beginning:

- you have the necessary equipment, as listed in "Equipment requirements."
- you know an operations controller (OPC) user ID and password that allows you to access to the OPC Provisioning Manager tool.
- you know the NE user ID and password for the admin security level, for each network element to be provisioned (the default user ID is "admin" with password "admin").

Equipment requirements

Provisioning requires a VT100-compatible terminal or laptop computer with a VT100 emulation package. For details on connecting a terminal or laptop computer to an operations controller (OPC) or network element, see the appropriate procedures in *OPC User Interface Description,* 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.

Note 1: You can use the operations controller (OPC) user interface to access the network element user interface (NEUI), which allows you to perform NEUI procedures through the OPC user interface.

Note 2: Remote digital terminal (RDT) as used on the DMS-100 maintenance administration position (MAP) is a generic term. A specific type of RDT is the AccessNode remote fiber terminal (RFT). In an integrated AccessNode configuration, the term RDT always means remote fiber terminal (RFT).

Procedure 4-1
Setting the time zone at the network element (TBM)

Use this procedure to set the time zone at the network element (NE) for accurate timestamping of logs and alarms generated during testing.

Action

Step	Action
1	Log in to the NEUI for the transport bandwidth manager (TBM) fiber central office terminal (FCOT). For steps to log in to the NEUI, see Procedure 5-2 in "Appendix A: Common commissioning procedures".
2	From the S/DMS Nodes screen, display the Shelf Equipment screen by entering: **eq sh** ↵ **edit** ↵ *The Shelf Equipment screen with the Edit Shelf menu appears.*
3	Enter the time zone: **Timezone <NE time zone>** ↵ **where** <NE time zone> is the time zone code on the Network Elements Setup Form *The following warning is displayed:* `Warning: changing the time zone may affect the performance monitoring statistics and the scheduler.` `Please confirm ("Yes" or "No"):` **yes** ↵ **—end—**

Procedure 4-2
Setting the network synchronization (TBM)

Timing of AccessNode systems can be achieved in different ways, as described in *Configuration and Equipment Description*, 323-3001-100, in Volume 2A. An ESI may be required at a particular network element (NE), depending on the shelf function, the transport optics, and the application.

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel and equipment.

Action

Step	Action
1	From the Edit Shelf Equipment screen, enter: **clocksrc esi**↵ *A warning message appears. Confirm the message by entering:* **y** ↵ `ClockSrc command successful` `Warning please ensure the RFT clock source is set as looptimed.` ***Note:*** The RFT source will be set in a later procedure. **—end—**

Procedure 4-3
Setting the timing reference source (TBM)

Use this procedure to change the provisioning of synchronization timing references. You can assign a reference number and a quality level to each timing reference.

Action

Step	Action
1	From the Edit Shelf Equipment screen, enter: **eq esi g1**↵ *The ESI Equipment screen appears.*
2	Access the timing reference protection screen by entering: **trefprot**↵ *The Refprot screen appears.*
3	To set the reference, enter: **edit**↵
4	Change the timing reference source and give each source a reference number for tie-break priority if two timing sources have the same quality levels by entering: **source 1 bitsa** ↵ *A warning message appears.*
5	Confirm the message by entering: **yes** *A message appears that the source command is in progress and the source command is submitted.*
6	Enter: **source 2 bitsb**↵ *A warning message appears.*
7	Confirm the message by entering: **yes** *A message appears that the source command is in progress and the source command is submitted.*
8	Enter: **quit 3**

—end—

Procedure 4-4
Setting the ESI external timing reference input parameters (TBM)

Use this procedure to change the parameters of the external synchronization interface (ESI) timing references (BITSA and BITSB). These signals are received through the ESI cable from an external timing source, such as a building-integrated timing supply (BITS).

Requirements

Before starting this procedure, you must log on the network element user interface (NEUI) and be at the main menu.

Setup form

To view the clock information, see the ESI Clock Information Setup Form in Chapter 1 prepared by your system administrator.

Action

Step	Action
1	To provision the ESI reference facility, access the ESI Facility screen and view the current provisioning options of the facility by entering: **facility esi bitsa** ↵ *The ESI Facility screen appears.*
2	Place the facility out of service (OOS) by entering: **chgstate oos** ↵ **yes** ↵
3	Repeat steps 1 and 2 for BITSB.
4	Display the Edit Facility screen by entering: **edit** ↵ *The ESI Facility screen appears.*
5	Enter: **sigfmt**

If	Then
CC	go to step 7
DSI	go to step

—continued—

Procedure 4-4 (continued)
Setting the ESI external timing reference input parameters (TBM)

Step	Action

6 Enter the type of signal format. See the ESI Clock Information Setup Form in Chapter 1.

If you are changing this parameter	Then enter
signal format	**sigfmt <signal>**↵ where <signal> format of BITS input signal: **ds1** (DS1 signal) or **cc** (composite clock) or the **space bar** to toggle *The value appears in reverse video.*

To change the line coding and frame format parameter for the selected facility, complete the instructions in the following table.

If you are changing this parameter	Then enter
line coding	**lcoding <coding>**↵ where <coding> type of line coding: **b8zs** or **ami** *The value appears in reverse video.*
frame format	**framefmt <format>**↵ where <format> type of frame format: **superframe** (superframe) or **extended** (extended superframe) or the **space bar** to toggle *The value appears in reverse video.*

7 Return to the ESI facility screen by entering:

quit ↵

—continued—

Procedure 4-4 (continued)
Setting the ESI external timing reference input parameters (TBM)

Step	Action
8	Restore the facility to service by entering: **chgstate is** ↵
9	Select BITSA by entering: **facility esi bitsa** ↵
10	Repeat steps 4-8 for the **bitsa** timing reference.
11	Enter **quit 2** ↵ *The S/DMS Nodes screen appears.*

—end—

Procedure 4-5
Setting the network element name (TBM)

This procedure is used to set the name of the network element (NE) as defined by the user.

Requirements

Before starting this procedure, the following requirements must be met:

- log in to the network element user interface (NEUI) and at the main menu level.
- be familiar with the command conventions for the interface you are using, and procedures for connecting to an NE and for logging into the NEUI. A complete tour of the NEUI is available in *Network Element User Interface Description*, 323-3001-300, in *Operations, Administration, and Provisioning*, Volume 4A.
- have a copy or copies of your mapper planning worksheets from "Appendix A: Worksheets" in the *Mapper Layouts Planning Guide*, 323-3001-154, in the *Engineering, Configuration, and Ordering Guide*, Volume 1.
- refer to the Network Elements Setup Form in Chapter 1 for the network element name.

Action

Step	Action
1	Access the System Administration screen by entering: **admin nep** ↵ *The Network Element Profile screen is displayed.*
2	Set the NE name by entering: **nename <nename>** ↵ **where** <nename> is an ASCII string of up to 13 characters, with the first character being an alpha character. ***Note 1:*** Enter the NE name inside single quotes ('NE name'), otherwise all the text is converted to uppercase. Enter NE name with single quotes if you include spaces or special characters (?, =).

—continued—

Procedure 4-5 (continued)
Setting the network element name (TBM)

Step	Action
	Note 1: If the NE name is to be used in conjunction with TL1 target identifier (TID) and system identifier (SID), the TL1 TID/SID permissible character set must be followed. This character set includes uppercase or lowercase letters A through Z, numbers 0 through 9, and the special characters: dash, underscore, comma, and period. The special characters cannot be the first character in the name.
3	Enter **quit 2** ↵ **—end—**

Procedure 4-6
Provisioning DS1 facility parameters (TBM)

Use this procedure to provision the parameters for the DS1 transmission facilities you set up in Procedure 3-11. This procedure contains steps to busy out all unused DS1 facilities, which you must do before you can provision the used DS1 facilities.

Table 4-1 lists the parameters for provisioning a DS1 facility for GR-303 digital multiplex switch (DMS), GR-303 multivendor interface (MVI), TR-08, tandem and transport DS1s. Use this table to find the command for each parameter based on your equipment.

Setup form

To view the equipped DS1/DS3 mapper circuit packs, see the Circuit Packs Setup Forms in Chapter 1 prepared by your system administrator.

Table 4-1
Provisioning DS1 parameters for GR-303 DMS/MVI, VLCM, TR-08, tandem and transport DS1s

Parameter	GR-303 DMS/MVI or VLCM DS1s	TR-08 DS1s	Tandem DS1s	Transport DS1s
line coding	use b8zs	use amizcs	use amizcs or b8zs	use ami or b8zs
frame format	use extended	if associated with span A, use dlc if associated with spans B, C, and D, use superframe	use superframe or extended superframe depending on the circuit order	use superframe or extended superframe
alarm encoding	use ones	use ones	use ones	use ones or zeros
synchronization mode	use bytesynchronous	use bytesynchronous	use bytesynchronous	use asynchronous

To provision the DS1 facility assignments, refer to the prepared DS1 Setup Form for the assignment information.

Requirements

Before using this procedure, use the facility records to get the values for each of the DS1 parameters listed in Table 4-1. See the DS1 Setup Form in Chapter 1 for these values.

—continued—

Procedure 4-6 (continued)
Provisioning DS1 facility parameters (TBM)

Action

Step	Action
1	On the command line of the S/DMS Nodes screen, enter the following command: **fa ds1 all** ↵ *The screen displays the DS1 facilities menu.*
2	Take the facility out of service by entering the following command: **chgstate oos**↵ *The screen displays a warning message.* *The state of the facility changes to out of service (00S). This may take a minute.*
3	Type the following command to confirm the change state command: **LoseAll**↵ *The system displays an In Progress message followed by a message that the command was successful.*
4	At the command line, enter the following command: **fa ds1 <group> <port>** ↵ **where** <group> is the DS1 group number. <port> is the port number. ***Note:*** See Table 3-3 on page 3-33 for the DS1 group and port numbers.
5	At the command line, enter **edit** ↵. *The system displays the Edit Facility screen.*

—continued—

Procedure 4-6 (continued)
Provisioning DS1 facility parameters (TBM)

Step	Action

6 Set or change any or all DS1 facility parameters according to Table 4-1 on page 4-11. The following table explains the formats of the facility parameters.

If provisioning	Then enter
DS1 facility identifier	**facid <identifier>**↵ where <identifier> an alphanumeric string up to 38 characters ***Note*:** Lowercase characters are translated to uppercase. If you want the facility ID to contain mixed case characters or nonalphanumeric characters, such as spaces, hyphens, or slash marks, begin the identifier string with a single quotation mark (’). *The provisioned value appears in reverse video.*
line coding	**lcoding <type>**↵ where <type> type of line coding: **b8zs**, **ami** or **amizcs** The provisioned vale appears in reverse video.
line build-out range	**lbo < range >**↵ where <range> the line build-out range: **short, medium,** or **long** *The provisioned value appears in reverse video.*
framing format	**framefmt <format>**↵ where <format> the framing format: **null, superframe, extended,** or **dlc** The provisioned value appears in reverse video.
—continued—	

—continued—

Procedure 4-6 (continued)
Provisioning DS1 facility parameters (TBM)

Step **Action**

If provisioning	Then enter
alarm encoding	**alarmenc <encoding>**↵ where <encoding> type of alarm encoding: **ones** or **zeros** The provisioned value appears in reverse video.
synchronization mode	**synchr <mode>**↵ where <mode> synchronization mode: **bytesynchronous** or **asynchronous** The provisioned value appears in reverse video. ***Note:*** If you select the wrong type of synchronization for the installed card, the system responds with the following message: "`The Synchr command cannot be processed since the current hardware version does not support the requested synchronization mode.`"
performance monitoring	**pmprov <status>**↵ where <status> status of the DS1 facility performance monitoring: **enable** or **disable** The provisioned value appears in reverse video.
—end—	

7 Type

quit

8 Return the facility to in service by entering the following command on the command line:

chgstate is↵

The state changes to in service (IS) or IS TRBL

Note: If the state of the DS1 is IS TRBL, this will need to be cleared in a later procedure.

9 Repeat steps 4 through 8 for each DS1 facility that you provisioned in Procedure 3-11.

—end—

Procedure 4-7
Diagnosing failed circuit packs (TBM)

Use this procedure to identify failed circuit packs or to verify failure of circuit packs when a red LED is on.

Refer to *Alarm and Trouble Clearing Procedures*, 323-3001-543, in *Maintenance*, Volume 5A for information about clearing alarms.

This procedure needs to be performed on the TBM shelf.

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel and equipment.

Action

Step	Action
1	On the S/DMS Nodes screen, enter **alarms** ↵ on the command line. *The system displays the Active Alarms screen showing all alarms on the network element.*
2	Look at the list of alarms for EQP alarms with a reason of circuit pack fail, and refer to the equipment types listed in step 4.
3	If no failed circuit pack alarms exist, type **quit**↵ and go to the next procedure.
Diagnosing common equipment circuit packs	
4	Display the appropriate equipment screen by entering: **equipmnt <equipment ID>**↵ **where** <equipment ID> is one of the circuit pack equipment IDs listed in the following table. It is not necessary to test circuit packs in the order given in the table below.

—continued—

Procedure 4-7 (continued)
Diagnosing failed circuit packs (TBM)

Step **Action**

The equipment types and equipment IDs are listed in the table below:

Equipment type	Equipment ID
processor (Proc)	proc a, proc b
maintenance interface card (MIC)	mic
operations controller (OPC)	opc
external synchronization interface (ESI)	esi g1, esi g2
optical interface	oc3 g1, oc3 g2, oc12 g1, oc12 g2
DS1/VT mapper	(see note)
DS3 mapper	(see note)
Note: The equipment IDs for DS1 and DS3 mappers or STS-1 interface cards consist of the traffic type (DS1or DS3) and the group number associated with that mapper. See Chapter 7 and Chapter 8 for the group numbers for DS1/VT mappers and DS3 mappers.	

5 If the module to be diagnosed is not already out of service, enter:

chgstate oos ↵

Confirmation is requested. If you confirm the action, the State field value changes to OOS.

Note: The TIC, AIC, MIC, and Proc cards can be put through self-diagnostics without taking the system out of service. Although you can do out-of-service (OOS) diagnostics on all cards as explained above, you can do an in-service diagnostics starting at step 6.

6 Initiate diagnostics by entering:

chgstate is ↵

The system performs an out-of-service diagnostics (OOS) on the circuit pack as part of the transition from an OOS state to an in-service (IS) state.

Diagnostics can take a while; it proceeds as a background task. The diagnosis is reported as an update to the circuit pack state, as follows:

OOS-Diagnose	diagnostics in progress
Test fail	diagnostics failed
IS	diagnostics passed

—continued—

Procedure 4-7 (continued)
Diagnosing failed circuit packs (TBM)

Step	Action
7	If a failure is indicated, remove the defective module and insert a spare module.
8	Go to step 2.

—end—

Procedure 4-8
Verifying redundant common-equipment cards (TBM)

Use this procedure to test the redundancy feature of the common-equipment cards equipped in your configuration. This procedure applies to the transport bandwidth manager (TBM) common-equipment shelf.

The following cards must be checked for redundancy operation:

- processor card (NT4K52)
- ESI cards (NT7E27DA)
- OC-3/OC-12 fiber optics cards (NT7E01/NT7E02)
- DS1/DS3 cards (NT4K32/NT4K33)

Note: At the fiber central office terminal (FCOT) site in integrated configurations and the operations controller (OPC) shelf in single-ended configurations, only the processor card can be checked (the AIC, TIC, and LIC cards are not used).

Setup form

To view the equipped DS1/DS3 mapper circuit packs, see the Circuit Packs Setup Forms in Chapter 1 prepared by your system administrator.

Requirements

The following requirements must be met before starting this procedure:

- make sure that, for each type of card being tested, two cards are installed in the shelf and are in service (IS).
- make sure that the processor cards (Proc) have valid data and that their software is initialized.

—continued—

Procedure 4-8 (continued)
Verifying redundant common-equipment cards (TBM)

Action

Step	Action

Verifying redundancy of the processor (Proc) cards

1 From the S/DMS Nodes screen, display the Proc Equipment screen by entering:

eq proc <equipment ID>↵

where

<equipment ID> **a** or **b**

The Proc Equipment screen is displayed.

If	Then
the datasync state equals synced	go to step 2
the datasync state does not equal synced	enter **datasync on** ↵

The Proc Equipment screen indicates when the data is synchronized (the DataSync State field is set to NotSynced).

If	Then
the routine exercise equals on	go to step 2
the routine exercise does not equal on	enter **rexena on**, then press Enter.

Routine exercising is enabled.

2 Verify that the Proc cards can actually switch activity by entering:

switch ↵

Accept the confirmation message by entering:

y ↵

The switch command forces termination of the user interface session. This action takes approximately two minutes to complete.

3 Log in again to the NE. For steps to log in to the NEUI, see Procedure 5-2 in "Appendix A: Common commissioning procedures".

If card A was on standby, it becomes active, indicated by the green LED. Card B goes on standby, indicated when the green LED turns off. If card B was on standby, it becomes active (green LED on) and card A goes on standby (green LED off).

—continued—

Procedure 4-8 (continued)
Verifying redundant common-equipment cards (TBM)

Step	Action

If failure	Then go to
did NOT occur in routine exercising or in switching activity	step 8 for EXT SYNC IF step 17 for OC-3/OC-12 step 28 for DS1/DS3
occurred in routine exercising or in switching activity	step 4

4 Perform full diagnostics on the standby unit, by entering:

eq proc <equipment ID>↵

where

<equipment ID> **a** or **b**

The Processor Equipment screen is displayed.

chgstate oos ↵

y ↵

The processor card goes out of service (OOS).

chgstate is ↵

The Processor Equipment screen indicates that diagnostics are in progress. The card state changes from OOS to OOS-Diagnose to IS.

5 If a fault is detected, replace the card and go to step 6.

6 Repeat steps 1 through 3.

7 Repeat steps 1 through 3 to verify that switching works in both directions.

Verifying redundancy of the EXT SYNC IF circuit pack

8 Enter

eq esi g1↵

The ESI Equip screen appears.

9 Enter

dtlprot↵

The ESI Prot screen appears.

—continued—

Procedure 4-8 (continued)
Verifying redundant common-equipment cards (TBM)

Step	Action

10 Enter the following command for the active equipment:

manual op <g1 or **g2)**

If automatic switching	Then go to
occurred	step 15
did not occur	step 11

11 Perform full diagnostics on the standby unit by entering:

fa esi <g1out or **g2out>**↵

chgstate oos↵

12 Confirm by entering:

yes↵

The circuit pack goes out of service

13 Enter

chgstate IS↵

The ESI Equip screen indicates the diagnostics are in progress. The card state changes from OOS to OOS-Diagnose to IS.

If	Then go to
a fault is detected, replace the circuit pack	step 14
a fault is not detected	step 14

14 Enter:

fa esi <g1out or **g2out>**↵

chgstate IS↵

15 Repeat steps 1 through 4.

16 Repeat steps 1 through 4 to verify that switching occurs in both directions.

Verifying redundancy of the OC-3/OC-12 circuit packs

17 Enter

eq <circuit pack><g1 or **g2>**

where

<circuit pack> is either **OC-3** or **OC-12**

The OC-3/OC-12 Equip screen appears.

—continued—

Procedure 4-8 (continued)
Verifying redundant common-equipment cards (TBM)

Step	Action
18	Enter **dtlprot**↵ *The OC-3/OC-12 Prot screen appears.*
19	Verify which circuit pack is active by viewing the Tx and Rx fields • on = active • off = standby
20	Enter the following command for the active equipment: **manual op <g1** or **g2)** **If automatic switching** / **Then go to** occurred / step 27 did not occur / step 21
21	Perform full diagnostics on the standby unit by entering: **fa <circuit pack> <group ID>**↵ **where** <circuit pack> **OC-3** or **OC-12** <group ID> **g1** or **g2** **chgstate oos**↵
22	Confirm by entering: **yes**↵ **eq <circuit pack> <group ID>**↵ **where** <circuit pack> **OC-3** or **OC-12** <group ID> **g1** or **g2** **chgstate oos**↵
23	Confirm by entering: **yes**↵ *The circuit pack goes out of service*

—continued—

Procedure 4-8 (continued)
Verifying redundant common-equipment cards (TBM)

Step	Action

24 Enter

chgstate IS↵

The OC-3/OC-12 Equip screen indicates the diagnostics are in progress. The card state changes from OOS to OOS-Diagnose to IS.

If	Then go to
a fault is detected, replace the circuit pack	step 25
a fault is not detected	step 25

25 Enter the following for the standby equipment:

fa <circuit pack> <group ID>↵

where

<circuit pack> **OC-3** or **OC-12**

<group ID> **g1** or **g2**

chgstate IS

26 Repeat steps 17 through 20.

27 Repeat steps 17 through 20 to verify that switching occurs in both directions.

Verifying redundancy of the DS1/DS3 circuit packs

28 Enter

eq <circuit pack> <g1 to **g12>**↵

where

<circuit pack> is either **OC-3** or **OC-12**

Note: See the Circuit Packs Setup Forms in Chapter 1 for equipped DS1/DS3 mapper circuit packs.

The DS1/DS3 Equip screen appears.

29 Enter

dtlprot↵

The DS1/DS3 Prot screen appears.

30 Enter the following command for the active equipment:

manual op <g1 or **g12)**↵

31 Confirm by entering:

yes↵

—continued—

Procedure 4-8 (continued)
Verifying redundant common-equipment cards (TBM)

Step	Action

32 Verify that protection switching has taken place by:

a. viewing an asterisk beside the appropriate DS1/DS3 mapper, or

b. typing **eq ds1/ds3 <g1** to **g12>**↵

c. ensure that the status field shows “Protection”

d. Enter

dtlprot↵

The DS1/DS3 Prot screen appears.

e. Enter the following to release the protection switch:

manual re <g1 to **g12>**↵

If protection switching	Then go to
occurred	step 35
did not occur	step 33

33 If a fault is detected, enter:

Listalms

A list of alarms appears. To clear any alarms, see the Alarm Trouble Clearing Procedure in 323-3001-543. Go to step 34.

34 Repeat steps 28 through 32 for the failed mapper circuit pack.

35 Repeat steps 28 through 32 to verify that protection switching on all equipped DS1/DS3 mapper circuit packs occurred. When all DS1/DS3 mapper circuit packs have been verified, the procedure is complete.

36 Type:

quit

—end—

Procedure 4-9
Performing a manual NE database backup (TBM)

Use this procedure to make a backup copy of the network element (NE) database that includes all the provisioning data. If a failure occurs, you can use the backup copy to restore the NE database. A backup is recommended every time a provisioning change is made.

Shelf database backups are stored in the nonvolatile memory of the operations controller (OPC) module.

Two copies of the database are stored: current and backup 1. When you perform a backup, the oldest copy is deleted.

Do backups periodically to make sure the backup has the most recent data. Running backups periodically minimizes the amount of lost data if a failure occurs. If you schedule the backup as a network event, it runs automatically. For details see *System Administration Procedures*, 323-3001-302, in *Operations, Administration, and Provisioning*, Volume 4A.

Requirements

To perform this procedure, you must meet the following requirements:

- read the command conventions described in *Network Element User Interface Description*, 323-3001-300, in *Operations, Administration, and Provisioning*, Volume 4A.
- perform this procedure from MAPCI;FWPUI screens.

Action

Step	Action
1	From the S/DMS Nodes screen, display the equipment shelf screen for the selected NE by entering: **eq sh** ↵ *The Shelf Equipment screen appears for the selected NE.*
2	Back up the database by entering: **backupdb** ↵ *The system prompts for confirmation.*

—continued—

Procedure 4-9 (continued)
Performing a manual NE database backup (TBM)

Step	Action
3	Confirm the backup command by entering: **y** ↵ The backup process can take up to 5 minutes to complete, depending on system use.
4	Confirm the backup by checking the logs buffer by entering: **logutil** ↵ **open FWDB** ↵ *The FiberWorld Database (FWDB) logs show the status of the database backup and the elapsed time of the backup. An FWDB300-series log indicates a problem with the backup.*
5	Enter: **logout** ↵ *The NE Login Manager screen appears.*

—end—

Procedure 4-10
Setting the time zone at the network element (ABM)

Use this procedure to set the time zone at the network element (NE) for accurate timestamping of logs and alarms generated during testing.

Setup form

To view the time zone information, see the Network Elements Setup Form in Chapter 1.

Action

Step	Action
1	From the NE Login Manager screen, enter the NEID of the ABM shelf on the NE:> line.
2	Tab to the Login button and press **Ctrl_A**.
3	Enter the User ID: **admin** ↵
4	Enter the password: **admin** ↵ *The S/DMS Nodes screen appears with a warning message.*
5	Press ↵ to clear the message.
6	Enter **eq sh** ↵ *The Shelf Equipment screen appears.*
7	Enter **edit** ↵ *The Edit Shelf screen appears.*

—continued—

Procedure 4-10 (continued)
Setting the time zone at the network element (ABM)

Step	Action
8	Enter the time zone: **timezone <NE timezone>** ↵ **where** <NE timezone> is the time zone code on the Network Elements Setup Form *The following warning is displayed:* `Warning: changing the time zone may affect the performance monitoring statistics and the scheduler.` `Please confirm (“Yes” or “No”):` **yes** ↵ **—end—**

Procedure 4-11
Setting the network synchronization (ABM)

Use this procedure to set the RFT to the looptimed status for the incoming timing signal on the OC-3/OC-12.

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel and equipment.

Action

Step	Action
1	From the Edit Shelf Equipment screen, enter: **clocksrc looptimed** ↵ *A warning message appears. Confirm the message by entering:* **y** ↵
2	Exit by entering: **quit 2** *The S/DMS Nodes window appears.*

—end—

Procedure 4-12
Setting the network element name (ABM)

This procedure is used to set the name of the network element (NE) as defined by the user.

Setup form

To view the network element name, see the Network Elements Setup Form in Chapter 1.

Action

Step	Action
1	Access the System Administration screen by entering: **admin nep** ↵ *The Network Element Profile screen is displayed.*
2	Set the NE name by entering: **nename <nename>** ↵ **where** <nename> is an ASCII string of up to 13 characters, with the first character being an alpha character. See the Network Elements Setup Form in Chapter 1. ***Note 1:*** If the NE name contains spaces, special characters, or lower case characters, you must enter the name inside single quotes ('NE name'). The system will not accept special characters or spaces if the name is entered without the quotes, and any lower case characters will be converted to uppercase. ***Note 2:*** If the NE name is to be used in conjunction with TL1 target identifier (TID) and system identifier (SID), the TL1 TID/SID permissible character set must be followed. This character set includes uppercase or lowercase letters A through Z, numbers 0 through 9, and the special characters: dash, underscore, comma, and period. The special characters cannot be the first character in the name.
3	Type: **quit** ↵ *The S/DMS Nodes screen appears.*

—end—

Procedure 4-13
Disabling TIC alarms and TIC ports (ABM)

Use this procedure to enable or disable VT1.5 facility alarms associated with the transport interface card (TIC) facility. The procedure also describes how to enable synchronous transport signal-1 (STS-1) and VT1.5 facility alarms for connections terminating at the TIC.

When the default STS-1 map is invoked, it creates STS-1 and VT1.5 connections to the TIC. STS-1 and VT1.5 alarms are enabled by default when an STS-1 or VT1.5 connection is added. If any of these connections are not going to be used, then disable alarms associated with unused STS-1s and VT1.5s.

Action

Step	Action
1	Display the TIC Facility screen for TIC 2 (STS-1-2). **fa tic 2**↵
2	Display the alarm provisioning screen: **almprov** ↵ *The TIC Fac Alarm Provisioning screen is displayed.*
3	Turn the alarms off by entering: **editstat 1 off**↵ **editstat 2 off**↵ **editstat 3 off**↵ **editstat 4 off**↵ A confirmation dialog appears for each entry. Type: **y** ↵
4	Repeat steps 1-2 for TIC 3 (STS-1-3).
5	Enter **fa tic 1** ↵ *The TIC FAC screen is displayed.*

—continued—

Procedure 4-13 (continued)
Disabling TIC alarms and TIC ports (ABM)

Step	Action
6	Disable all TIC ports that were not provisioned in Procedure 3-11. **chgstate oos <Beginning port> <Ending port>** The following example disables ports 7 through 14: **chgstate oos 7 14** *The screen displays the following warning message:* `CHGSTATE command successful.` *The ports you disabled are displayed as out of service (oos) in the ports list, and the provisioned ports, which were not disabled, show TRBL.*
7	Type: **y** ↵
8	Enter **quit** *The S/DMS Nodes screen appears.*

—end—

Procedure 4-14
Diagnosing failed circuit packs (ABM)

Use this procedure to identify failed circuit packs or to verify failure of circuit packs when a red LED is on.

Refer to *Alarm and Trouble Clearing Procedures*, 323-3001-543, in *Maintenance*, Volume 5A, for information about clearing alarms.

DANGER
Risk of injury or damage
Read the warnings and precautions in Chapter 1 to minimize any risk to personnel and equipment.

Action

Step	Action
1	On the S/DMS Nodes screen, enter **alarms** ↵ on the command line. *The system displays the Active Alarms screen showing all alarms on the network element.* ***Note:*** To scroll down more than one page of alarms, type "F".
2	Look at the list of equipment alarms for any circuit packs in a failed state, and look at the shelf type for each failed circuit pack to determine whether the circuit pack is in a CDS shelf or a common equipment shelf.
3	If no failed circuit pack alarms exist, go to the next procedure.
4	For each failed circuit pack, do the following:

If the failed circuit pack is in the	Then go to
common equipment shelf	steps 5 through 9
CDS shelf	step 10

—continued—

Procedure 4-14 (continued)
Diagnosing failed circuit packs (ABM)

Step	Action

Diagnosing common equipment circuit packs

5 Display the appropriate equipment screen by entering:

equipmnt <equipment ID>↵

where

<equipment ID> is one of the circuit pack equipment IDs listed in the following table. It is not necessary to test circuit packs in the order given in the table below.

The equipment types and equipment IDs are listed in the table below:

Equipment type	**Equipment ID**
processor (Proc)	proc a, proc b
maintenance interface card (MIC)	mic
operations controller (OPC)	opc
narrowband line interface cards (NLIC)	nlic
metallic test access card (MTAC)	mtac
CDS power cards (CDSP)	cdsp
optical interface	oc3 g1, oc3 g2, oc12 g1, oc12 g2
DS1/VT mapper	(see note)
DS3 mapper	(see note)
access interface card (AIC)	aic a, aic b
transport interface card (TIC)	tic a, tic b
test access card (TAC)	tac
integrated remote test unit (IRTU)	irtu
Note: The equipment IDs for DS1 and DS3 mappers or STS-1 interface cards consist of the traffic type (DS1or DS3) and the group number associated with that mapper. See Chapter 7 and Chapter 8 for the group numbers for DS1/VT mappers and DS3 mappers.	

—continued—

Procedure 4-14 (continued)
Diagnosing failed circuit packs (ABM)

Step	Action
6	If the module to be diagnosed is not already out of service, enter: **chgstate oos** ↵ *Confirmation is requested. If you confirm the action, the State field value changes to OOS.* ***Note:*** The TIC, AIC, MIC, and Proc cards can be put through self-diagnostics without taking the system out of service. Although you can do out-of-service (OOS) diagnostics on all cards as explained above, you can do an in-service diagnostics starting at step 6.
7	Initiate diagnostics by entering: **chgstate is** ↵ *The system performs an out-of-service diagnostics (OOS) on the circuit pack as part of the transition from an OOS state to an in-service (IS) state.* *Diagnostics can take a while; it proceeds as a background task. The diagnosis is reported as an update to the circuit pack state, as follows:* OOS-Diagnose — diagnostics in progress Test fail — diagnostics failed IS — diagnostics passed
8	If a failure is indicated, remove the defective module and insert a spare module. ***Note:*** If the test access card (TAC) is indicating a failure, verify that all ground cables are properly connected according to one of the acceptable office grounding schemes described in the chapter “Power and ground distribution”, in *Site Installation Planning and Engineering*, 323-3001-200, in *Engineering, Configuration, and Ordering Guide*, Volume 1.
9	Go to step 5.

—continued—

Procedure 4-14 (continued)
Diagnosing failed circuit packs (ABM)

Step	Action

Diagnosing CDS circuit packs

10 If the indicator of a line interface card (LIC), or copper-distribution shelf power converter (CDSP) circuit pack in a copper-distribution shelf (CDS) indicates trouble or failure, you should perform out-of-service (OOS) diagnostics on the failed circuit pack. Display the detailed equipment screen for the appropriate circuit pack as follows:

If the circuit pack is a LIC, enter:

eq lic ↵
dtllic <CDS #> <ID>↵

If the circuit pack is a CDSP power card, enter the following:

eq cdsp ↵

dtlcdsp <CDS #> <ID>↵

where

<CDS #>	is copper-distribution shelf number: one of **1** to **7**
<ID>	is equipment instance: one of **a**, **b**, **c**, or **d** for LICs, or **a** or **b** for CDSPs

11 If the primary LIC is not functioning, it must be put in an inactive state before placing it out of service for diagnostics. Enter the following:

switch ↵

Confirmation is requested.

y ↵

The two LICs exchange primary and inactive status.

12 At the prompt, enter the following:

chgstate oos ↵

13 At the prompt enter the following:

chgstate is ↵

14 Repeat steps 9 through 12 for all failed CDSPs and LICs.

15 If a metallic test access card (MTA) indicates failure, enter the following:

eq mtac↵

dtlmtac <CDS #> <ID>↵

where

<CDS #>	is copper-distribution shelf number: one of **1** to **7**
<ID>	is equipment instance: one of **a** or **b** for MTACs

—continued—

Procedure 4-14 (continued)
Diagnosing failed circuit packs (ABM)

Step	Action
16	If the MTA to be diagnosed is still in service, enter the following: **chgstate oos** ↵ *Confirmation is requested. If you confirm the action, the State field value changes to OOS.* ***Note:*** On an MTA, out-of-service diagnostics are not automatically conducted during the transition from an OOS state to an IS state. It is necessary to use the "diagnose" command to invoke diagnostics.
17	Start diagnostics, by entering: **diagnose** ↵ *The system performs out-of-service diagnostics on the MTA.* ***Note:*** When diagnostics are requested on an MTA and the resources are busy, the diagnostic request is rejected. If diagnostics are requested on an MTA that is not out-of-service, the diagnostic request is rejected. *Diagnosis runs as a background task. The diagnosis is reported as an update to the state of the circuit pack, as follows:* OOS-Diagnose — diagnostics in progress Test fail — diagnostics failed IS — diagnostics passed
18	If failure is indicated, remove the defective MTA and insert a spare one. *The new MTA undergoes self-testing.* ***Note:*** The MTA remains out-of-service after being inserted and passing its self-tests. If the new MTA fails or if more than one MTA fails diagnostics, there can be a higher order problem, such as loose cables, bent pins, TAC fault, or other condition. Refer to the document, *Alarm and Trouble Clearing Procedures*, 323-3001-543, in *Maintenance*, Volume 5A.
19	If the MTA passes diagnostics, place it back in service by entering: **chgstate is** ↵ *The MTA goes in service.*
20	Enter: **quit** ↵ *The S/DMS Nodes screen is displayed.* ***Note:*** If alarms still exist on the system, refer to the document, *Alarm and Trouble Clearing Procedures*, 323-3001-543 in *Maintenance*, Volume 5A. **—end—**

Procedure 4-15
Verifying redundant common-equipment cards (ABM/RFT)

Use this procedure to test the redundancy feature of the common-equipment cards equipped in your configuration.

The following cards are checked for redundancy operation:

- processor card (Proc), NT4K52
- transport interface card (TIC), NT4K56
- narrowband line interface card (NLIC), NT4K70 in copper-distribution shelves (CDSs)
- DS1/DS3 circuit packs
- AIC
- OC-3/OC-12 circuit packs

Both AICs are active at all times and carry the same traffic. This is true in each direction. Since no circuit pack switching occurs, a redundancy test of the AICs is not required.

Requirements

The following requirements must be met before starting this procedure:

- make sure that, for each type of card being tested, two cards are installed in the shelf and are in service (IS).
- make sure that the processor cards (Proc) have valid data and that their software is initialized.
- make sure that the AICs are installed and in service in order to test redundancy of the line interface cards (LICs) or the TICs.

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Action

Step	Action

Verifying redundancy of the processor (Proc) cards

1 From the S/DMS Nodes screen, display the Processor Equipment screen by entering the following command on the command line:

eq proc <equipment ID>↵

where

<equipment ID> **a** or **b**

The Processor Equipment screen is displayed.

2 Do one of the following:

If the Datasync State field shows	Then
Synced	go to step 3
NotSynced	Type **datasync on** and press Enter.

3 Do one of the following:

If the Routine exercise field shows	Then
on	go to step 4
not on	Type **rexena on** and press Enter. Routine exercising is enabled.

4 Enter the following command to verify that the processor cards can switch activity:

switch ↵

y ↵

If card A was on standby, it becomes active, indicated by the green LED. Card B goes on standby, indicated when the green LED turns off. If card B was on standby, it becomes active (green LED on) and card A goes on standby (green LED off).

The switch command forces the termination of the user interface session and the system displays the NE Login Manager screen. This may take one to two minutes.

5 Log back in to the NE. For steps to log in to the NE, see Procedure Procedure 5-2 on page 5-3.

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action

Both cards, A and B, will show NotSynced in the Data Sync field. Wait for the cards to become synced before continuing with the next step in this procedure. It will take approximately five minutes for cards to become synced.

6 From the S/DMS Nodes screen, enter the following command:

eq proc <equipmentID> ↵

where

<equipment ID> **a** or **b**, whichever is on standby.

If circuit pack A was on standby, it becomes active, and circuit pack B becomes standby. If circuit pack B was on standby, it becomes active and circuit pack A becomes standby.

7 Do one of the following:

If the circuit pack was	Then
switched	repeat steps 1 to 6 to verify that switching works in the other direction in the related pair of circuit packs. If finished, go to step 12.
not switched	go to step 8

8 Perform full diagnostics on the standby circuit pack by entering the following command:

eq proc <equipmentID> ↵

where

<equipment ID> **a** or **b**, whichever is on standby.

*The system displays the Processor Equipment screen***.**

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action
9	Enter the following command: **chgstate oos** ↵ **y** ↵ *The processor circuit pack goes out of service (OOS).*
10	Enter the following command **chgstate is** ↵ *The Processor Equipment screen indicates that diagnostics are in progress. The state of the circuit pack changes from OOS to OOS-Diagnose and then to IS.*
11	Do one of the following:

If the circuit pack	Then
does not return to in service	**a.** Replace the circuit pack. **b.** Wait for the circuit pack to initialize. As the circuit pack is initializing, the State field shows IS-initializing, and the DataSync State field shows NotSynced. The State field will change to IS, and the DataSync State field will change to Synced. Initializing takes 5 to 10 minutes. **c.** Repeat steps 2 to 7 to verify the replaced pack. **d.** Repeat steps 2 to 7 again to verify that switching works in the other direction in the related pair of circuit packs. **b.** turn off the CB1 circuit breaker located on the faceplate of the blower unit on each MBP cabinet.
returns to in service	repeat steps 2 to 7 to verify that switching works in the other direction in the related pair of circuit packs.

Verifying redundancy of the transport interface cards (TICs)

12 Display the TIC Equipment screen by typing the following command on the command line:

eq tic <equipment ID>↵

where

<equipment ID> **a** or **b**

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action

13 Enter the following command to verify that the TIC cards can switch activity:

switch ↵

y ↵

If circuit pack A was in IS-Secondary state, it switches to the IS-Primary state and circuit pack B switches to the IS-Secondary state. If circuit pack B was in IS-Secondary state, it switches to the IS-Primary state and circuit pack A switches to the IS-Secondary state.

14 Do one of the following:

If the circuit pack was	Then
switched	repeat steps 12 to 13 to verify that switching works in the other direction in the related pair of circuit packs. If finished, go to step 19.
not switched	go to step 15

15 Perform full diagnostics on the standby circuit pack by entering the following command:

eq tic <equipmentID>

where

<equipment ID> **a** or **b**, whichever is the secondary circuit pack.

*The system displays the TIC Equipment screen***.**

16 Enter the following command:

chgstate oos force ↵

y ↵

The circuit pack goes out of service (OOS).

17 Enter the following command

chgstate is ↵

The TIC Equipment screen indicates that diagnostics are in progress. The state of the circuit pack changes from OOS to OOS-Diagnose and then to IS.

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action

18 Do one of the following:

If a fault was	Then
detected	replace the circuit pack, and repeat steps 13 to 17 to verify the replaced circuit pack. Then repeat steps 13 to 17 again to verify that switching works in the other direction in the related pair of circuit packs.
not detected	repeat steps 13 to 17 to verify that at switching works in the other direction in the other direction in the related pair of circuit packs.

Verifying redundancy of the OC-3/OC-12 circuit packs

19 On the command line, enter the following command:

eq <circuit pack> <group ID>↵

where

<circuit pack> is either **OC-3** or **OC-12**

<group ID> is either **g1** or **g2**

The OC-3/OC-12 Equipment screen is displayed.

20 On the command line of the OC-3/OC-12 Equipment screen, enter the following command:

dtlprot ↵

The OC-3/OC-12 Protection screen is displayed.

21 Determine which circuit pack is active by looking at the Traffic field at the far right of the screen. If the field shows “On,” the circuit pack is active; if it shows “Off,” the circuit is on standby.

22 Enter the following command:

manual op <group ID>↵

where

<group ID> **g1** or **g2,** whichever circuit pack is active

y ↵

If circuit pack g1 was active, it switches to standby, and circuit pack g2 switches to active. If circuit pack g2 was active, it switches to standby, and circuit pack g1 switches to active.

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action

23 Do one of the following:

If the circuit pack was	Then
switched	repeat step 22 to verify that switching works in the other direction in the related pair of circuit packs. If finished, go to step 32.
not switched	go to step 26

24 Enter:

fa <circuit pack> <group ID>↵

where

<circuit pack> **OC-3** or **OC-12**

<group ID> **g1**

25 Enter the following command:

chgstate oos ↵

y ↵

The circuit pack goes out of service (OOS).

26 Perform full diagnostics on the standby circuit pack by entering the following command:

eq <circuit pack> <group ID>↵

where

<circuit pack> **OC-3** or **OC-12**

<group ID> **g1** or **g2**, whichever is on standby.

27 Enter the following command:

chgstate oos ↵

y ↵

The circuit pack goes out of service (OOS).

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action
28	Enter the following command **chgstate is** ↵ *The OC-3/OC-12 Equipment screen indicates that diagnostics are in progress. The state of the circuit pack changes from OOS to OOS-Diagnose and then to IS.*
29	Enter: **fa <circuit pack> <group ID>**↵ **where** <circuit pack> **OC-3** or **OC-12** <group ID> **g1**
30	Enter the following command: **chgstate is** ↵ **y** ↵ *The circuit pack goes back into service (IS).*
31	Do one of the following:

If a fault was	Then
detected	replace the circuit pack, and repeat steps 20 to 23 to verify the replaced circuit pack. Then repeat steps 20 to 23 again to verify that switching works in the other direction in the related pair of circuit packs.
not detected	repeat steps 20 to 23 to verify that switching works in the other direction in the related pair of circuit packs. If there is no DS1/DS3 present, go to step 42.

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action
	Verifying redundancy of the DS1/DS3 circuit packs
32	On the command line, type the following command: **eq ds1/ds3 <group ID>** ↵ **where** <group ID> **g1**, **g2, g3, g4, g5,** or **g6** *The DS1/DS3 Equipment screen is displayed.*
33	Enter the following command: **dtlprot** *The DS1/DS3 Protection screen is displayed.*
34	Enter the following command: **manual op <group ID>** **where** <group ID> **g1**, **g2, g3, g4, g5,** or **g6** **y** ↵
35	Verify that protection switching occurred by doing one of the following: • Look for an asterisk in the Manual column beside the DS1/DS3 circuit pack you switched. • Do the following steps: **i.** Enter **eq ds1 <g1, g2, g3, g4, g5,** or **g6>**. The DS1/DS3 Equipment screen is displayed. **ii.** Look for the word “Protection” in the Status field beside the circuit pack you switched. **iii.** Enter **dtlprot** to return to the DS1/DS3 Protection screen.
36	Enter the following command: **manual re <group ID>** **where** <group ID> **g1**, **g2, g3, g4, g5,** or **g6** *The protection switch is released.*

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action

37 Do one of the following:

If protection switching	Then
occurred	repeat steps 32 to 36 to verify protection switching on all DS1 circuit packs.
did not occur	go to step 38

38 Enter the following command:

listalms ↵

A list of alarms is displayed.

39 Clear the alarms by following the procedures in *Alarm and Trouble Clearing Procedures,* 323-3001-543, *in Maintenance,* Volume 5A. Then go to step 40.

40 Repeat steps 32 to 39 for the failed circuit pack.

41 Repeat steps 32 to 40 to verify protection switching on each of the other DS1/DS3 circuit packs.

Verifying redundancy of the line interface cards (LICs)

42 Display the detailed LIC Equipment screen for a LIC by entering the following command:

eq lic

The LIC Equipment screen is displayed.

43 Enter the following command to test switching for the a and b LICs in the appropriate shelf:

dtllic <CDS #><equipment ID>↵

where

<CDS #> is **1** to **7**

<equipment ID> is **a**

The LIC Equipment screen is displayed.

44 Verify that the LICs can switch activity by entering:

switch ↵

y ↵

If card A was IS-Secondary it switches to IS-Primary, and card B switches to IS-Secondary. The Status field on the screen shows the change.

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action

45 Do one of the following:

If failure	Then go to
occurred	step 55 to perform diagnostics on the LICs. Then go to step 46.
did not occur	step 46

46 Verify that the a and b LICs can switch activity in the opposite direction by entering:

switch ↵

y ↵

If card A was IS-Secondary it switches to IS-Primary, and card B switches to IS-Secondary. The Status field on the screen shows the change.

47 Do one of the following:

If failure	Then go to
occurred	step 55 to perform diagnostics on the LICs. Then do step 48.
did not occur	step 48

48 Enter the following command to test switching for the c and d LICs in the appropriate shelf:

dtllic <CDS #><equipment ID>↵

where

<CDS #> is **1** to **7**

<equipment ID> is **c**

The LIC Equipment screen is displayed.

49 Verify that the LICs can switch activity by entering:

switch ↵

y ↵

If card C was IS-Secondary it switches to IS-Primary, and card D switches to IS-Secondary. The Status field on the screen shows the change.

50 Do one of the following:

If failure	Then go to
occurred	step 55 to perform diagnostics on the LICs. Then do step 51.
did not occur	step 51

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action

51 Verify that the c and d LICs can switch activity in the opposite direction by entering:

switch ↵

y ↵

If card C was IS-Secondary it switches to IS-Primary, and card D switches to IS-Secondary. The Status field on the screen shows the change.

52 Do one of the following:

If failure	Then go to
occurred	step 55 to perform diagnostics on the LICs. Then go step 53.
did not occur	step 53

53 Repeat steps 43 to 52 to verify switching on any additional shelves. Otherwise, go to the next procedure.

54 Type

quit 2

55 Perform full diagnostics on the LIC in the secondary state, by entering:

eq lic; dtllic <CDS #><equipment ID>↵

where

<CDS #> is **1** to **7**

<equipment ID> is **a**, **b**, **c**, or **d**

The LIC Equipment screen is displayed.

chgstate oos ↵

y ↵

The LIC card is placed out of service.

chgstate is ↵

The LIC Equipment screen indicates that diagnostics are in progress. When diagnostics are complete, the screen shows that the LIC card is back in-service.

If a fault is detected, replace the card.

56 Enter the following command to determine whether switching is working with the replaced circuit pack:

switch ↵

y ↵

—continued—

Procedure 4-15 (continued)
Verifying redundant common-equipment cards (ABM/RFT)

Step	Action
57	Type **quit 2**

—end—

Procedure 4-16
Performing a manual NE database backup (ABM)

Use this procedure to make a backup copy of the network element (NE) database that includes all the provisioning data. If a failure occurs, you can use the backup copy to restore the NE database. A backup is recommended every time a provisioning change is made.

Shelf database backups are stored on the hard drive of the operations controller (OPC) module. Two copies of the database are stored: current and backup1. When you perform a backup, the oldest copy is deleted.

Action

Step	Action
1	From the S/DMS Nodes screen, display the equipment shelf screen for the selected NE by entering: **eq sh** ↵ *The Shelf Equipment screen appears for the selected NE.*
2	Back up the database by entering: **backupdb** ↵ *The system prompts for confirmation.*
3	Confirm the backup command by entering: **y** ↵ The backup process can take up to 5 minutes to complete, depending on system use.
4	Confirm the backup by checking the logs buffer by entering: **logutil** ↵ **open FWDB** ↵ *The FiberWorld Database (FWDB) logs show the status of the database backup and the elapsed time of the backup. An FWDB300-series log indicates a problem with the backup.*
5	Enter: **logout** ↵ *The NE Login Manager screen appears.*
6	Close the Login Manager by pressing **Ctrl_L** and the letter **W.**
7	Select the exit command by pressing the **space bar**. *The system displays the User Session Manager main window.*

—end—

Procedure 4-17
Saving primary OPC data to tape

Use this procedure to save primary OPC data to a backup tape in the OPC tape drive. After you start the save operation, you cannot access any other OPC tool until the operation is canceled or completed. The save operation can take up to 40 minutes to complete depending on the amount of data on the disk.

CAUTION
Risk of damage to electrostatic-sensitive devices
Electrostatic-sensitive devices can be damaged by electrostatic discharge. Always ground yourself before handling the tape.

You cannot select individual files to be saved. The OPC Save and Restore tool automatically selects and saves the appropriate files.

When you open the tool, the "Save to tape" operation is selected by default.

Note: If the Save to tape button at the top of the main window is disabled, the local OPC is inactive. You cannot perform the following procedure.

The tool contains two action buttons:

- Display tape details
- Save OPC data to tape

It is recommended that you select both buttons in the order that they appear.

Requirements

To perform this procedure, you must meet the following requirements:

- insert the tape in the local OPC tape drive (use a blank tape, or an existing tape designated for commissioning data for this OPC).
- allow the tape to reach room temperature.

  Note: Never insert a tape that has been stored at temperatures outside the range 10°C to 30°C (50°F to 90°F) until it has reached room temperature.

- obtain a user ID and password that allow you access to the OPC.
- connect a terminal to the OPC.

—continued—

Procedure 4-17 (continued)
Saving primary OPC data to tape

- log in to the OPC. For steps to log in to the OPC, see Procedure 5-1 in "Appendix A: Common commissioning procedures".
- read the command conventions described in *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning*, Volume 4A.

Action

Step	Action
1	Tab to the Available tools section of the User Session Manager window.
2	Use the arrow keys to go to the OPC Save and Restore tool.
3	Open the OPC Save and Restore tool. *The OPC Save and Restore main window appears. The Save to tape button is selected and the buttons for saving OPC data to tape appear in the bottom half of the window.*
4	Insert the tape into the tape drive.
5	Select the **Display tape details** button by pressing **Ctrl_A** (or Keypad **0**). *The Tape Details dialog appears. It shows information about the tape.*
6	Check the fields in the dialog to confirm that the correct tape is in the tape drive. If you inserted the incorrect tape, remove it and insert the correct one.
7	When the correct tape is in the tape drive, select the **Done** button in the Tape Details dialog by pressing **Ctrl_A** (or Keypad **0**). *The Tape Details dialog closes. In the OPC Save and Restore tool main window, the arrow moves to the Save OPC data to tape button.*
8	Select the **Save OPC data to tape** button by pressing **Ctrl_A** (or Keypad **0**). *The Save confirmation dialog appears, prompting you to confirm your request.*
9	Tab to the **Yes** button, then press **Ctrl_A** (or Keypad **0**).

If the backup tape	Then
is blank	a progress dialog appears, indicating that the save operation has been initiated. Go to step 10.
contains data that you are overwriting	a configuration dialog appears. Go to step 11.

—continued—

Procedure 4-17 (continued)
Saving primary OPC data to tape

Step	Action

10 Determine whether you want to continue or cancel the save operation.

If you want to	Then go to
cancel the save operation	step 12
continue with the save operation	step 14 when the completion dialog appears

11 Determine whether the tape contains a data archive or a software load.

If the tape contains a data archive, a dialog prompts you to confirm your request to overwrite the existing data on the tape.

If the tape contains a software load, a dialog prompts you to confirm your request to overwrite the existing data on the tape.

Tab to the **OK** button, then press **Ctrl_A** (or Keypad **0**).

A progress dialog appears, indicating the progress of the save operation.

If you want to	Then go to
cancel save operation	step 12
continue with save operation	step 14 when the completion dialog appears

12 To cancel the save operation, select the **Cancel** button by pressing **Ctrl_A** (or Keypad **0**).

A confirmation dialog appears, prompting you to confirm your request to cancel the save operation.

13 Tab to the **OK** button, then press **Ctrl_A** (or Keypad **0**).

Another progress dialog appears that indicates the save operation is being canceled and the tape is being erased.

When you cancel the save operation, a completion dialog appears.

14 To exit the completion dialog, select the **Done** button by pressing **Ctrl_A** (or Keypad **0**).

The completion dialog closes and the main window appears.

15 To close the OPC Save and Restore tool:

a. Display the window menu by pressing **Ctrl_L W** (or Keypad **6**).

The window menu appears.

b. Select the **Exit** command by pressing the **space bar** (or Keypad **0**).

The tool closes.

16 Log out of the OPC. For steps to log out of the OPC, see Procedure 5-4 on page 5-5.

—end—

Procedure 4-18
Clearing the alarms and other procedures

This completes the turn-up of the point-to-point system. Some alarms may still be present in the system. If DS1 alarms are present, ensure that the DS1s are terminated at both ends. To clear the alarms, see *Alarm and Trouble Clearing Procedures*, 323-3001-543, in *Maintenance*, Volume 5A. If there are any problems, contact Nortel Networks Technical Assistance at 1-800-275-8726.

Optional procedures

The following procedures are available in Appendix B: Miscellaneous procedures:

- Adding a backup OPC
- Setting the TIDS for a network element
- Defining and enabling an X.25 configuration
- Configuring a LAN port
- Unassigning call reference values

Other procedures

Procedures that also may be applicable to a point-to-point system are:

- Line Card Provisioning procedures in *Line Card Provisioning Procedures*, 323-3001-315, in *Operations, Administration, and Provisioning*, Volume 4B.
- Line Card Testing procedures in *Line Card Testing Procedures*, 323-3001-316, in *Operations, Administration, and Provisioning*, Volume 4B.
- Telemetry and alarm tests in *Site Testing Procedures*, 323-3001-221, in *Commissioning and Testing*, Volume 3.
- DS1 Feeder Testing procedures in *DS1 Feeder Testing Procedures*, 323-3001-225, in *Commissioning and Testing*, Volume 3
- DS1 and Optical End to End Tests in *System Testing Procedures*, 323-3001-222, in *Commissioning and Testing*, Volume 3.
- DS3 Tests, STS-1 Tests, and Optical End to End Tests in *System Testing Procedures*, 323-3001-222, in *Commissioning and Testing*, Volume 3.

Appendix A: Common commissioning procedures

This appendix contains procedures that are commonly used to commission a point-to-point system.

Chapter task list

This chapter includes the following tasks.

Procedure 5-1
Logging in to the OPC

Use this procedure to log in to the OPC.

Requirements

- a VT-100 terminal
- The OPC port is configured as **Terminal**. See *OPC User Interface Description*, in 323-3001-301, and *System Administration Procedures*, 323-3001-302, in *Operations, Administration, and Provisioning*, Volume 4A.

Action

Step	Action
1	Connect the terminal to the OPC port 1 or port b on the left side of the common equipment shelf using a 9-pin connector. Use one NTE7E44RA or RB cable. *A login prompt appears.*
2	Enter a root level User ID such as: **root**
3	Enter the corresponding root level password such as: **root** *The TERM = vt100 prompt is displayed.*
4	Press the Return key (↵) to select the VT100 terminal mode. *The opc> prompt is displayed.*
5	To access the User Session Manager at the OPC prompt, type in **opcui** and press Enter.

—end—

Procedure 5-2
Logging in to the network element

Use this procedure to log in to the network element.

Action

Step	Action
1	From the User Session Manager, tab to the Available tool menu.
2	Press the right bracket key to go to the end of the tools list.
3	Use the arrow keys to move to the NE Login Manager.
4	Open the NE Login Manager by pressing **Ctrl_A**. *The NE Login Manager screen is displayed.*
5	Enter the ID number of the network element that you wish to log on to, in the Network Element field.
6	Tab to the Login field and press **Ctrl_A**.
7	Enter the admin level user name, such as: **admin**
8	Enter the corresponding admin level password, such as: **admin** *A warning message appears.*
9	Press **Enter** to cancel the displayed warning message. *The S/DMS Nodes screen appears.* ***Note:*** You can enter commands on the S/DMS Nodes screen by typing the associated command number instead of the command name. The command numbers are displayed on the left side of the screen.
10	Return to the current procedure for further steps.

—end—

Procedure 5-3
Logging out of the network element

Use this procedure to log out of the network element after you have completed all procedures.

Action

Step	Action
1	From the S/DMS Nodes screen, enter: **logout** *A message appears listing the username, date, and time of the logout.*
2	Press return. *The NE Login Manager appears.*
3	Press **Ctrl_T_0** to close the NE Login Manager. *The User Session Manager appears.*

—end—

Procedure 5-4
Logging out of the OPC

Use this procedure to log out of the OPC.

Action

Step	Action
1	From the User Session Manager, tab to the Logout field and press Ctrl_A. *A confirmation message appears.*
2	Tab to the Logout field and press Ctrl_A. *The opc> prompt appears.*
3	Enter the following: **logout**

—end—

Appendix B: Miscellaneous procedures

This appendix contains optional procedures that may be used to commission a point-to-point system.

Chapter task list

This chapter includes the following tasks.

Procedure 6-1
Adding a backup OPC

Use this procedure to add a backup OPC.

Action

Step	Action

1 Log in to the primary OPC. For steps to log in to the OPC, see Procedure 5-1 on page 5-2.

2 Log in to the NE Login Manager. For steps to log in to the NE Login Manager, see Procedure 5-2 on page 5-3.

If the previous backup	Then
is not recent	go to step 3
is recent	go to step 5

3 Perform a database backup for each network element within the Primary OPC span of control, using Procedure 4-16 on page 4-51.

4 Save the OPC data to tape using Procedure 4-17 on page 4-52.

5 Insert the backup OPC into slot 5 of the backup OPC shelf and engage to the backplane.

6 If it is not already connected, connect a CNET cable (NT7E44JC/JK) from the CNET OUT port on the left side of the primary OPC shelf to the CNET IN port of the backup OPC shelf. Ensure that the CNET termination connectors (NT7E5072) are inserted into the unused CNET ports on the left side of the primary and backup OPC shelves.

7 Wait for the backup OPC to become active.

8 Log out of the primary OPC. For steps to log out of the OPC, see Procedure 5-4 on page 5-5.

9 Move the VT100 cable from the primary OPC shelf to the backup OPC shelf.

10 Log in to the backup OPC using Procedure 5-1 on page 5-2.

11 Verify that the backup OPC is equipped with the same software load as the primary OPC, using Procedure 3-1 on page 3-2.

If the software is	Then
not installed	perform Procedures 3-3, 3-4, and 3-5.
incorrect	perform Procedures 3-2, 3-3, 3-4, and 3-5.
correct	go to step 12.

—continued—

Procedure 6-1 (continued)
Adding a backup OPC

Step	Action
12	Set the time zone of the backup OPC to match the primary OPC. (See Procedure 3-6 on page 3-16.)
13	Move the VT100 cable from the backup OPC shelf to the primary OPC shelf.
14	Log in to the primary OPC using Procedure 5-1 on page 5-2.
15	At the OPC prompt, enter **opcui** *The User Session Manager window appears.*
16	On the primary OPC, open the Commissioning Manager tool. *The Commissioning Manager main window appears.*
17	Tab to the **Edit System Data** button, then press **Ctrl_A** (or Keypad **0**). *The System Data Commissioning dialog appears, similar to the following figure.*
18	Tab to the **Backup OPC serial number** field, then type the serial number of the backup OPC. As you are looking at the faceplate, the serial number is at the bottom center of the motherboard, on the right side. OPC serial numbers have the following format: **Anhhhhhhh** where **n** is a positive integer, and **h** is a hexadecimal number. (Example: **A1b3e01be**) ***Note:*** If this serial number is not accepted, call your Northern Telecom technical support person.
19	To specify an alias for the backup OPC, tab to the **Backup OPC alias** field, then type a name up to 8 alphanumeric characters long. This step is optional, since the default alias is the OPC name followed by B for backup.

—continued—

Procedure 6-1 (continued)
Adding a backup OPC

Step	Action
20	To complete the entry of system data, tab to the **OK** button, then press **Ctrl_A** (or Keypad **0**). *If the information is correct, the name of the system being commissioned appears on the first line of the main window.* ***Note:*** If essential data is incorrect, an error dialog explaining the problem appears. The System Data Commissioning dialog remains displayed, and X marks the fields containing erroneous data.
21	Tab to the list of network elements commissioned in this system in the Commissioning Manager main window, select the network element representing the backup OPC shelf, then press **Ctrl_L** (or Keypad **Enter**) to display the List item menu.
22	To select the **Edit** option in the List item menu, press **the space bar** (or Keypad **0**). *The Network Element Commissioning Data dialog for shelf B appears, similar to the following figure.*
23	Tab to the field containing the three OPC radio buttons.
24	Using the arrow keys, move the cursor to the **Backup OPC** button, then press **Ctrl_A** (or Keypad **0**). *A mark appears between the brackets beside Backup OPC.*
25	Tab to the **OK** button, then press **Ctrl_A** (or Keypad **0**) to confirm the changes and close the Network Element Commissioning Data dialog.
26	Enter **Crtl_L W**
27	Use the **space bar** to exit.
28	Tab to the Available tools section of the User Session Manager window.
29	Arrow down to the OPC Save and Restore tool.
30	Open the tool by pressing **Ctrl_A**.
31	Tab to the Save to tape button at the top of the main window. Do not select it.
32	Using the down arrow key, move to the Restore from tape button and select it by pressing **Ctrl_A** (or Keypad **0**).
33	Tab to the Transfer data to Backup OPC button and select it by pressing **Ctrl_A** (or Keypad **0**). *A confirmation dialog appears, prompting you to confirm your request.*
34	Tab to the Yes button and select it by pressing **Ctrl_A** (or Keypad **0**). *The confirmation dialog closes. Progress dialogs appear, indicating that the data on the OPC disk is being copied to the backup OPC. This operation can take up to 30 minutes to complete. When the transfer is complete, the following completion dialog appears.*

—continued—

Procedure 6-1 (continued)
Adding a backup OPC

Step	Action
35	To remove the dialog, select the Done button by pressing **Ctrl_A** (or Keypad **0**). *The dialog closes.*
36	To close the tool: **a.** Display the window menu by pressing **Ctrl_L W** (or Keypad **6**). *The window menu appears.* **b.** Select the Exit command by pressing the **space bar** (or Keypad **0**). *The tool closes.*
37	Repeat steps 3 and 4.
38	If you are using a LAN port, do Procedure 6-4 on page 6-15 for the backup OPC LAN port.

—end—

Procedure 6-2
Setting the TIDS for a network element

Use this procedure to assign or modify the target identifiers (TIDs) for surveillance and provisioning interfaces.

> ***Note 1:*** For more information about setting the OSS interface, refer to Chapter 13, in the *System Administration Procedures*, 323-3001-302.
>
> ***Note 2:*** For more information about enabling or disabling the TR-08 service, refer to Procedure 13-2, Enabling and disabling TR-08 translation, in the *System Administration Procedures*, 323-3001-302.

A TID defines a TL1 target identifier and fully supports Bellcore's format for naming network elements. The TID can be up to 20 characters. The following characters are allowed:

A to Z	hyphen (-)	period (.)
0 to 9	underscore (_)	

No spaces or other characters are allowed.

> ***Note 1:*** Although the maximum size of each TID field is 20 characters, different operations systems (OS) support different TID sizes. You must therefore define the TID to support the OS that will be establishing connections to your system.
>
> ***Note 2:*** This procedure uses the tidmap command. To display help for tidmap, enter:
>
> **tidmap**↵

—continued—

Procedure 6-2 (continued)
Setting the TIDS for a network element

Requirements

Before you start this procedure, read the following information about upgrading from previous releases:

- If the previous release did not support 20-character TIDs, the network element names are converted to TIDs. If a network element name was not defined or it contains unsupported characters, the network element ID becomes the default TID.

  Note: The automatic TID assignment happens only when you run NMA or OPS. If you look at an operations controller (OPC) where neither NMA or OPS has been run, the TIDs are not defined even though the network element names and IDs are defined.

- If the previous release supported TIDs, the TIDs are preserved.

Before you start this procedure, you must meet the following requirements:

- obtain the network element ID of the network element for which you are assigning the TID.
- obtain the new TID name.

Action

Step	Action
1	Log in to the OPC at the root or admin level. If you are logging in as an admin user, you must open the UNIX shell tool (in the OPC Admin section) when the User Session Manager dialog appears.
2	To display the current network element ID, network element name, and TID for each network element in the OPC span of control, enter: **tidmap**↵ *A table similar to the following appears:*

```
opc> tidmap                    NE Name      NE ID
==============                 ==========   =======
88                                          88
5HDT                           HDT5         5
HDT06                          NE06         6
opc>
```

—continued—

Procedure 6-2 (continued)
Setting the TIDS for a network element

Step	Action
	Note: Entries appear under TID or NE Name only if the TID or network element name has been defined and you have run NMA or OPS.
3	To add or change a TID, enter: **tidmap -a <network element ID> <TID>**↵ where <network element ID> — current value of the network element ID <TID> — new value for the TID
4	To verify the changes, enter: **tidmap**↵
5	Exit the UNIX shell by entering: **exit**↵

—end—

Procedure 6-3
Defining and enabling an X.25 configuration

Requirements

The following requirements must be met before performing this procedure:

- Obtain the root or admin user ID and password.
- Obtain the values of the basic parameters that define the X.25 service which is provided by your carrier. These parameters are described in *System Administration Procedures*, 323-3001-302, in *Operations, Administration, and Provisioning*, Volume 4A.
- Fill out the X.25 interface worksheet in *System Administration Procedures*, 323-3001-302, in *Operations, Administration, and Provisioning*, Volume 4A.

  Note: Additional action is required using the OS Connection Manager tool. For more information about the tool, refer to Chapter 13, in *System Administration Procedures*, 323-3001-302, in *Operations, Administration, and Provisioning*, Volume 4A.

Action

Step	Action

1 Log in to the OPC.

If you do not know how to do this, see Procedure 5-1, "Logging in to the OPC," in this volume.

If you are logging in as	Then
root	*The UNIX prompt, opc>, appears.* Enter the following command: **config_port**
admin	*The User Session Manager appears.* Move to the Port Configuration tool, then press **Ctrl_A** (or Keypad **0**).

The Port Configuration main menu appears.

2 To display OPC port configuration, enter:

1 ↵

The port configurations appear. If ports 2 and 3 are available, these ports are listed.

3 Record the port configurations, then press **Enter** to return to the main menu.

—continued—

Procedure 6-3 (continued)
Defining and enabling an X.25 configuration

Step	Action
	Configuring a service and X.25
4	Configure a service by entering: **2** ↵ *The Configure a service menu appears.*

1	Terminal
2	Printer
3	X.25
4	X.3 PAD
5	PPL
8	Return to Main menu
9	Exit

5 Configure X.25 by entering:
3 ↵
The Configure X.25 menu appears.

1	View X.25 parameters
2	Enter X.25 parameters
3	Enable X.25
8	Return to Configure menu
9	Exit

6 View X.25 parameters by entering:
1 ↵
X.25 configuration parameters appear.

—continued—

Procedure 6-3 (continued)
Defining and enabling an X.25 configuration

Step	Action

7 Compare the X.25 parameters values on your X.25 interface worksheet with the values on the screen, then press **Return** to return to the configure X.25 menu.

If the values are	Then go to
different	step 8
the same	step 23

8 Enter X.25 parameters by entering:

2 ↵

The following messages and prompts appear. If an X.25 configuration file already exists, you are prompted to confirm the creation of a new one. If necessary, confirm by entering **Y** ↵*.*

```
The X.25 configuration file (/etc/x25init_scc0) already
exists.
Do you want to create a new configuration file? (Yes/No):
yes
moving /etc/x25init_scc0 to /etc/x25init_scc0.bak
/etc/x25init: release_id is “hpx10ac,07/26/93,00:01”
Fri Sep 08:11:59 EDT#Canada 1993
```

To properly configure X.25 you *must* know the following information:

- X.121 Address
- X.25 Programmatic Access Name
- Circuit Table Definition

```
Do you wish to begin configuring X.25 parameter values?
[y/n]:
```

—continued—

Procedure 6-3 (continued)
Defining and enabling an X.25 configuration

Step	Action
	Defining parameter values
9	To begin defining parameter values, enter: **y** ↵ *The following menu appears:*

1	Global parameters
2	Level 2 parameters
3	Level 3 parameters
4	IP parameters
5	Display all parameters
6	Exit configuration program and create file
7	Abort configuration program; file will not be created.

10	To select global parameters, enter: **1** ↵ *The global parameters appear. Default values are in square brackets following the parameter name. A menu containing two entries appears.*
11	To modify global parameters, enter: **1** ↵ *Each of the global parameters appears in turn. You can enter a value, or accept the default value by pressing **Return**.*
12	Respond to the prompts as required. To change the default value, enter a new value, then press **Return**. To accept the default value, press **Return**. For parameters that do not have a default, you must specify a value. *After you respond to all displayed parameters, the current values of all global parameters appear, and a menu containing two entries appears.*
13	To return to the menu shown in step 9, enter: **2** ↵
14	To select level 2 parameters, enter: **2**↵ *The level 2 parameters appear. Default values are in square brackets following the parameter name. A menu containing two entries appears.*

—continued—

Procedure 6-3 (continued)
Defining and enabling an X.25 configuration

Step	Action
15	To modify level 2 parameters, enter: **1** ↵ *Each of the level 2 parameters appears in turn. You can enter a value, or press **Return** to accept the default value.*
16	Respond to the prompts as required. To change the default value, enter a new value, then press **Return**. To accept the default value, press **Return**. For parameters that do not have a default, you must specify a value. *After you respond to all displayed parameters, the current values of all level 2 parameters are displayed, and a menu containing two entries appears.*
17	To return to the menu shown in step 9, enter: **2** ↵
18	To select level 3 parameters, enter: **3** ↵ *The level 3 parameters appear. Default values are in square brackets following the parameter name. A menu containing two entries appears.*
19	To modify level 3 parameters, enter: **1** ↵ *Each of the level 3 parameters appears in turn. You can enter a value, or press **Return** to accept the default value.*
20	Respond to the prompts as required. To change the default value, enter a new value, then press **Return**. To accept the default value, press **Return**. For parameters that do not have a default, you must specify a value. *After you respond to all displayed parameters, the current values of all level 3 parameters are displayed, and a menu containing two entries appears.*
21	To return to the menu shown in step 9, enter: **2** ↵ **Creating the configuration file**
22	To create the configuration file, enter: **6** ↵ *The configuration file is created, the program terminates, and the Configure X.25 menu appears.*
23	Enable X.25 by entering: **3** ↵ *If your hardware configuration supports multiple OPC ports, a message prompting you to select a port appears.* `Port Number (B, 1, 2, 3):`

—continued—

Procedure 6-3 (continued)
Defining and enabling an X.25 configuration

Step	Action
24	Select a port that is not already configured to enable X.25 on by entering: **<port #>** where <port #> **B, 1, 2,** or **3** *A confirmation message appears.* `X.25 operation is being configured on port x.` `Do you wish to continue? (Yes/No):`
25	Confirm by entering: **y** ↵ *The following message appears:* `X.25 configuration successful on port x.` `Insert the appropriate X.25 cable on port x.` *The Configure X.25 menu appears after a short period.*

Configuring other services or exiting

26 You have defined X.25 parameters and enabled X.25. You can exit or continue defining other services.

If you want to	Then
configure another service (X.3 PAD, PPL (electronic software delivery), terminal, or printer)	Enter: **8** ↵ *The Configure a service menu appears.* Repeat this procedure for that device.
exit	Enter: **9** ↵ *The program ends and the UNIX prompt, opc>, appears.*

—end—

Procedure 6-4
Configuring a LAN port

For the OPC to recognize and support communications with a Nortel Network Manager or an X terminal using the Ethernet port on the OPC faceplate, the OPC Ethernet port must be initialized. Use this procedure to initialize the OPC Ethernet port so that it can communicate with a Network Manager or an X terminal.

Note: The Nortel Network Manager is a software package designed to run on a workstation. For more information on the Network Manager, see *Network Manager User Guide*, 323-4001-050.

Setup form

To enter the information required in this procedure, refer to the OPC Setup Form in Chapter 1.

Requirements

To complete this procedure, the following requirements must be met:

- make sure the OPC module is installed and started. Consult the workstation hardware documentation to determine the applicable cabling option.
- obtain the root password to access the OPC. This should be the OPC you want to initialize.
- obtain the following identifiers for initializing the OPC to be initialized:
  - — the OPC node name (for example: OPCM001P)
  - — the OPC Internet Protocol (IP) address (for example: 47.32.130.222)
  - — the OPC IP netmask (for example: 255.255.255.0)
- read the command conventions in *OPC User Interface Description,* 323-3001-301, in *Operations, Administration, and Provisioning,* Volume 4A.

  Note: Up to eight characters are allowed for the SYSTEM_NAME variable in the /etc/rc file. X terminal installation fails if this limit is exceeded.

—continued—

Procedure 6-4 (continued)
Configuring a LAN port

Action

Step	Action
1	Log in to the OPC by entering the root user ID and password at the login prompt.
2	If you have not already done so, plug in the Ethernet cable.
	Starting the Ethernet administration script
3	Type **opcui** ↵.
	The User Session Manager main window is displayed.
4	Tab to the Available Tools menu.
5	Tab to Select Ethernet admin and select it by pressing **Ctrl_A**.
	The Ethernet port command list is displayed:
	`1. Initialize and enable the Ethernet port`
	`2. Ethernet port control (enable/disable)`
	`3. X terminals configuration`
	`4. Help`
	`5. Quit`
	`Select one of the above commands [1-5]:`
6	The Ethernet port must be initialized before it can be enabled or disabled. Select the Ethernet port initialization command by entering:
	1 ↵
	A message describing the port initialization requirements is displayed, followed by a node name prompt:
	`Enter the nodename:`
	Enter the node name assigned to the OPC.
	The node name can be up to a maximum of eight alphanumeric characters. An example of node name is "OPCM001P".
	Note: Refer to the OPC Setup Form in Chapter 1 for the node name.

—continued—

Procedure 6-4 (continued)
Configuring a LAN port

Step	Action
7	Press the Return key (↵). *The nodename is checked. If the node name is not in the correct format an error message is displayed, followed by another node name prompt. If the node name prompt reappears, go to step 6.* *Once you enter an acceptable node name, an IP address prompt is displayed:* `Enter the IP address:`
8	Enter the unique IP address number assigned to the OPC. ***Note:*** You only need to enter the IP address if the displayed value is incorrect. *The IP address consists of four numbers, each separated by a period. Each number must be greater than or equal to 0, and less than or equal to 255.* *Press the Return key (↵).* *The IP address is checked. If the IP address is not in the correct format, or it is reserved, or already assigned to another OPC, an error message is displayed, followed by another IP address prompt. If the IP address prompt re-appears, go to step 8.* *Once you enter an acceptable IP address, the netmask prompt is displayed:* `Enter the netmask [default 255.255.255.0]:`
9	Enter the netmask number assigned to the OPC. *The default netmask value is 255.255.255.0. You can accept this value by pressing the Return key. If desired, you can enter a new netmask number using the same criteria as the IP address.*
10	Enter the IP address for default gateway.
11	Press the Return key (↵). *The netmask is checked. If the netmask is not in the correct format, an error message is displayed followed by another netmask prompt. If the netmask prompt reappears, go to step 9.* *Once you enter an acceptable netmask number, a summary of the Ethernet port initialization values appears, followed by a request to continue with the initialization process:* `Initializing Ethernet to:` `name: 'OPCM001P'` `address: '47.32.130.222'` `netmask: '255.255.255.0'` `Do you wish to continue? [yes;no]:`

—continued—

Procedure 6-4 (continued)
Configuring a LAN port

Step	Action

12 Check the initialization values in the summary and verify that they are correct.

If you want to	Then go to
continue the Ethernet port initialization	step 13
discontinue the Ethernet port initialization	step 16

13 Continue the Ethernet port initialization process by entering:

yes ↵

The Ethernet port command list is displayed.

```
1. Initialize and enable the Ethernet port
2. Ethernet port control (enable/disable)
3. X terminals configuration
4. Help
5. Quit
Select one of the above commands [1-5]:
```

14 Complete the Ethernet port initialization process by entering:

2↵

The Ethernet port is now initialized.

15 Reboot the OPC. If you do not know how to do this, refer to *OPC User Interface Description*, 323-3001-301, in *Operations, Administration, and Provisioning,* Volume 4A.

The OPC is now ready to communicate with the Network Manager or X terminal.

16 Discontinue the Ethernet port initialization process by entering:

no ↵

The Ethernet port command list appears.

17 Quit the Ethernet administration script by entering:

5 ↵

The UNIX shell opc> prompt is displayed.

—end—

Procedure 6-5
Unassigning call reference values

Use this procedure to unassign call reference values (CRVs) for MVI switches. This procedure is necessary if you plan to use OPS/INE to assign CRVs rather than using the default settings.

For more information on the MVIPROV CI tool, see *Line Card Provisioning Procedures*, 323-3001-315, in *Operations, Administration, and Provisioning*, Volume 4B.

Requirements

A GR-303 MVI host switch has been added to the remote fiber terminal (RFT) data using the OPC Host Provisioning Manager tool.

Action

Step	Action
1	Log in to the network element user interface. *The Network Element Status screen appears.*
2	Type the following: **quit all** ↵
3	Start the MVIPROV CI tool by entering: **mviprov** ↵ *The MVIPROV prompt appears.*
	Unassigning call reference and IG values
4	Unassign the call reference values by entering: **nilcrv <edit method>** ↵

where <edit method>		
is:	**slot <shelftype> <shelf #> <slot #> <circuit #>**	
	where:	
	<shelftype>	**CDS**, **ANX**, or **UE**
	<shelf #>	**1** to **7** for CDS, **1** to **28** for ANX, **1** to **7** for UE
	<slot #>	**1** to **96** for CDS, **1** to **48** for ANX, **1** to **16** for UE
	<circuit #>	**1** to **24** for UE, not applicable to CDS or ANX

—continued—

—continued—

Procedure 6-5 (continued)
Unassigning call reference values

Step **Action**

where <edit method>	
or:	**range <shelftype> <start shelf #> <start slot #> <start circuit #> <end shelf #> <end slot #> <end circuit #>** where: <shelftype> **CDS**, **ANX**, or **UE** <start shelf #> <end shelf #> **1** to **7** for CDS, **1** to **28** for ANX, **1** to **7** for UE <start slot #> <end slot #> **1** to **96** for CDS, **1** to **48** for ANX, **1** to **16** for UE <start circuit #> <end circuit #> **1** to **24** for UE, not applicable to CDS or ANX
	Note: The "start" number must be less than or equal to the corresponding "end" number.
or:	**CRV <CRV #> <IG #>** where: <CRV #> **1** to **2048** <IG #> **1** to **5**
or:	**CRV_range <start CRV #> <end CRV #> <IG #>** where: <start CRV #> <end CRV #> **1** to **2048** <IG #> **1** to **5**
	Note: The "start" number must be less than or equal to the corresponding "end" number.

The edit method and IG appear. Confirmation is requested.

5 Confirm or cancel the command by entering:

y ↵ or **n** ↵

If confirmed, the command is executed.

—continued—

Procedure 6-5 (continued)
Unassigning call reference values

Step	Action
	Listing unassigned call reference and IG values
6	List the call reference values by entering: **querynil** ↵ *The list of unassigned CRVs appears. You can advance to the next screen of information by pressing Return.*
	Listing the MVIPROV CI commands
7	View the list of MVIPROV CI commands by entering: **help** ↵ *The list of MVIPROV CI commands appears.*
8	Return to the network element user interface by entering: **fwp** ↵

—end—

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