

555-4031-544

Meridian SuperNode

Commercial Systems

Trouble Locating and Clearing Procedures

Volume 2 of 2

MSL10 Standard 08.01 April 1999

NORTEL
NORTHERN TELECOM

Meridian SuperNode

Commercial Systems

Trouble Locating and Clearing Procedures Volume 2 of 2

Publication number: 555-4031-544
Product release: MSL10
Document release: Standard 08.01
Date: April 1999

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Printed in the United States of America

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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, and the radio interference regulations of the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is 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 is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense. Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of FCC Rules, Docket No. 89-114, 55FR46066.

The MSL-100 system is certified by the Canadian Standards Association (CSA) with the Nationally Recognized Testing Laboratory (NRTL).

This equipment is capable of providing users with access to interstate providers of operator services through the use of equal access codes. Modifications by aggregators to alter these capabilities is a violation of the Telephone Operator Consumer Service Improvement Act of 1990 and Part 68 of the FCC Rules.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

YEAR 2000 READINESS DISCLOSURE

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Trouble locating and clearing procedures

Introduction

This chapter contains procedures to locate and clear trouble in a Meridian SL-100 office. The procedures contain the following sections:

- Application
- Definition
- Common procedures
- Action
- Step-action instructions

Application

This section describes the purpose of the procedure.

Definition

This section provides context-setting information for trouble locating and clearing procedures. For example, a trouble locating and clearing procedure that has an associated log report provides a description of the associated log.

Common procedures

This section lists common procedures to use during the trouble locating and clearing procedure. A common procedure is a series of steps that repeat within maintenance procedures. An example of a common procedure is the procedure for the removal and the replacement of a card. Trouble locating and clearing common procedures reside in a common procedures chapter in this Northern Telecommunication (NTP). Do not use common procedures unless the step-action procedure directed you to use common procedures.

Action

This section contains a summary flowchart and a list of steps. The flowchart is a summary of the main actions, decision points, and paths you take. The purpose of the flowchart is to preview what you will be doing and to help prepare for it. For example, if the instructions involve another office, you

need to advise that office before you begin the step-action instructions. Do not use the summary flowchart to perform the procedure.

Step-action instructions

The step-action instructions tell you how to locate and clear a trouble. Always perform the steps in the order specified. The successful completion of a step is dependent on previous steps.

The step-action instructions provide the command syntax and machine output you use or see while performing this procedure.

Replacing a digital audio tape (DAT) drive NTFX32CA

Application

Use this procedure to replace a digital audio tape (DAT) drive NTFX32CA.

Definition

The digital audio tape (DAT) drive is a data storage device on the storage media card NTFX32AA. Card NTFX32AA is in the input/output module (IOM). The integrated service module (ISM) shelf contains the IOM. Replace any drive that has a fault and can no longer record. Do not copy files from any drive that has a fault. Backup files are available on the parallel device.

Common procedures

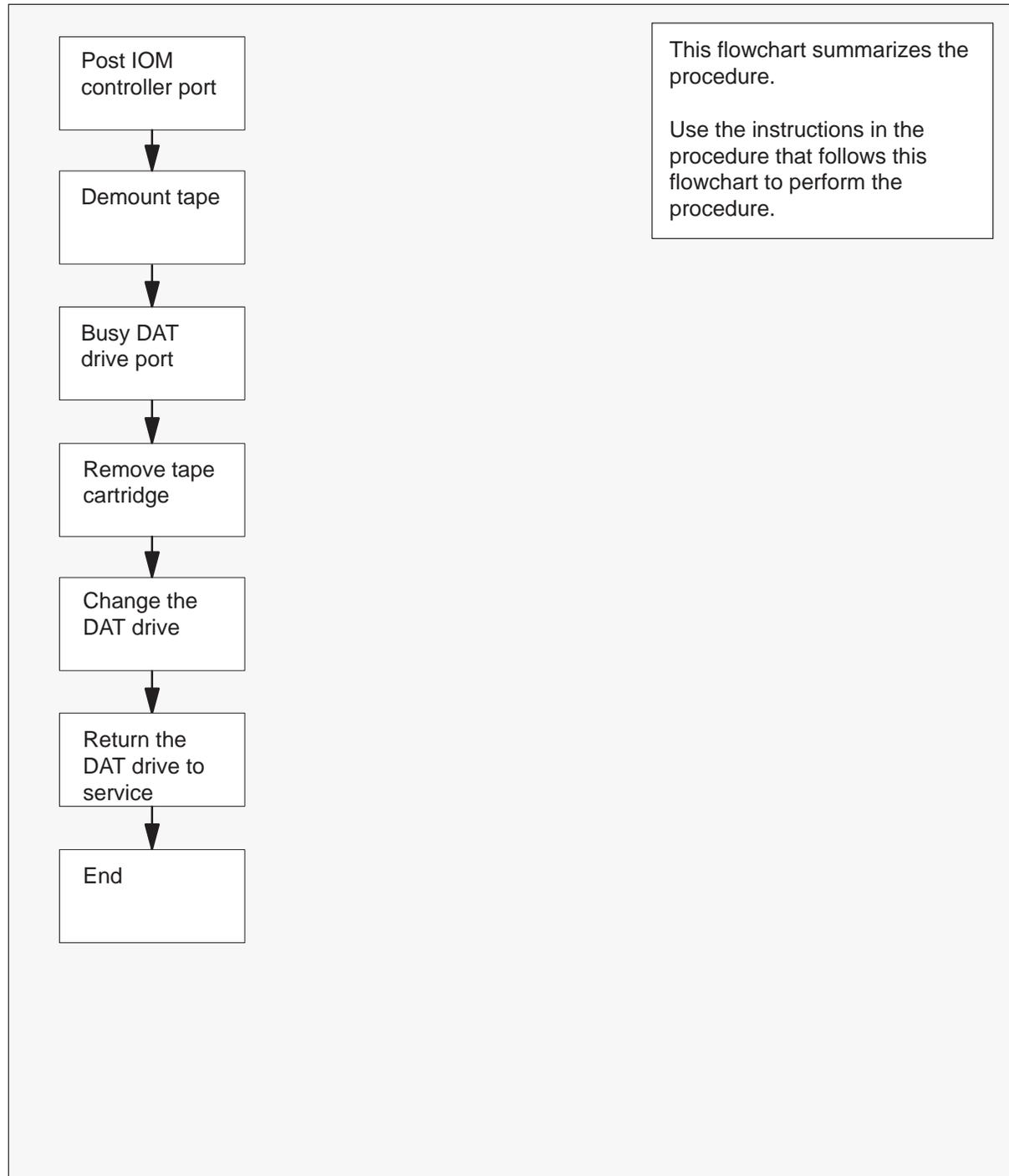
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

Summary of Replacing a digital audio tape (DAT) drive



Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

Replacing a digital audio tape (DAT) drive

At your current location

1 Obtain the following items:

- replacement tape drive assembly
- flat-blade screwdriver with a 1/4 in. (3-mm) blade

Obtain a shipping carton for the DAT drive that you will replace. When possible, use the carton of the new drive.

To access the IOD level of the MAP display, type

>MAPCI;MTC;IOD

and press Enter.

Example of a MAP display:

```

IOD
IOC  0  2  3
STAT .  .  S

DIRP: SMDR B XFER: .   SLM: .   NPO: .   NX25:
MLP  : .     DPPP: .   DPPU: .   SCAI:
    
```

Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

- 2 To post the input/output module (IOM) controller for the replaced DAT drive, type

>IOC ioc_no
and press Enter.

where

ioc_no is the number of the affected IOM

Example of a MAP display:

```
IOC  PORT 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
(IOM)STAT . . . - . . - - - . - - - - - . . .
0      TYPE C C C  C M          M          S S
          O O O  O T          P          C C
          N N N  N D          C          S S
```

- 3 To post the port for the replaced DAT drive, type

>PORT port_no
and press Enter.

where

port_no is the port number of the DDU device

Example of a MAP display:

```
Port 16      MTD 1      DevType      DAT
(SCSI)      TapeName   User
           Status     Idle
```

- 4 Record the number of the replaced DAT drive.
- 5 Notify all users that there will be an interruption in service for the device. Wait until all users stop use of the DAT drive before you proceed to the next step.

Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

- 6 To demount a mounted DAT tape, type
>DEMOUNT Tmtd_no
 and press Enter.
 where
 mtd_no is the number of the affected MTD (DAT)

- 7 To manually busy the DAT drive port, type

>BSY
 and press Enter.

Example of a MAP display:

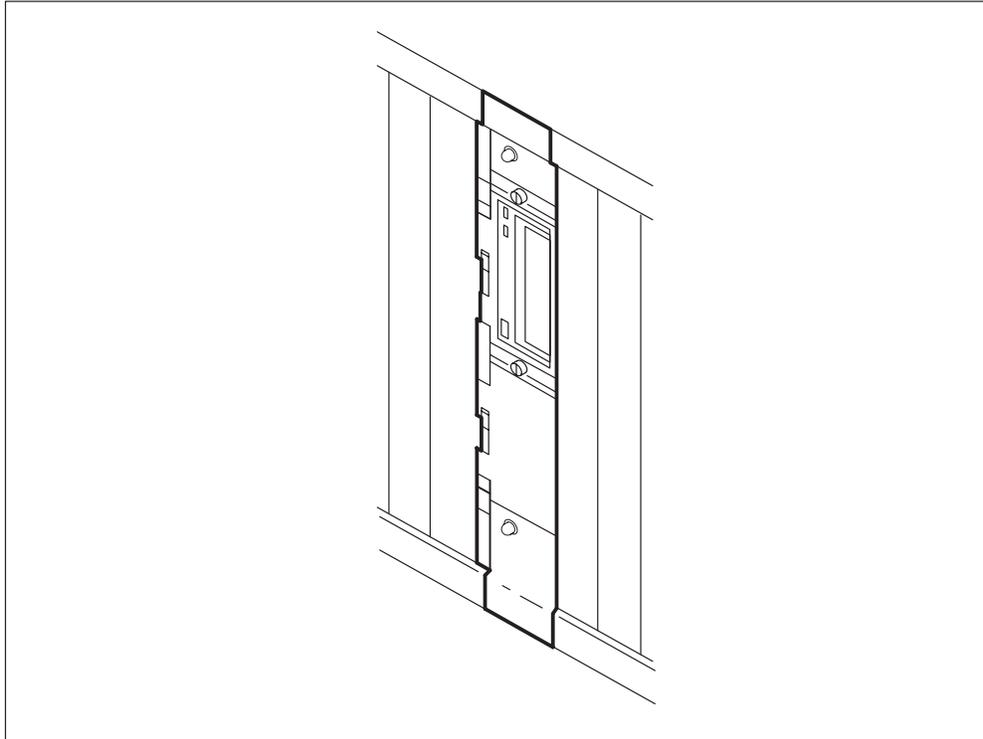
```
bsy
OK
```

If the BSY command	Do
passed	step 8
failed	step 19

Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

At the ISM shelf

- 8 Find the NTFX32CA DAT drive unit that has a fault in the IOM storage media card NTFX32AA in slot 4 of the ISM shelf.



Check the LED on the media card faceplate.

If the LED	Do
is lit	step 10
is off	step 9

- 9 To replace the media card NTFX32, perform the correct procedure in *Card Replacement Procedures*.

Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

10



WARNING

Possible loss of data

Force eject to recover a cartridge only for emergency purposes. Never use the method as a quick way to eject the cartridge. Data can become lost or the tape can format in the wrong way.



WARNING

Possible loss of data

Force eject to recover a cartridge only for emergency purposes. Never use the method as a quick way to eject the cartridge. Data can become lost or the tape can format in the wrong way.

Press the unload button at the front of the unit to remove the tape cartridge.

Note: The drive will perform an unload sequence. The tape rewinds to the beginning of partition (BOP) for partition 0. When the tape is write-enabled, the copy of the tape log writes back to tape. The tape rewinds to the beginning of media. The tape also unthreads and ejects from the mechanism.

11



WARNING

Static electricity damage

To handle the drive unit, wear a wrist-strap that connects to a wrist-strap grounding point on the modular supervisory panel (MSP). The wrist-strap protects against static electricity damage.



CAUTION FOR ESDS

Static electricity damage

To handle the drive unit, wear a wrist-strap that connects to a wrist-strap grounding point on the modular supervisory panel (MSP). The wrist-strap protects against static electricity damage.

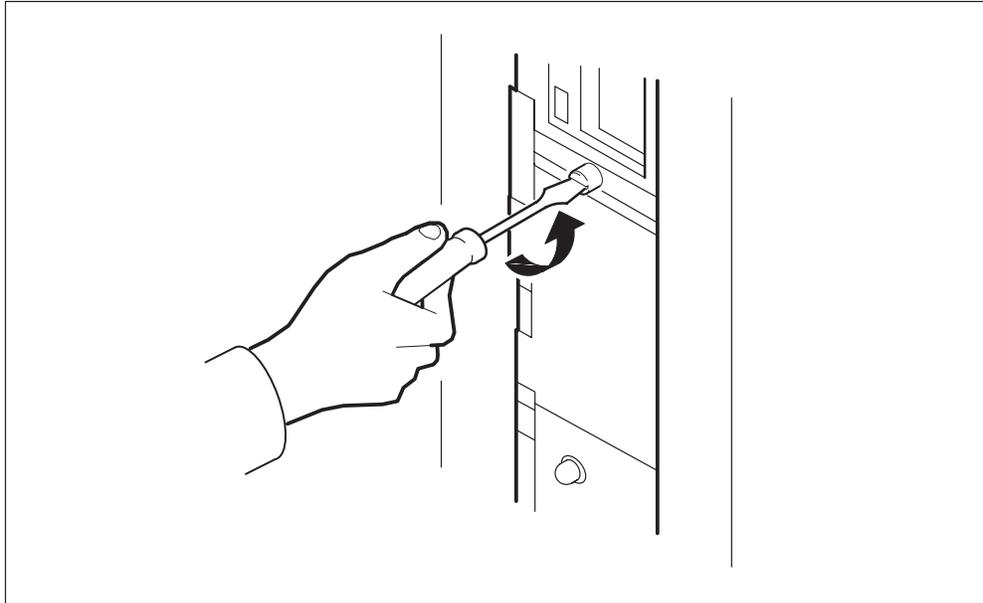
Unscrew the spring-loaded lock mechanism located on the faceplate of the

Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

drive carrier. The drive carrier connects the DAT drive to the media card.

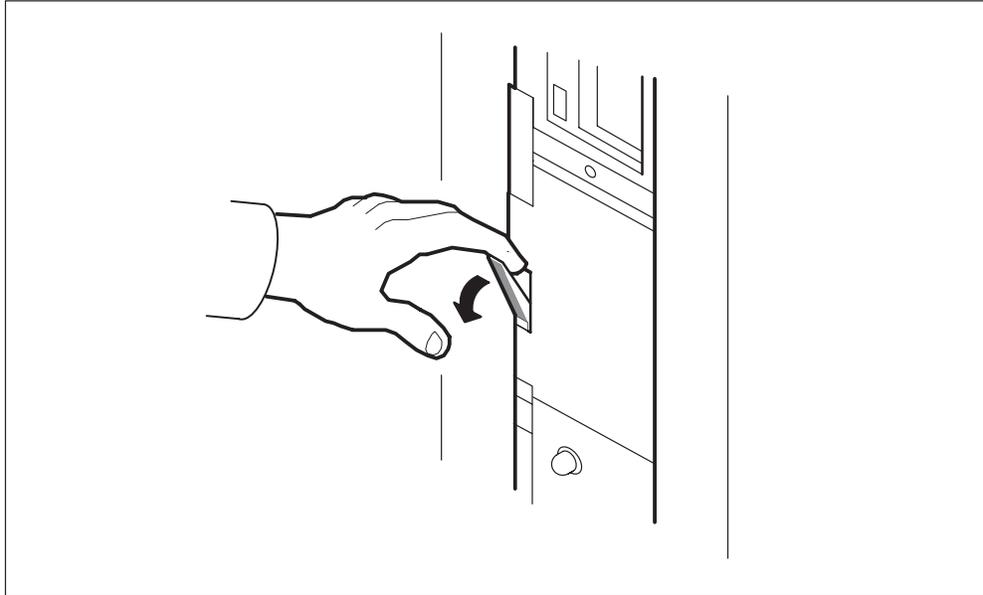
After the drive disconnects, the red LED will be ON and the green LED will be OFF.

Note: Unscrew the lock mechanism to its complete limit, before you use the ejector to remove the unit.



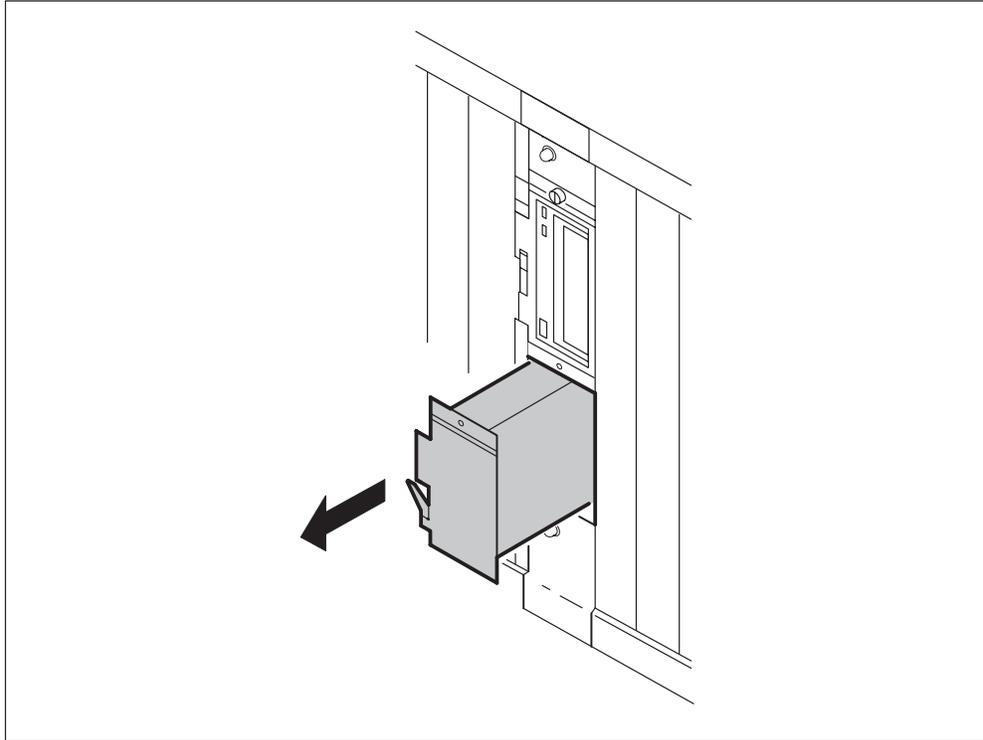
Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

- 12 Pull down on the lock latch to push the DAT drive carrier away from the media card.



Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

- 13 Remove the DAT drive and the carrier. Pull the drive and carrier straight out of the media card.



Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

14



WARNING

Ejector arm damage

Ensure that the ejector arm on the faceplate is flat and in the up position before you insert the DDU in the media card faceplate. Failure to complete this procedure can result in ejector arm damage.



WARNING

Ejector arm damage

Ensure that the ejector arm on the faceplate is flat and in the up position before you insert the DDU in the media card faceplate. Failure to complete this procedure can result in ejector arm damage.

Insert the new DAT unit through the aperture in the media card faceplate. Ensure that the connector at the end of the unit plugs into the receptacle on the card. Lock the unit in position with the lock latch.

Reconnect the drive unit with the media card. Turn the spring-loaded lock mechanism to the right to make the connection between the new unit and the media card.

After the drive connects, the green LED will be ON and the red LED will stay OFF.

Replacing a digital audio tape (DAT) drive NTFX32CA (continued)

15



WARNING

Use correct tape cartridges

Use cartridges with the digital data storage (DDS) logo on a label. The drive unit will support DDS/DDS-1 cartridges only. The drive will reject DDS-2 cartridges during the load operation.



WARNING

Use correct tape cartridges

Use cartridges with the digital data storage (DDS) logo on a label. The drive unit will support DDS/DDS-1 cartridges only. The drive will reject DDS-2 cartridges during the load operation.

Insert the tape cartridge that you removed in step 10 into the drive. The drive will take the cartridge and perform a load sequence.

At the MAP display

16 To access the port level of the MAP display for the DAT drive, type

```
>MAPCI;MTC;IOC ioc_no;PORT port_no
```

and press Enter.

where

`ioc_no` is the number of the input/output module that houses the DAT unit you are working on

`port_no` is the number of the IOM port connected to the DAT unit

Example of a MAP display:

```
Port 16      MTD 1      DevType      DAT
(SCSI)      TapeName  User
              Status      Idle
```

Replacing a digital audio tape (DAT) drive NTFX32CA (end)

- 17 To return the DAT to service, type
>RTS
 and press Enter.

If the RTS command	Do
passed	step 18
failed	step 19

- 18 To remount the removed tape, type
>MOUNT mtd_no
 and press Enter.
 where
 mtd_no is the number of the MTD (DAT)
 Go to step 20.
- 19 For additional help, contact the person responsible for the next level of support.
- 20 The procedure is complete.

Replacing a door gasket

Application

Use this procedure to replace a door gasket that has faults. The door gasket is on model A C28, model B C28 and model A C42 doors.

The following product codes are available for the types of doors listed below:

On model A C28 door:

- P0691073 (EMI gasket, vertical)
- P0691074 (EMI gasket, horizontal)

On model B C28 door:

- P0738895 (EMI gasket, vertical)
- P0738894 (EMI gasket, horizontal)

On model A C42 door:

- P0691073 (EMI gasket, vertical)
- P0691074 (EMI gasket x 18.5 in. long)

Note: This procedure does not apply to gaskets for model B C28 (release issue 2) and model B C42 doors. These doors use a gasket that does not have an adhesive backing.

Definition

Perform this procedure if a gasket has faults.

Common procedures

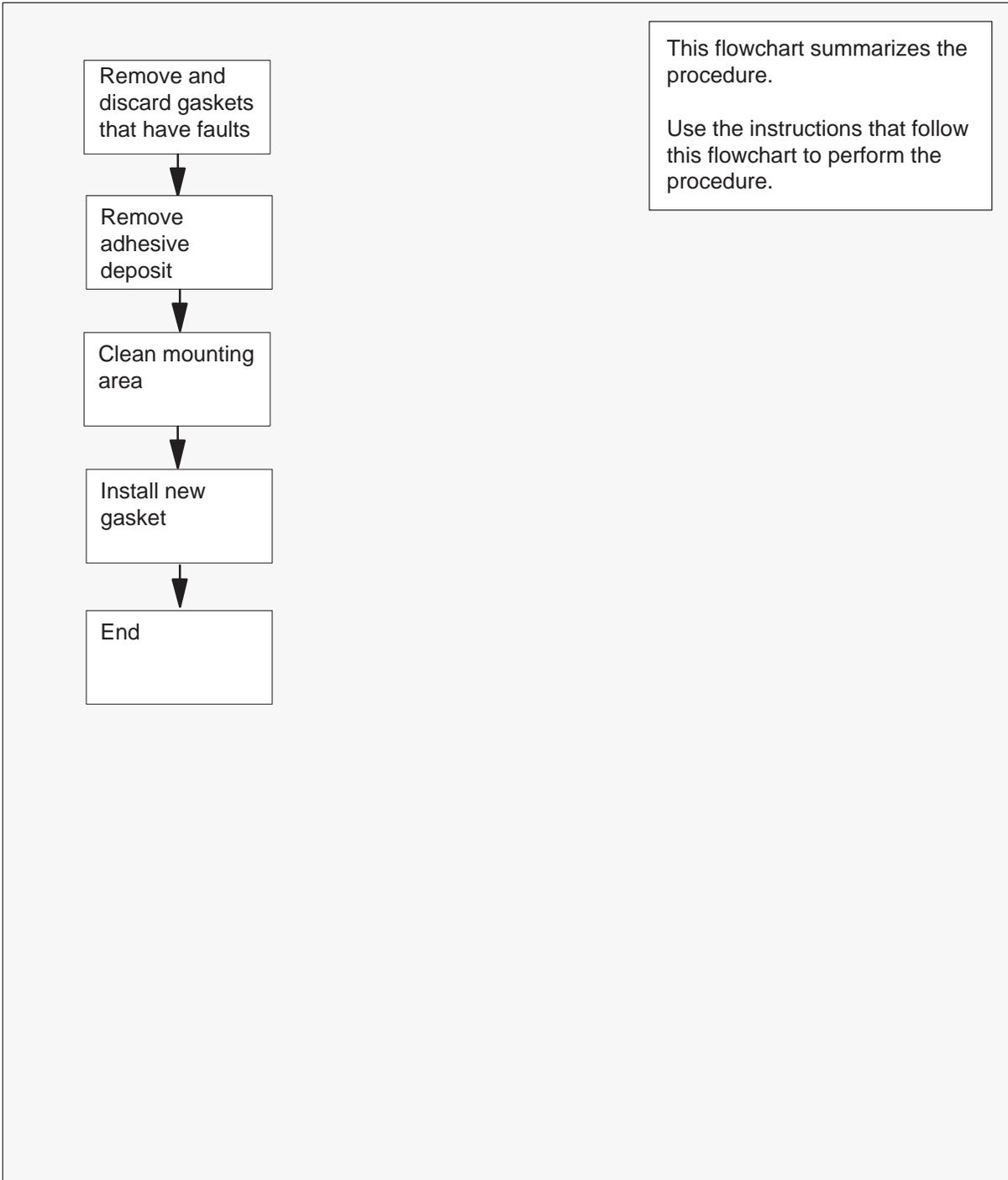
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a door gasket (continued)

Summary of Replacing a door gasket



Replacing a door gasket

(end)

Replacing a door gasket

At the front of the cabinet

- 1 Remove and discard the gasket that has faults.
- 2 Remove the adhesive deposit from the mounting surface of the inside door panel.
Note: Apply a petroleum-based cleaner with a lint-free industrial wiper.
- 3 Use a lint-free industrial wiper to clean the mounting area with a degreasing solvent (for example, isopropyl alcohol).
Note: Let the surface dry before you install the new gasket.
- 4 Peel off the release tape from the adhesive backing of the gasket. Install the gasket in place.
Note: Press the gasket down to ensure that it adheres correctly to the surface of the door.
- 5 Close the doors carefully. Allow the adhesive to cure for 24 hours.
- 6 The procedure is complete.

Replacing a fan in a 28-in. cabinet

Application

Use this procedure to replace a fan in a 28-in. (0.635-m) cabinet.

Definition

A fan cools the components of the cabinet.

Common procedures

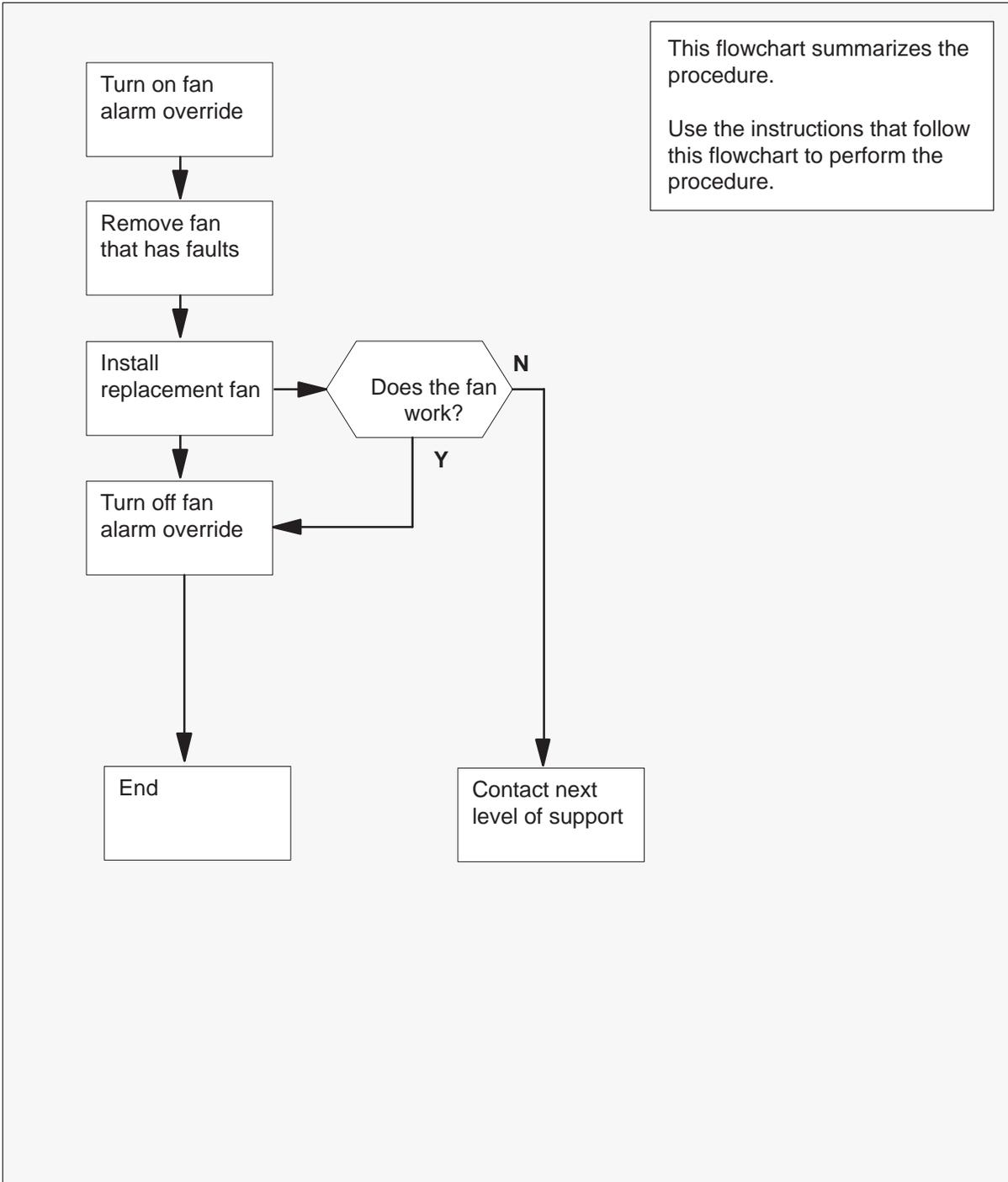
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a fan in a 28-in. cabinet (continued)

Summary of Replacing a fan in a 28-in. cabinet



Replacing a fan in a 28-in. cabinet (continued)

Replacing a fan in a 28-in. cabinet

At the front of the cabinet

1 Open the cabinet doors.

2



DANGER

Risk of personal injury

A risk of electrocution exists. Avoid contact with the cabinet wiring.



DANGER

Risk of personal injury

A risk of electrocution exists. Avoid contact with the cabinet wiring.



DANGER

Risk of personal injury

Avoid contact with the rotating fan blades.



DANGER

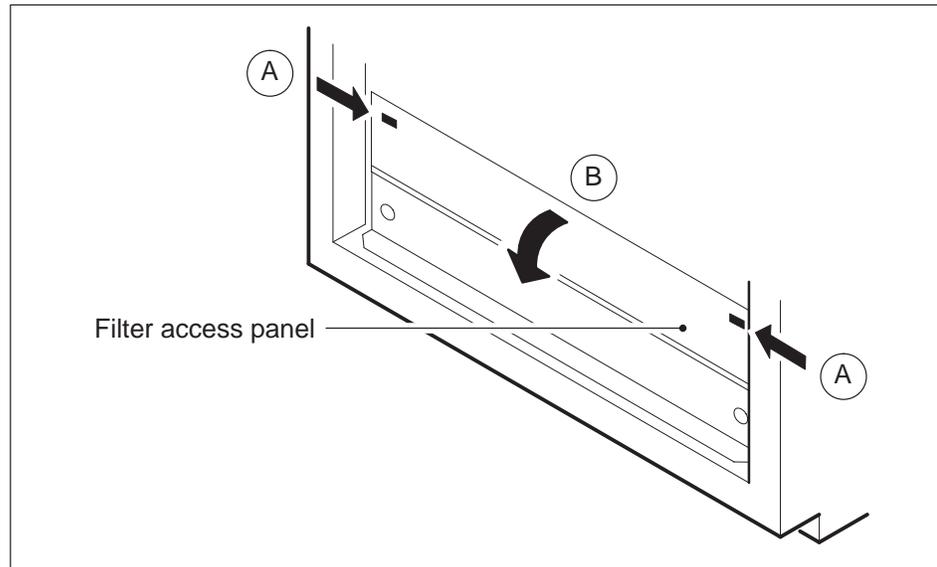
Risk of personal injury

Avoid contact with the rotating fan blades.

Turn the fan alarm override switch ON.

Replacing a fan in a 28-in. cabinet (continued)

- 3 Locate the filter access panel at the bottom of the cabinet. To open the panel, slide the catches toward each other (A) and swing the panel down (B).



- 4 Record which fan has faults.

At the back of the cabinet

- 5 Open the cabinet doors.

6



WARNING

Loss of cabinet cooling

The equipment can overheat if you leave the fan disconnected for an extended period of time.



WARNING

Loss of cabinet cooling

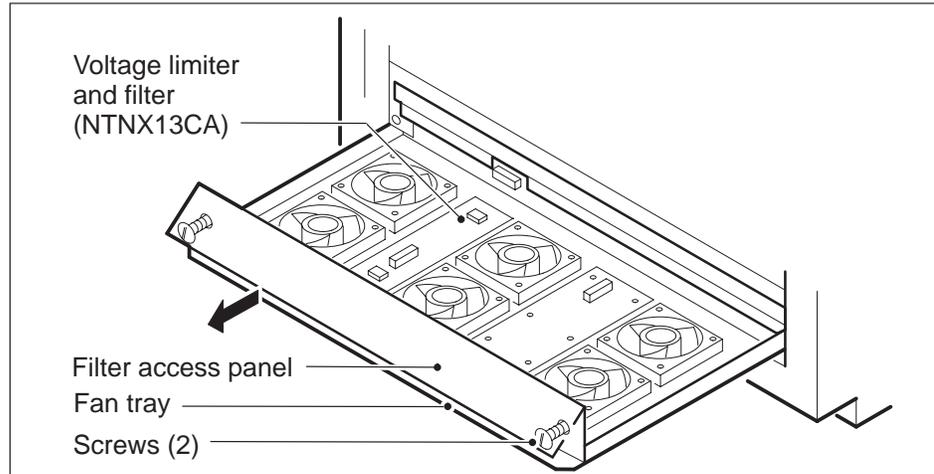
The equipment can overheat if you leave the fan disconnected for an extended period of time.

Locate the ten-pin electrical connector for the fan tray at the bottom of the cabinet. Disconnect the fan tray connector from the corresponding ten-pin connector on the cabinet.

Replacing a fan in a 28-in. cabinet (continued)

At the front of the cabinet

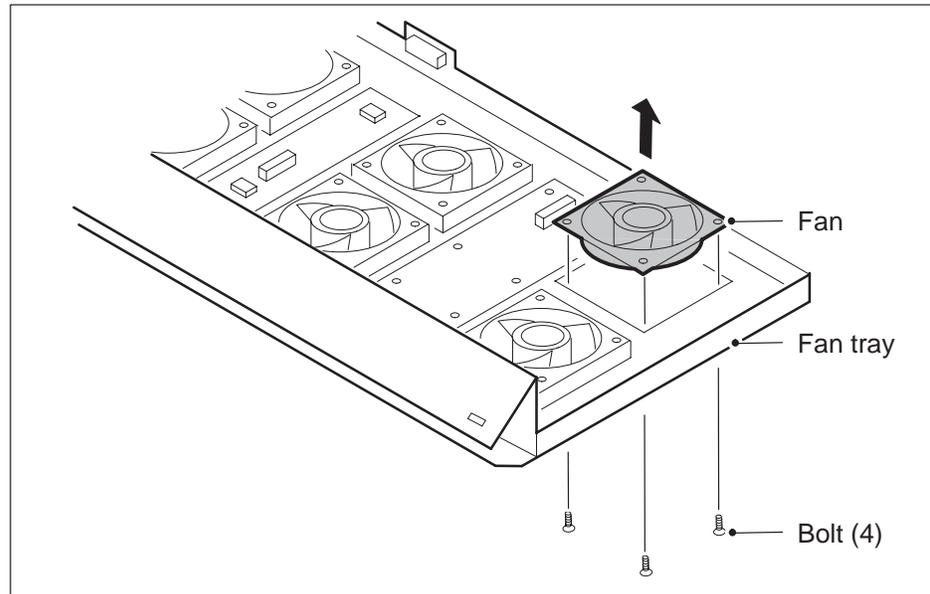
- 7 Loosen the two screws that hold the fan tray in place.



- 8 Slide the fan tray out of the cabinet.
- 9 Note the positive and negative electrical connections of the fan.
- 10 Locate the two electrical connectors on the fan tray. Unplug the two electrical connectors on the fan tray from the corresponding connectors on the fan that has faults.
- 11 Note the position of the fan that has faults (top and bottom, left and right).

Replacing a fan in a 28-in. cabinet (continued)

- 12 Unscrew the four bolts that hold the fan in place.



- 13 Remove the fan that has faults.
- 14 Position the replacement fan on the fan tray in the same position used for the fan that has faults.
- 15 Screw the four bolts into the fan from the bottom of the tray.
- 16 Plug the two electrical connectors on the fan tray into the corresponding connectors on the fan.
- 17 Slide the fan tray back into the cabinet.
- 18 Tighten the two screws that hold the fan tray in place.
- At the back of the cabinet***
- 19 Connect the ten-pin electrical connector on the fan again.
- 20 Close the cabinet doors.

Replacing a fan in a 28-in. cabinet (end)

At the front of the cabinet

- 21** Determine if the replacement fan works.

If the replacement fan	Do
works	step 22
does not work	step 25

- 22** Close the filter access panel.
- 23** Turn OFF the fan alarm override switch.
- 24** Close the cabinet doors. Go to step 26.
- 25** For additional help, contact the next level of support.
- 26** The procedure is complete.

Replacing a fan in a 28-in. frame

Application

Use this procedure to replace a fan in a 28-in. (0.635-m) frame.

Definition

A fan cools the components of a frame.

Common procedures

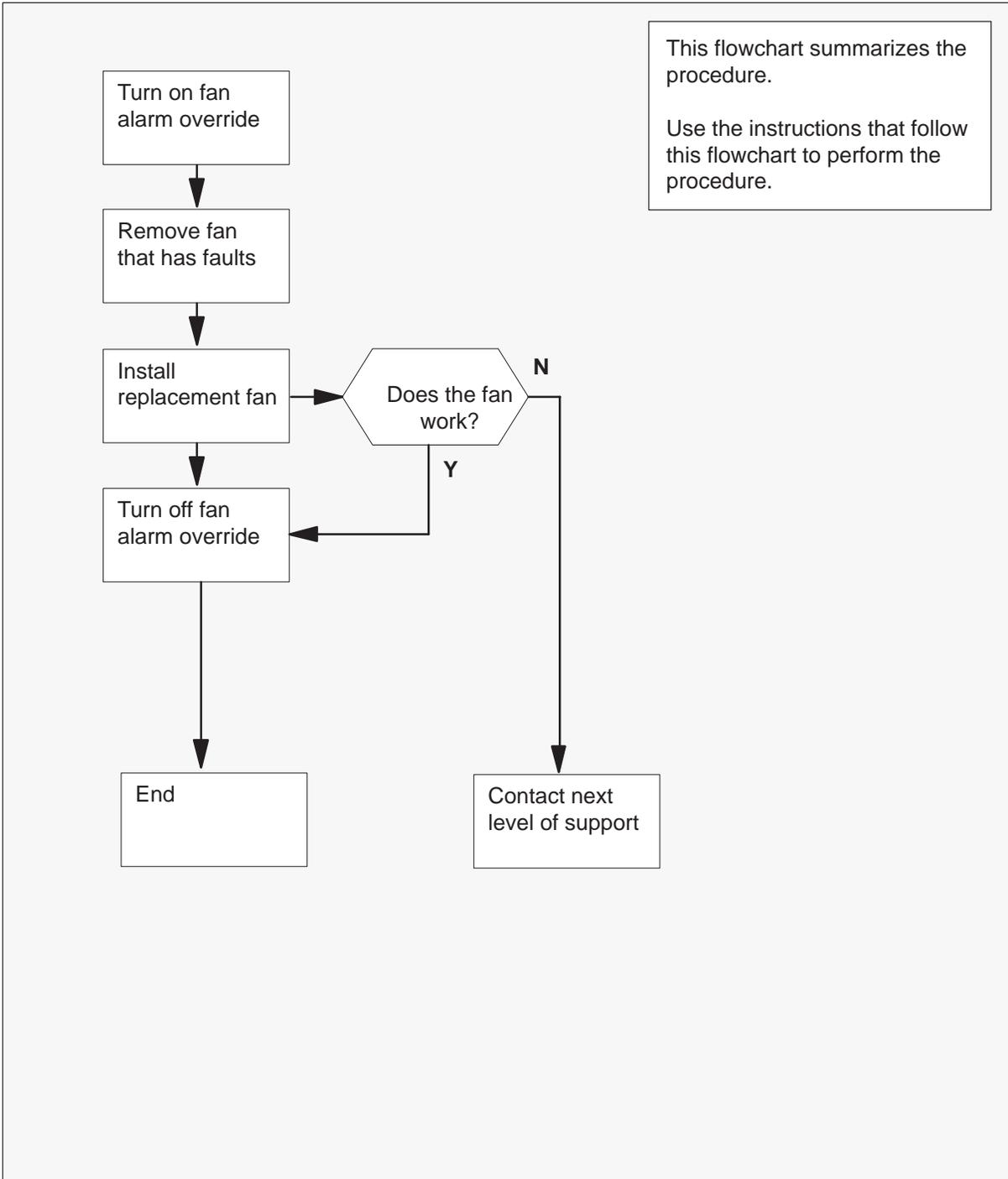
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

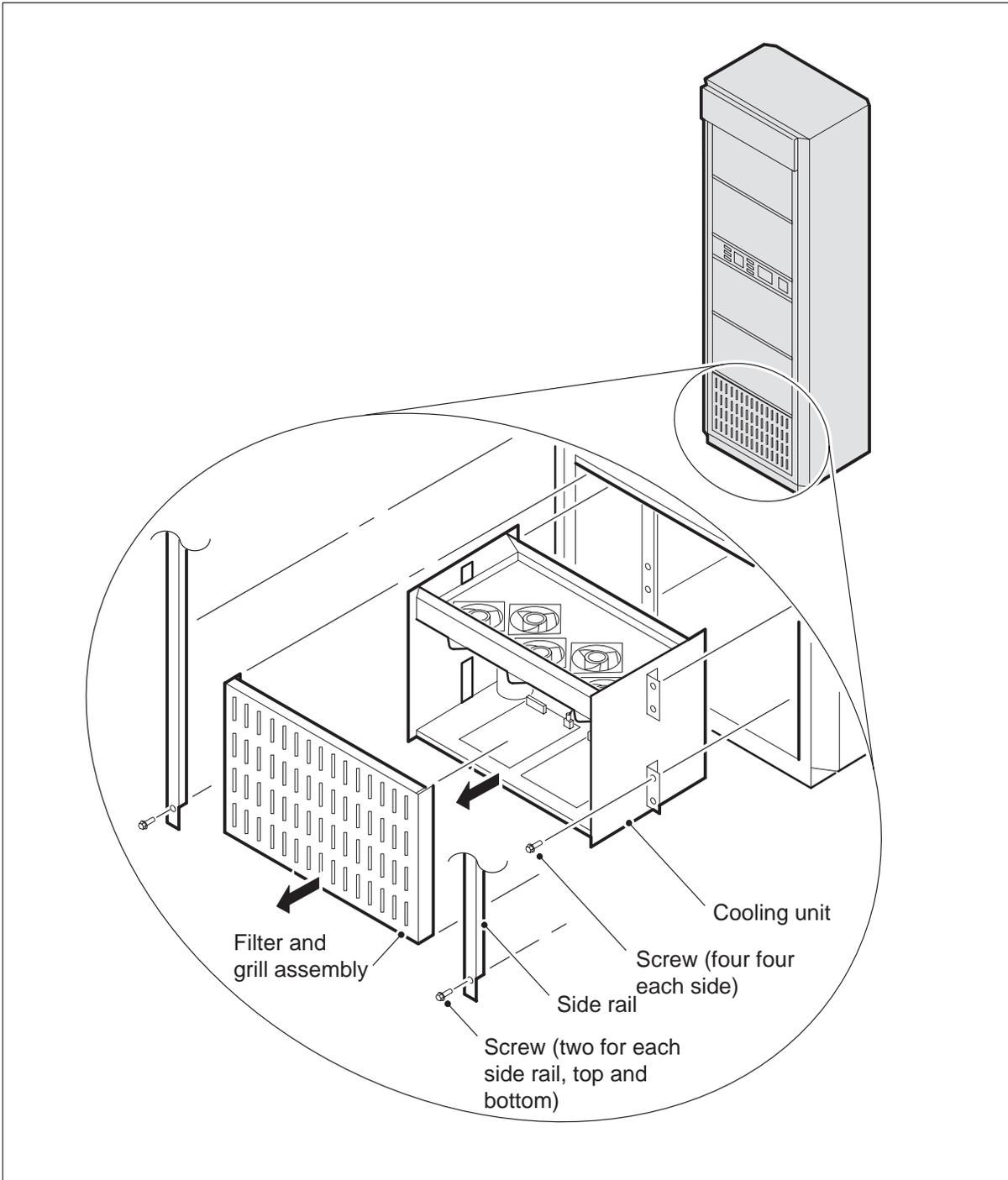
Replacing a fan in a 28-in. frame (continued)

Summary of Replacing a fan in a 28-in. frame



Replacing a fan in a 28-in. frame (continued)

Summary of Replacing a fan in a 28-in. frame



Replacing a fan in a 28-in. frame (continued)

Replacing a fan in a 28-in. frame

At the front of the frame

- 1 Turn ON the override switch for the fan alarm on the frame supervisory panel (FSP).
- 2 Remove the filter panel at shelf 04.
- 3 To determine the fan that has faults, look from below the fan tray.

4



DANGER

Risk of injury

Avoid contact with the cabinet wiring to prevent risk of electrocution.



DANGER

Risk of injury

Avoid contact with the cabinet wiring to prevent risk of electrocution.

Remove the side rails on the frame.

5



WARNING

Loss of frame cooling

Disconnection of the fan for an extended period of time can cause the equipment in the frame to overheat.



WARNING

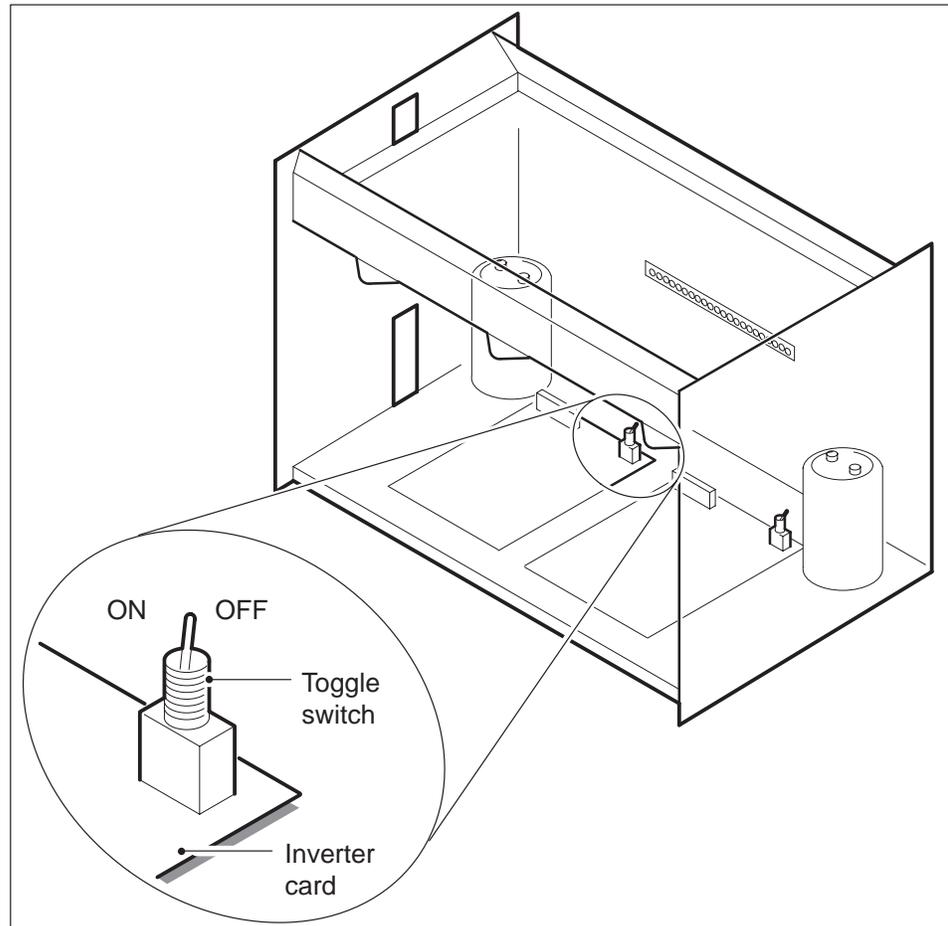
Loss of frame cooling

Disconnection of the fan for an extended period of time can cause the equipment in the frame to overheat.

Remove the four screws on each side of the cooling unit.

Replacing a fan in a 28-in. frame (continued)

- 6 Turn OFF the two switches on each of the inverter cards.



- 7 Slide the fan tray out of the frame.
- 8 Note the positive and negative electrical connections of the fan that has faults.
- 9 Unplug the electrical connector of the fan that has faults.
- 10 Unplug the electrical connectors to each of the inverter cards.
- 11 Note the position of the fan that has faults (top and bottom, left and right).
- 12 Remove the fan.
- 13 Position the replacement fan that has faults on the fan tray with the same position as the fan.

Replacing a fan in a 28-in. frame (continued)

- 14 Screw the four bolts into the fan from the bottom of the tray.
- 15 Plug the two electrical connectors on the fan tray into the corresponding connectors of the fan.
- 16 Plug the electrical connector on the fan that has faults.

17



DANGER
Risk of injury
 Avoid contact with the fan blades that rotate.



DANGER
Risk of injury
 Avoid contact with the fan blades that rotate.

Plug the electrical connectors into each of the inverter cards.

- 18 To determine if the replacement fan operates, turn ON the toggle on the correct inverter card.

If the replacement fan	Do
works	step 19
does not work	step 24

- 19 Turn OFF the switch on the inverter card. Slide the fan tray back into the frame.
- 20 Turn ON the switches on the two inverter cards.
- 21 Mount the four screws on each side of the cooling unit.
- 22 Mount the screws on the side rails of the frame.
- 23 Turn OFF the override switch for the fan alarm.
- 24 For additional help, contact the next level of support.

Replacing a fan in a 28-in. frame
(end)

25 The procedure is complete.

Replacing a fan in a 42-in. cabinet

Application

Use this procedure to replace a fan with one of the following common product codes (CPC) in a 42-in. (1.07 m) DMS cabinet:

- A0381714
- A0383325
- A0382103

Note: The product engineering codes for a 42-in. DMS cabinet are NT9X95AA and NT9X95BA.

Definition

Cooling unit fans cool the cabinet components.

Common procedures

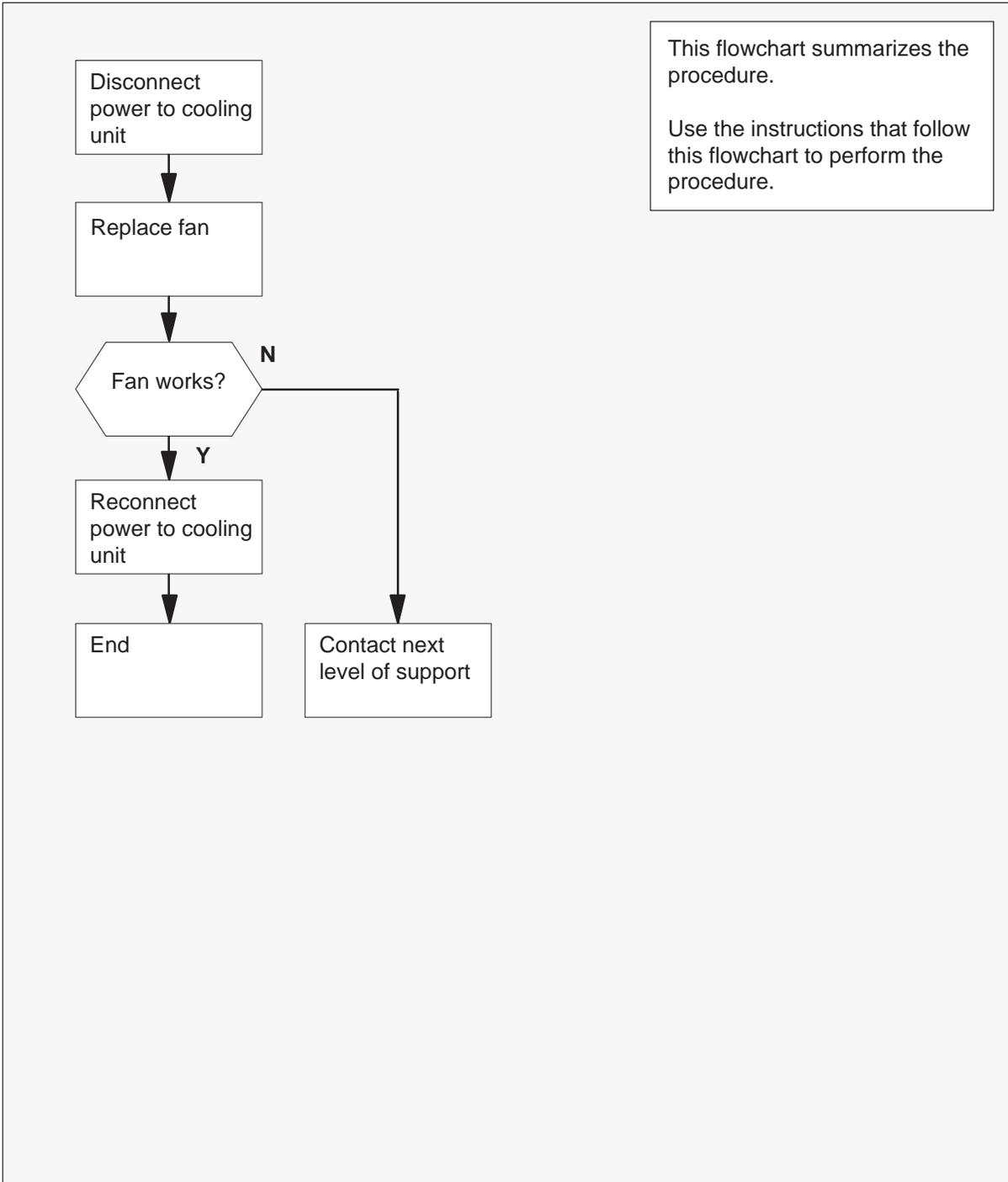
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a fan in a 42-in. cabinet (continued)

Summary of Replacing a fan in a 42-in. cabinet



Replacing a fan in a 42-in. cabinet (continued)

Replacing a fan in a 42-in. cabinet

At your current Location

1



DANGER

Risk of injury or damage to equipment

When you replace a cooling unit, do not wear jewelry, (for example, rings, bracelets or necklaces).



DANGER

Risk of injury or damage to equipment

When you replace a cooling unit, do not wear jewelry, (for example, rings, bracelets or necklaces).



WARNING

Possible equipment damage

Do not remove power to the cooling unit for more than 30 minutes. Extended removal of power can cause the equipment to overheat and cause damage.



WARNING

Possible equipment damage

Do not remove power to the cooling unit for more than 30 minutes. Extended removal of power can cause the equipment to overheat and cause damage.

Obtain a replacement for the cooling unit fan.

At the front of the cabinet

2 Record the cabinet number.

Note: The cabinet number (for example D00) is on the front of the cabinet, above the doors.

Replacing a fan in a 42-in. cabinet

(continued)

- 3 Consult office records or operating company personnel. Determine if power to the cooling unit connects through a power distribution center (PDC) or a cabinetized PDC (CPDC).

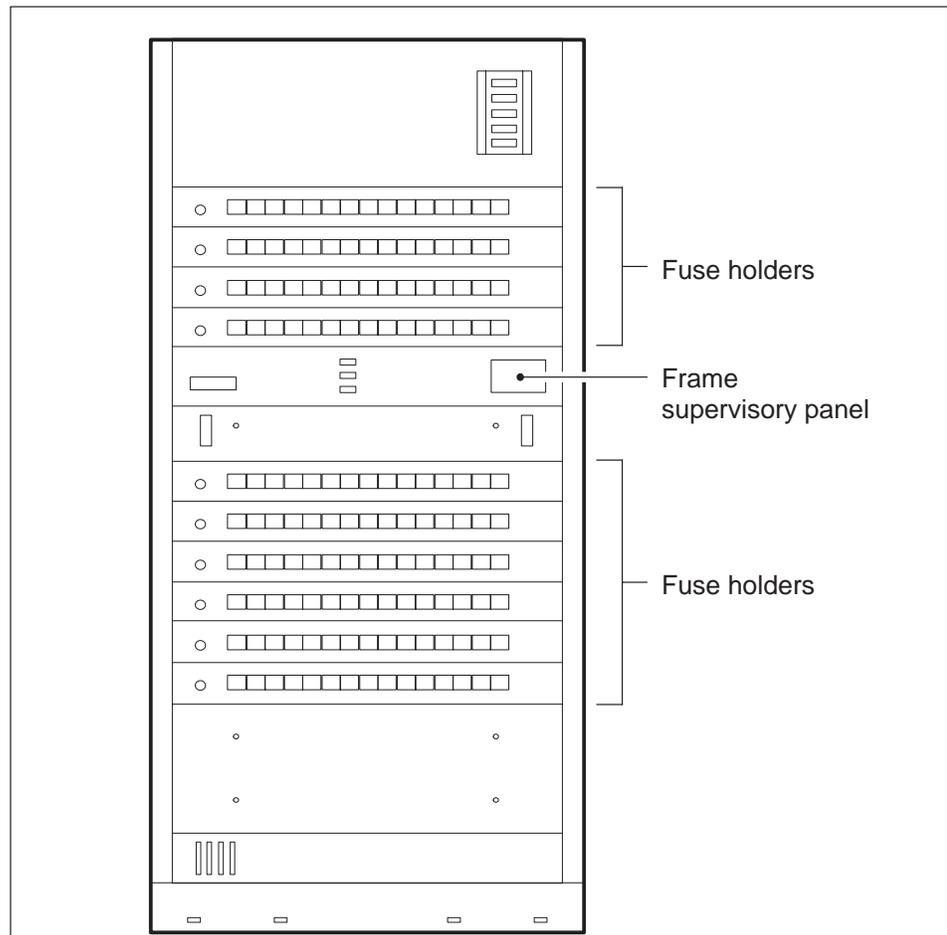
If power to the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

Replacing a fan in a 42-in. cabinet (continued)

At the front of the PDC

- 4 Locate the cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse is for the side A power feed and the other fuse for the side B power feed. The cabinet number (recorded in step 2) is above each fuse cartridge. The letters SN CU (SuperNode cooling unit) are below each circuit breaker.



Replacing a fan in a 42-in. cabinet

(continued)

5



DANGER

Risk of injury

Electricity can arc when you remove a fuse cartridge. Wear eye protection when you remove fuse holders for the cooling unit.



DANGER

Risk of injury

Electricity can arc when you remove a fuse cartridge. Wear eye protection when you remove fuse holders for the cooling unit.



CAUTION

Possible loss of service

Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.



CAUTION

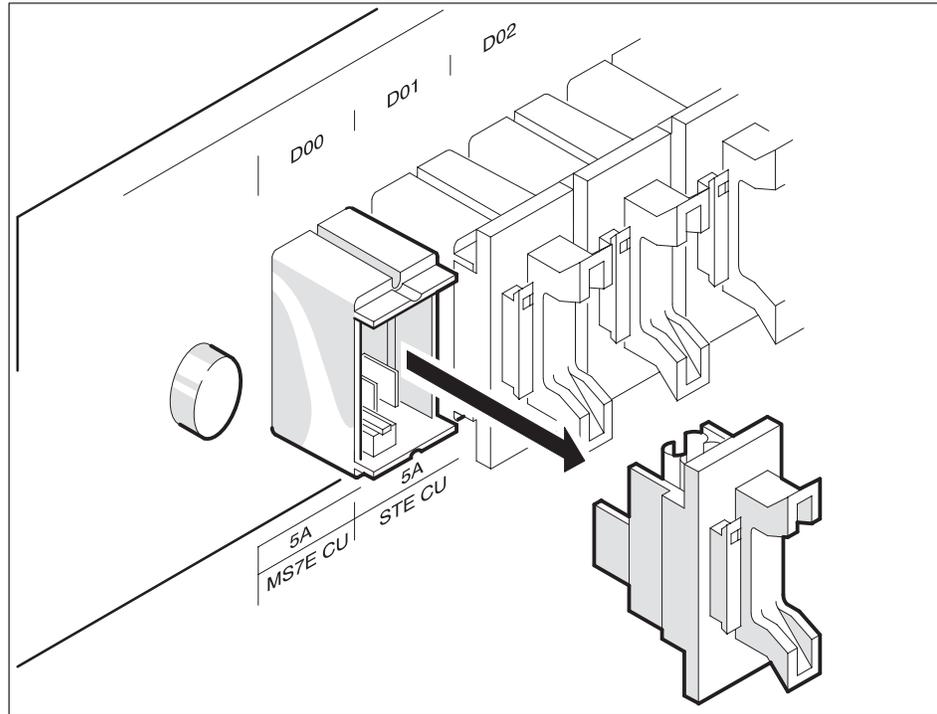
Possible loss of service

Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

To remove the cooling unit fuse, pull the fuse holder straight out from the front panel of the PDC.

Replacing a fan in a 42-in. cabinet (continued)

Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn on. The fan failure lamp is at the top of the cabinet between the doors.

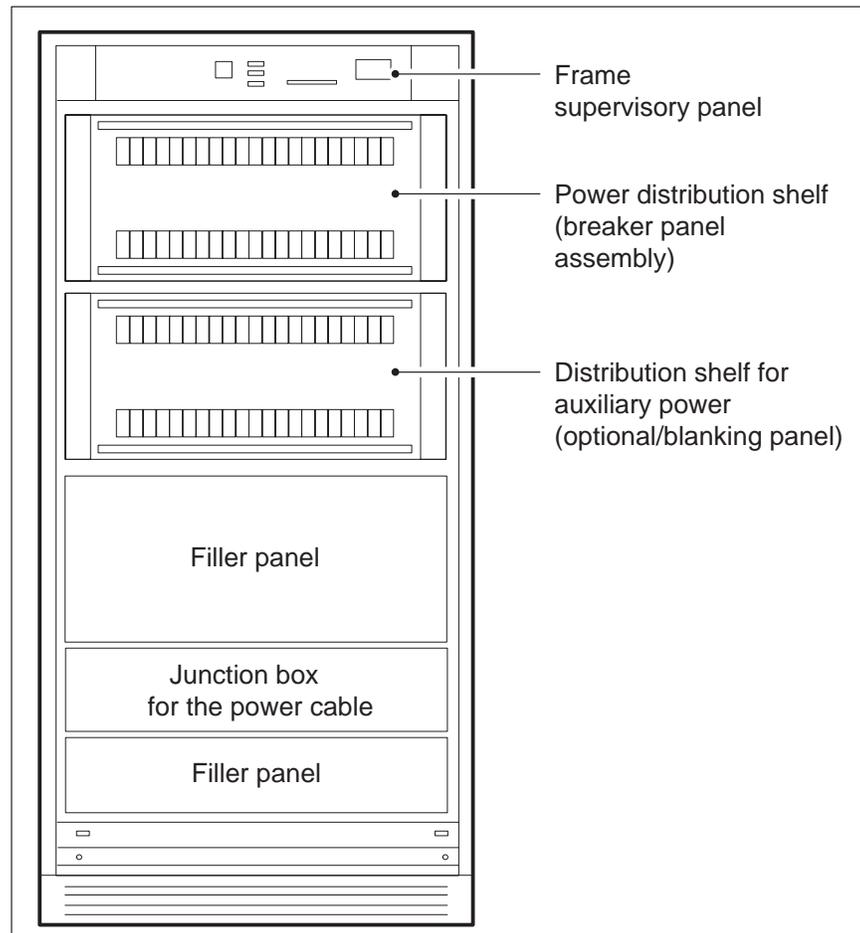


Replacing a fan in a 42-in. cabinet (continued)

At the front of the CPDC

- 6 Locate the cooling unit circuit breaker.

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 2) is above each circuit breaker. The letters SN CU (SuperNode cooling unit) are below each circuit breaker.



Replacing a fan in a 42-in. cabinet (continued)

7



DANGER

Risk of injury

Electricity can arc when you throw the breaker. Wear eye protection.



DANGER

Risk of injury

Electricity can arc when you throw the breaker. Wear eye protection.



CAUTION

Possible loss of service

Before you throw the circuit breakers, make sure that you disconnect power to the cooling unit. If you throw the wrong breakers, you can disconnect power to a critical hardware component and cause loss of service.



CAUTION

Possible loss of service

Before you throw the circuit breakers, make sure that you disconnect power to the cooling unit. If you throw the wrong breakers, you can disconnect power to a critical hardware component and cause loss of service.

Throw the cooling unit circuit breakers.

Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

At the front of the cabinet

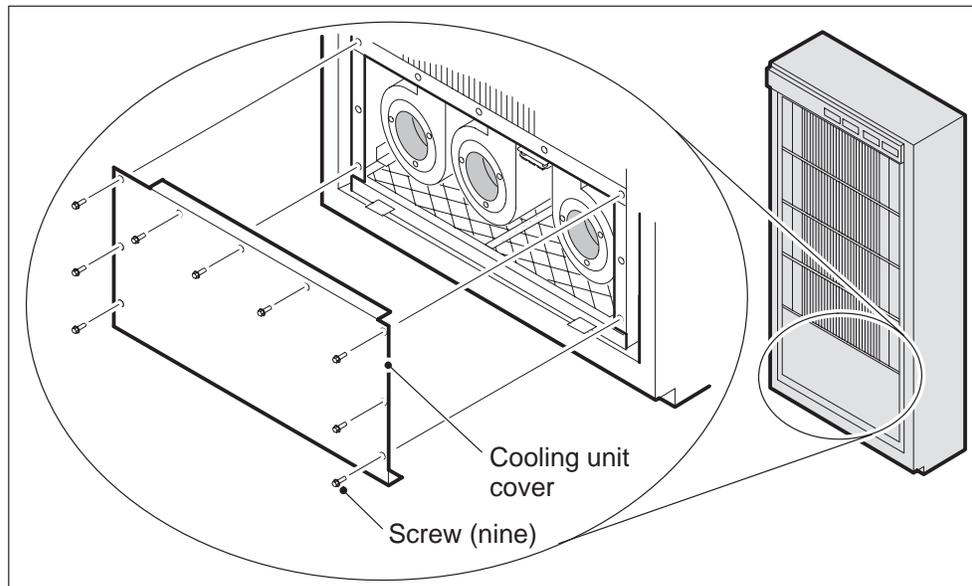
8 Open the cabinet doors.

Replacing a fan in a 42-in. cabinet

(continued)

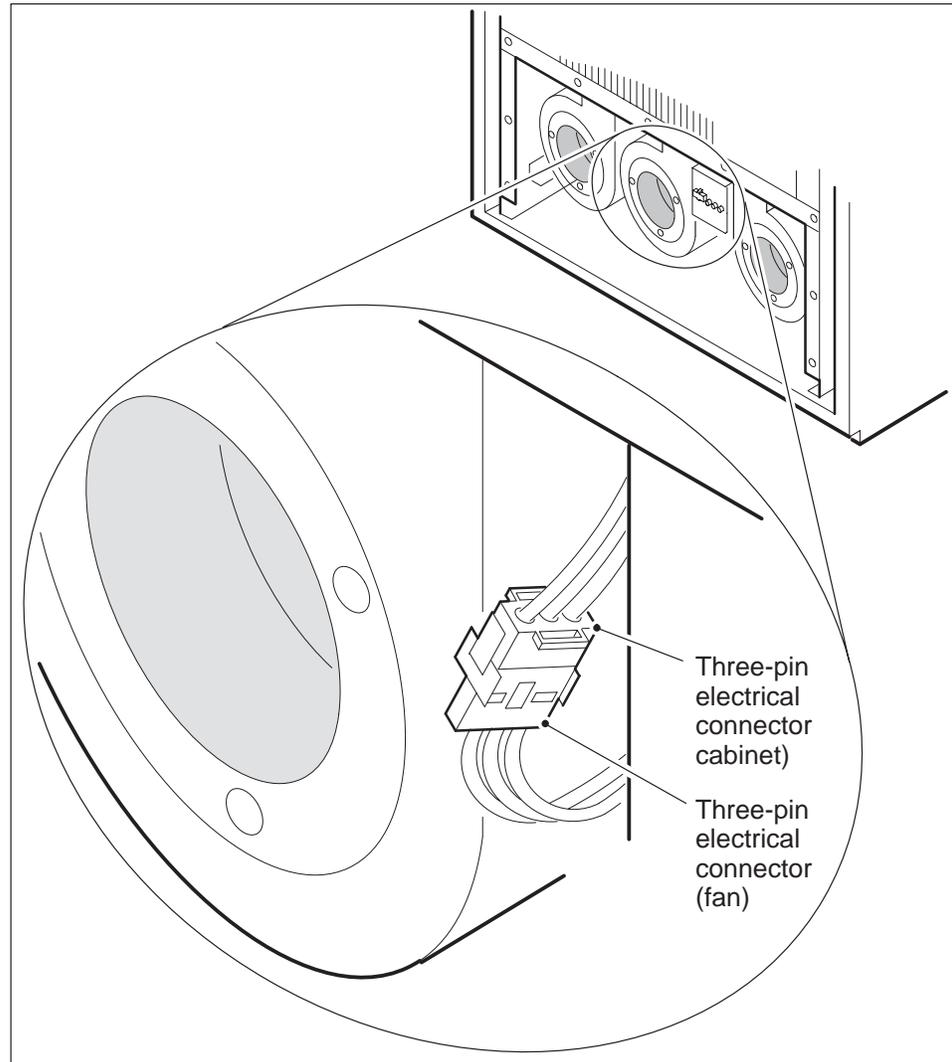
- 9 To remove the cooling unit cover at the bottom of the cabinet, remove the nine mounting screws from the cover.

Note: Do not remove the four bolts that fasten the cooling unit to the cabinet. The procedure *Replacing a cooling unit assembly in a 42-in. cabinet* in this document shows the location of the screws.



Replacing a fan in a 42-in. cabinet (continued)

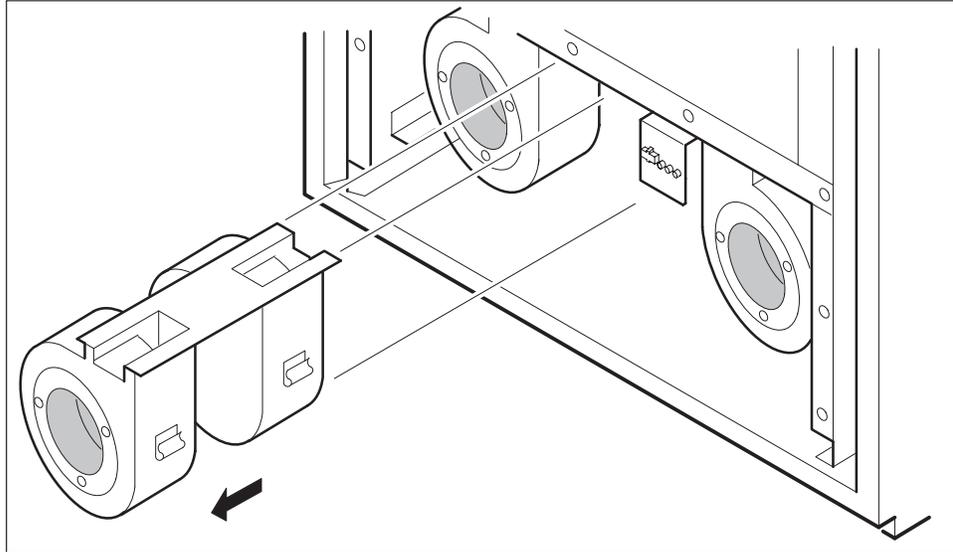
- 10 Slide the fan that has faults out of the cabinet to disconnect the electrical connector on the fan. Do not strain the wiring harness while you disconnect the connector.



- 11 Disconnect the electrical connector on the fan that has faults from the corresponding electrical connector on the cabinet.

Replacing a fan in a 42-in. cabinet (continued)

- 12 Slide the fan that has faults the rest of the way out of the cabinet.



- 13 Slide the replacement fan half-way into the cabinet.
- 14 Connect the electrical connector on the replacement fan to the corresponding electrical connector on the cabinet.
- Note:** Step 10 shows the location of the connector.
- 15 Slide the replacement fan the rest of the way into the cabinet.
- 16 Determine if power to the cooling unit connects through a circuit breaker at the CPDC.

If power to the cooling unit	Do
connects through a PDC	step 17
connects through a CPDC	step 18

At the front of CPDC

- 17 To insert the cooling unit fuses, push the fuse cartridges straight into the front panel of the PDC.
- Go to step 19.

Replacing a fan in a 42-in. cabinet (end)

At the front of the PDC

18  **CAUTION**
Risk of injury
 Electricity can arc when you throw a cooling unit breaker. Wear eye protection.

 **CAUTION**
Risk of injury
 Electricity can arc when you throw a cooling unit breaker. Wear eye protection.

Throw the cooling unit circuit breaker.

At the front of the cabinet

19 Determine if the replacement fan works.

If the replacement fan	Do
works	step 20
does not work	step 22

20 Reinstall the cooling unit cover.

Note: Step 9 shows the location of the cover mounting screws.

21 Close the cabinet doors.

Go to step 23.

22 For additional help, contact the next level of support.

23 The procedure is complete.

Replacing a line card

Task

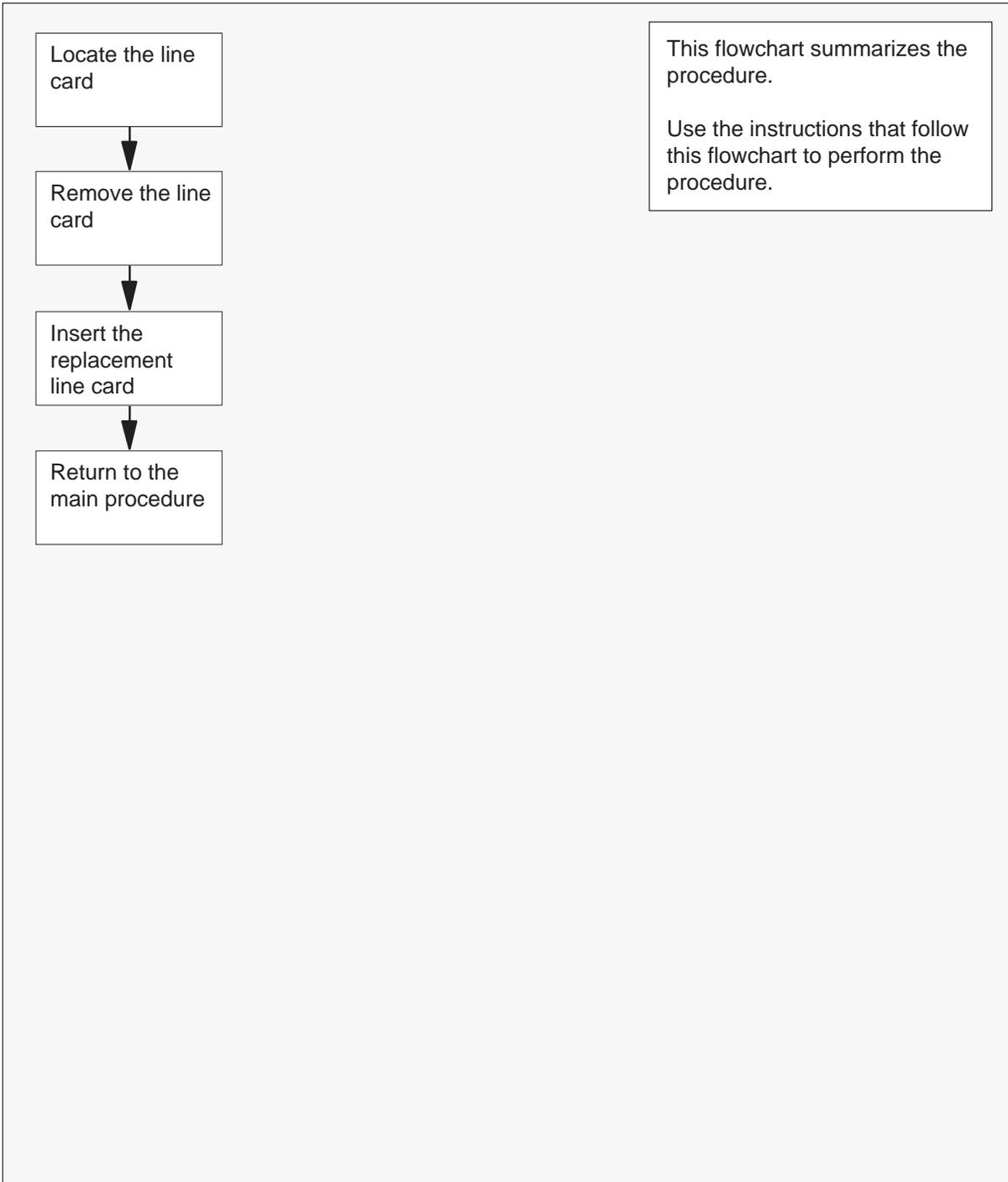
Use this procedure to replace a line card in an ISDN enhanced line concentrating module (LCME).

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a line card (continued)

Summary of Replacing a line card

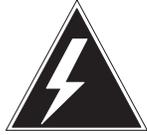


Replacing a line card (continued)

Replacing a line card

At the MAP terminal

1



WARNING

Possible equipment damage

Proceed only when a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.



WARNING

Possible equipment damage

Proceed only when a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.

To display the location and product engineering code (PEC) for the line card, type

>MAPCI;MTC;PM;POST LCME <LCME_NO>;QUERYPM

and press the Enter key.

Example of a MAP display:

```
CI:
>MAPCI NODISP;MTC;PM;POST LCME 36 0;QUERYPM
MAPCI:
MTC:
PM:
POST:
PM TYPE: LCME Int. No.: 10 Status index: 5 Node_No: 177
LCME HOST 36 0 Memory Size-Unit 0: 256K, Unit 1: 256K
Loadnames: LCMINV - LCME81BA, Unit0: LCME81BA,
Unit1: LCME81BA
LCM REX is ON; PASSED on TUE. 1997/10/28 at 01:30:05
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE} /RG: 1
Unit 1 Status: {OK, FALSE} /RG: 1
Ring Generator Status:
    RG 0 Status: {OK} Preferred
    RG 1 Status: {OK} Standby
    RG in Overload : NO
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 03 CC06 LCEI 36 04 LCME 36 0 BX30AB
Services : ISDN Equipped
```

Replacing a line card (continued)

Note: In this example, the location of the line card is

Site	in the HOST office
Flr	on the 3rd floor
RPos	in row C that contains the line equipment bay, 01,
Bay_id	in ISDN-line concentrating equipment, bay 01
Shf	on shelf 18
Description	in hardware device LCME, bay 01
Slot	in slot 02, drawer 09

Note: In this example, the PEC of the line card is BX27AA.

- Record the location and PEC for the line card.

At the shelf

3



WARNING

Static electricity damage

When you handle circuit cards, wear a wrist-strap that connects to the wrist strap grounding point of a frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.



CAUTION FOR ESDS

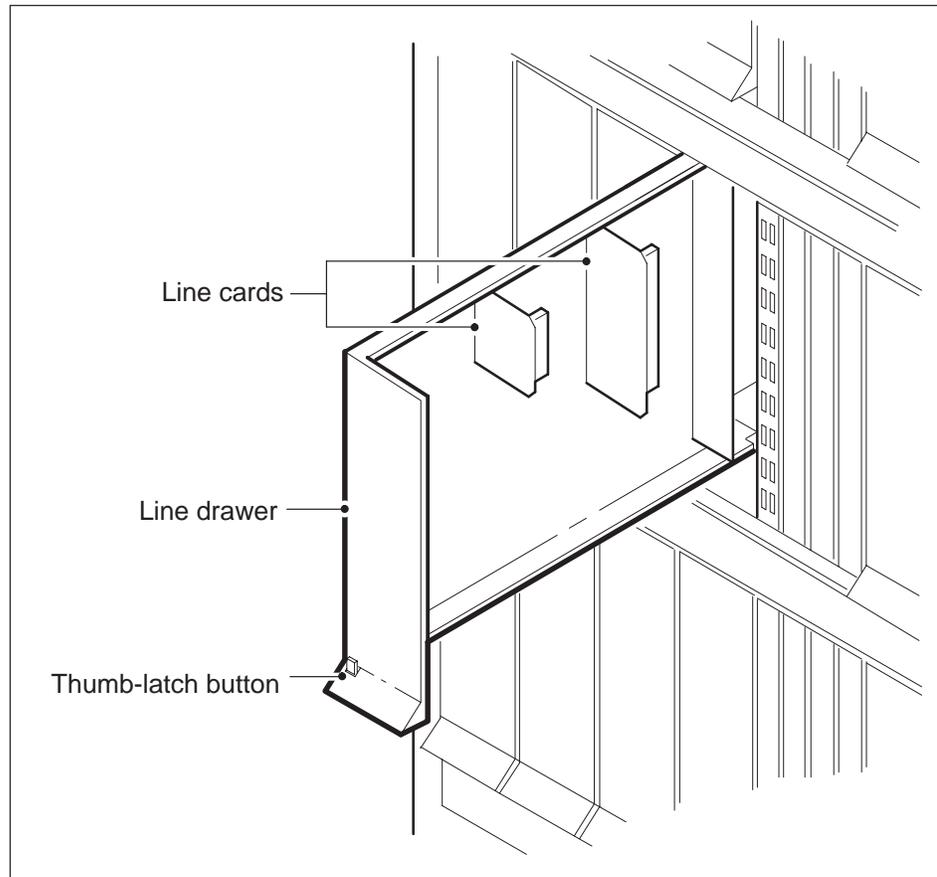
Static electricity damage

When you handle circuit cards, wear a wrist-strap that connects to the wrist strap grounding point of a frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.

Locate the drawer for the line card. Use the information you recorded in step 2.

Replacing a line card (continued)

- 4 Press the small thumb-latch button on the lower left edge of the drawer. Carefully pull the drawer toward you until it stops.



Replacing a line card (continued)

5



DANGER

Risk of personal injury

The large flat rectangular component mounted on the front edge can be very hot. of line cards. To avoid burns to your fingers, use the insertion and withdrawal tool to remove the card as illustrated in step 6.



DANGER

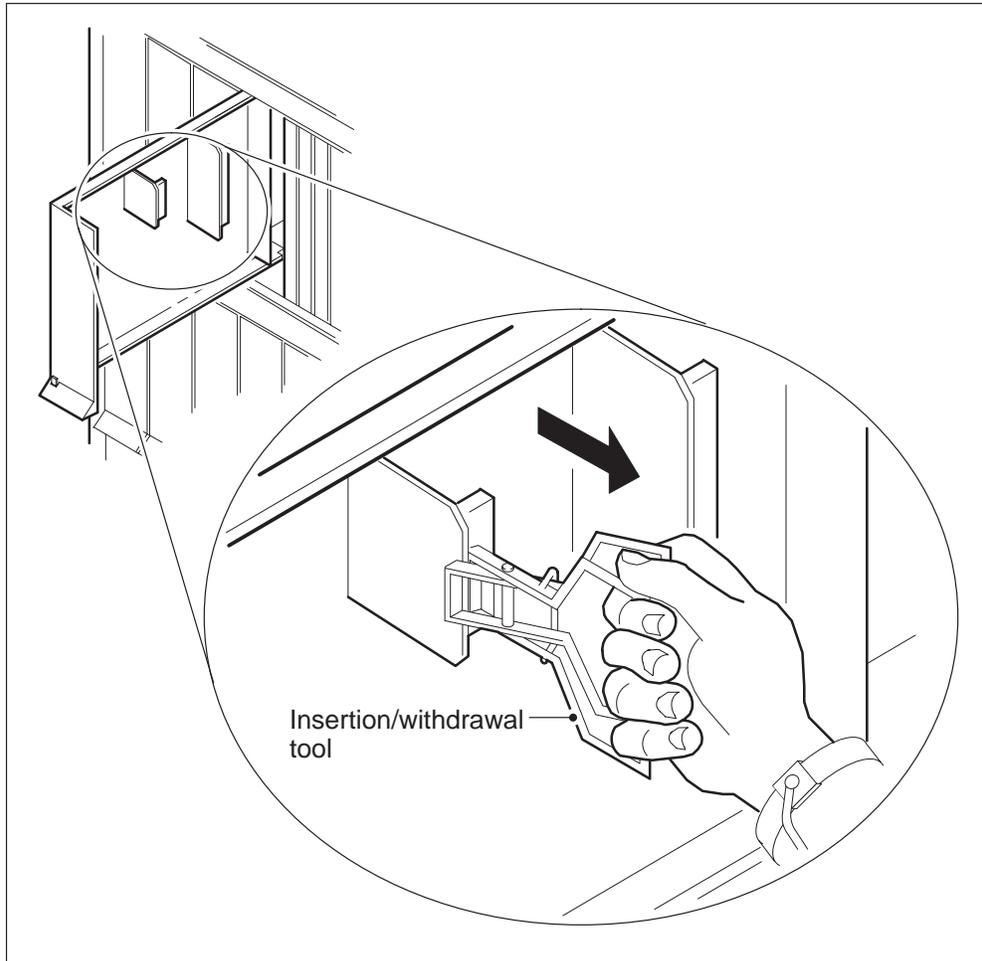
Risk of personal injury

The large flat rectangular component mounted on the front edge can be very hot. of line cards. To avoid burns to your fingers, use the insertion and withdrawal tool to remove the card as illustrated in step 6.

Locate the card that needs replacement (it can be either a 3-in or a 6-in card).

Replacing a line card (continued)

- 6** Clamp the insertion and withdrawal tool to the front edge of the card, as illustrated below. Carefully remove the card from the connector pins.



- 7** Place the removed card into an electrostatic discharge (ESD) protective container.
- 8** Make sure the replacement card has the same PEC and PEC suffix as the removed card.
- 9** Clamp the insertion and withdrawal tool to the front edge of the replacement card, as shown in step 6. Align the card with the connector pins and carefully insert the card.
- 10** Make sure the card sits in a secure position.
- 11** Carefully push the drawer back into the shelf until the thumb-latch button locks.

Replacing a line card (end)

- 12 The procedure is complete. Return to the main procedure that sent you to this procedure and follow the directions.

Replacing a missing line card

Application

Use this procedure to replace a missing line card.

Definition

The next level of support identifies a missing line card. The next level of support can request that you perform this procedure to correct the problem or to provide additional information.

Common procedures

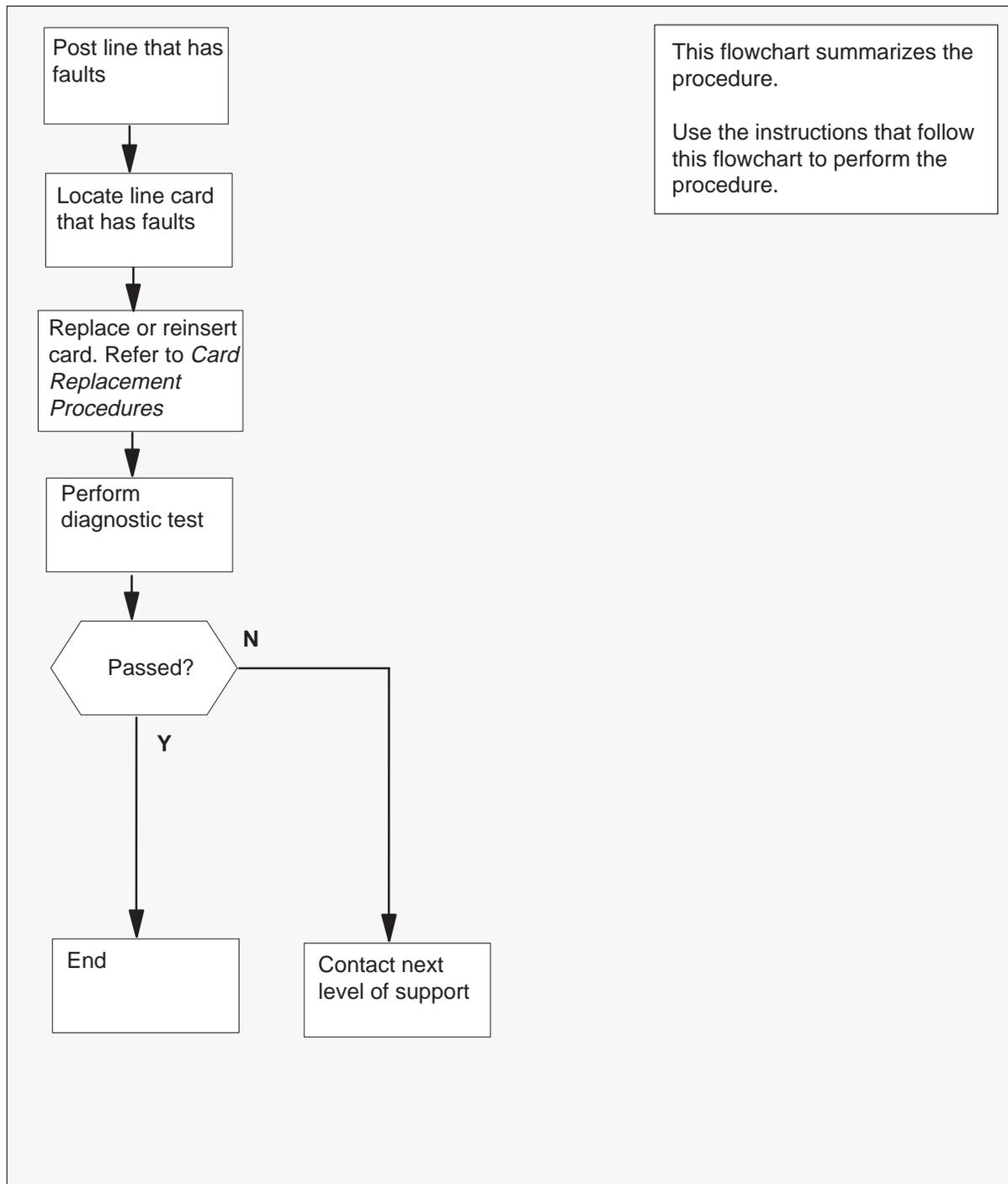
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing a missing line card (continued)

Summary of Replacing a missing line card



Replacing a missing line card

(continued)

Replacing a missing line card

At the MAP terminal

- 1 To access the LTP level of the MAP display, type
>MAPCI;MTC;LNS;LTP
 and press the Enter key.
- 2 To post the line equipment number (LEN) of the line that has faults, type
>POST L len
 and press the Enter key.

where

len is the LEN of the damaged line. Use the format ff u dd cc for frame, unit, drawer, and circuit number.

Example input:

>POST L 00 1 00 01

Example of a MAP response

```
LCC PTY RNG ...LEN.... DN      STA F S LTA TE RESULT
1FR   HOST 00 1 00 01 613 621 4777 IDL
```

- 3 To locate the missing line card, type
>CKTLOC
 and press the Enter key.

Example of a MAP response

```
Site Flr RPos  Bay_id  Sh  Description  Slot  EqPEC
HOST  00 B00   LCE 00  38  LCM 00 1    00:01 6X17AC

GRD START  2DB LOSS  BAL NETWORK  MAN  OVR  SET
      NO      NO      NON LOADED      NO
```

- 4 Record the product engineering code (PEC), the PEC suffix, and the location of the line card that has faults.
Note: The PEC appears in the MAP response in step 3. The PEC appears under the EqPEC header. The location appears under the Site, Flr, RPos, Bay_id, Sh, Description, and Slot headers.
- 5 To replace the line card that you recorded in step 4, perform the correct procedure in *Card Replacement Procedures*. Complete the procedure and return to this point.

Replacing a missing line card (end)

- 6 To perform a diagnostic test on the line card that you installed in step 5, type **>DIAG** and press the Enter key.

Example of a MAP response

```
+LINE100 NOV04 18:34:21 0700 PASS LN_DIAG
LEN HOST 00 1 00 01      DN 6136214777
DIAGNOSTIC RESULT   Card Diagnostic OK
ACTION REQUIRED   None
CARD TYPE   6X17AC
```

If the MAP response	Do
is +LINE100, and other information	step 8
is +LINE101, and other information	step 7
is COULD NOT RUN LINE_CARD_ DIAGNOSTIC	step 7

- 7 For additional help, contact the next level of support.
- 8 The procedure is complete.

Replacing a point-of-use power supply card

Application

Use this procedure to replace a point-of-use power supply (PUPS) card in an ISDN enhanced line concentrating module (LCME).

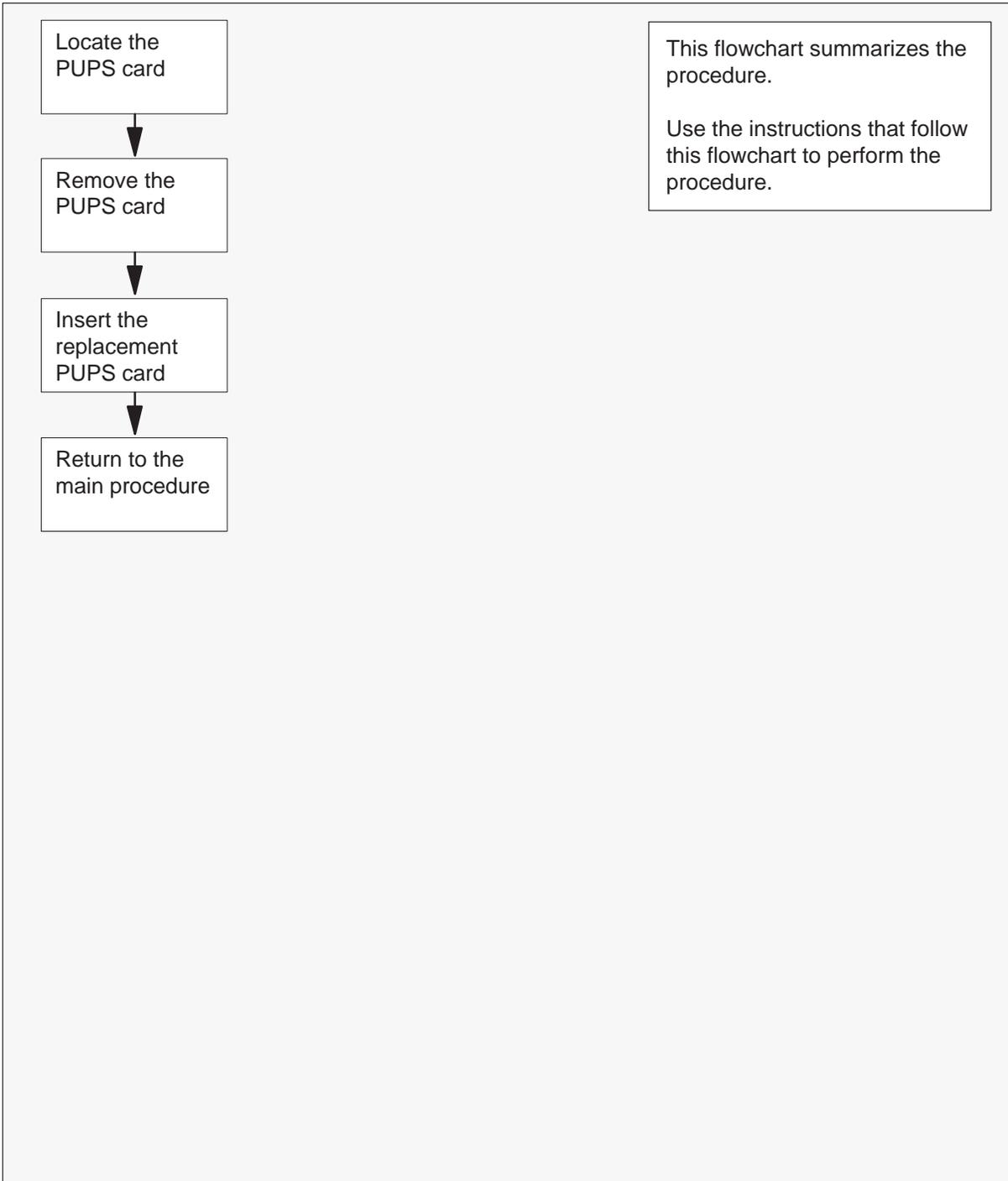
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Note: The ISDN lines in the drawer require only the PUPS card. A PUPS failure does not affect the lines other than ISDN.

Replacing a point-of-use power supply card (continued)

Summary of Replacing a point-of-use power supply card



Replacing a point-of-use power supply card (continued)

Replacing a point-of-use power supply card

At the MAP terminal

1



WARNING

Possible equipment damage

Proceed only when a step in a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.



WARNING

Possible equipment damage

Proceed only when a step in a maintenance procedure directs you to this procedure. Separate use of this procedure can cause equipment damage or loss of service.

To display the location and product engineering code (PEC) for the line card for the PUPS card, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN  
>Post D or L <Dir No.> or <Len No.>  
>CKTLOC
```

and press the Enter key.

Example of a MAP response:

```
CKTLOC  
Site Flr RPos Bay_id Shf Description Slot EqPEC  
HOST 03 C04 LCEI36 18 LCME 00 01 02:09 BX27AA
```

Note: In this example, the location of the line card is

Site	in the HOST office
Flr	on the 3rd floor
RPos	in row C, position 04
Bay_id	in ISDN LCME, bay 36 (identifies the type of equipment in the bay)
Shf	on shelf 18
Description	in LCME module 00, unit 01
Slot	in slot 02, logical drawer 09

Note: In this example, the PEC of the line card is BX27AA.

2 Record the location of the line card.

Replacing a point-of-use power supply card (continued)

Note: The PUPS card is in the same drawer as the line card.

- 3 To access the PM level of the MAP display, type

>PM

and press the Enter key.

- 4 To post the LCME that contains the line card, type

>POST LCME HOST frame_no module_no

and press the Enter key.

where

frame_no is the frame number of the LCEI

module_no is the module number of the LCME, 00 or 01

Example of a MAP display:

```
LCME HOST 67 1 SysB Links OOS: Cside 0
Unit0: SysB
Unit1: SysB

Drwr:      11 11 11 RG: Uneq
          01 23 45 67 89 01 23 45
          .. .. .. .. .. .. .. ..
```

- 5



CAUTION

Loss of service

When the drawer busies, there will be a loss of subscriber service on all lines in the drawer.



CAUTION

Loss of service

When the drawer busies, there will be a loss of subscriber service on all lines in the drawer.

To manually busy the drawer, type

>BSY DRWR drawer_no

and press the Enter key.

where

drawer_no is the logical number for the line drawer, 00 to 15

Replacing a point-of-use power supply card (continued)

Example of a MAP display:

```
WARNING this action will affect both drawers 0 and 1
LCME HOST 07 1 Drwr 0 will be out of service
Confirm ("YES", "Y", "NO", or "N"):
```

- 6 To confirm the command, type
>YES
and press the Enter key.

At the shelf

7



WARNING

Static electricity damage

When you handle circuit cards, wear a wrist-strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.



CAUTION FOR ESDS

Static electricity damage

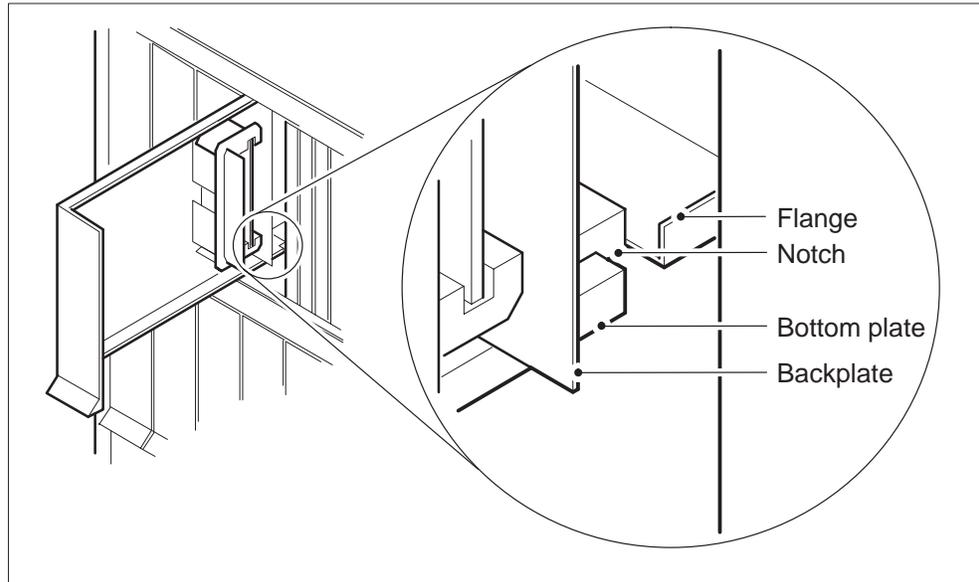
When you handle circuit cards, wear a wrist-strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.

To locate the PUPS card, use the recorded information in step 1.

- 8 Press the small thumb-latch button on the lower left edge of the drawer. Carefully pull the drawer forward to its limit.

Replacing a point-of-use power supply card (continued)

- 9 To latch the drawer, use the notch cut into the end of the bottom plate. The notch cut into the bottom plate is behind the back plate (shown in the figure below). The notch fits the end of a flange. Shift the bottom of the drawer toward you to allow the notch to slide over the end of the flange.



10



WARNING

Possible loss of device

Drawers 06/07 or 14/15 are near the fuse panels. When you work in these drawers, make sure that you do not snag the projecting fuse blocks as you withdraw the PUPS card. A power outage can result.



WARNING

Possible loss of device

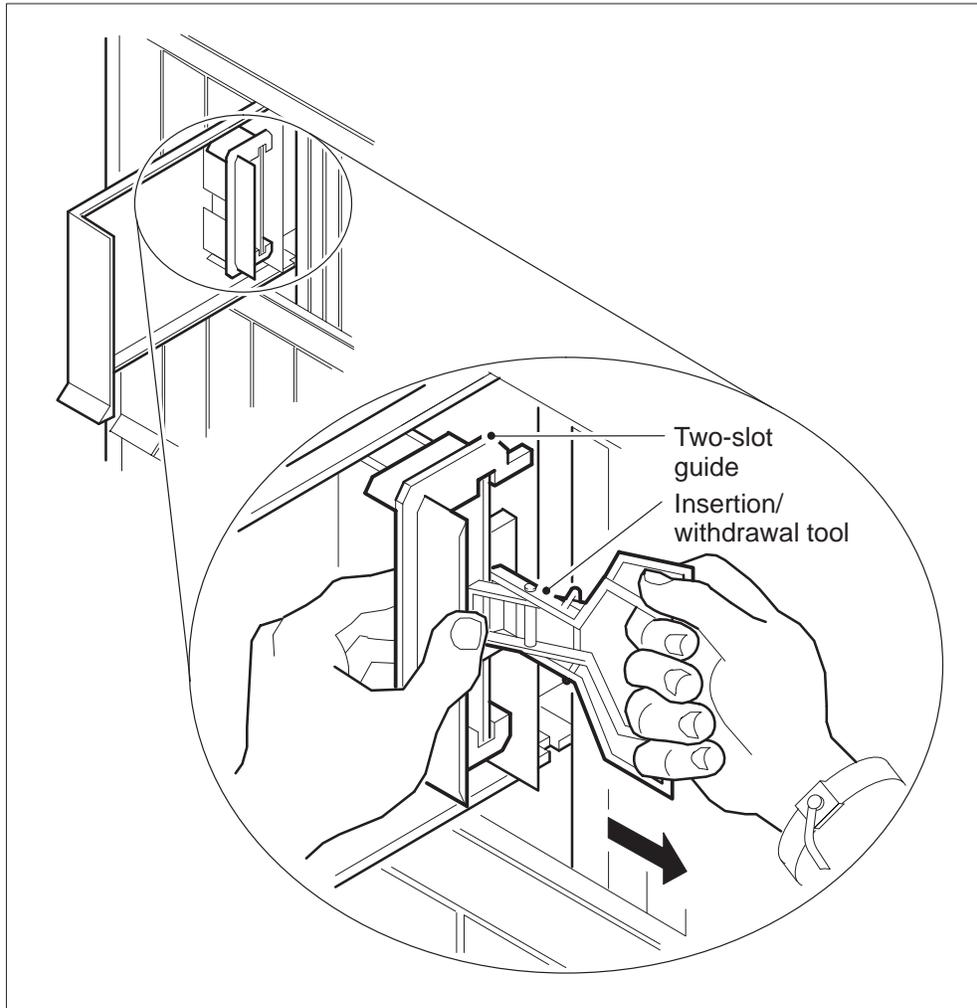
Drawers 06/07 or 14/15 are near the fuse panels. When you work in these drawers, make sure that you do not snag the projecting fuse blocks as you withdraw the PUPS card. A power outage can result.

Locate the PUPS card. The PUPS card occupies the two top rows at the back of the drawer.

Replacing a point-of-use power supply card (continued)

- 11 Fit the two-slot guide over the PUPS card and the line card next to it.

Note: If no line card exists next to the PUPS card, do not use the two-slot guide.



- 12 If you use the two-slot guide, hold it in place with your left hand. With your right hand, clamp the insertion and withdrawal tool to the front edge of the PUPS card. Carefully remove the card from the socket (as illustrated in step 11).
- 13 Leave the two-slot guide tool in place as a guide for the installation of the replacement PUPS card.
- 14 Place the removed card in an electrostatic discharge (ESD) protective container.

Replacing a point-of-use power supply card (end)

- 15 Make sure that the replacement card has the same PEC and PEC suffix as the removed card.
- 16 Clamp the insertion and withdrawal tool to the front edge of the replacement card, as shown in step 11. Align the card with the socket and carefully insert the card.
- 17 Make sure the card sits in a secure position.
- 18 Carefully push the drawer back into the shelf until the thumb-latch button locks.
- 19 To return the drawer to service, type
>RTS DRWR drawer_no
and press the Enter key.
where
drawer_no is the logical number of the line drawer, 00 to 15
- 20 The procedure is complete. Return to the main procedure that sent you to this procedure and continue to follow the directions.

Replacing an NT9X95 card in a cooling unit

Application

Use this procedure to replace an NT9X95SA card in a cooling unit electronic module. Use this procedure when the electronic module has one of the following common product codes (CPC), in a 42-inch DMS cabinet:

- A0383326
- A0383327

Note: The product engineering codes (PEC) for a 42-in. DMS cabinet are NT9X95AA and NT9X95BA.

Definition

An NT9X95SA card refers to a card that has faults and requires replacement.

Common procedures

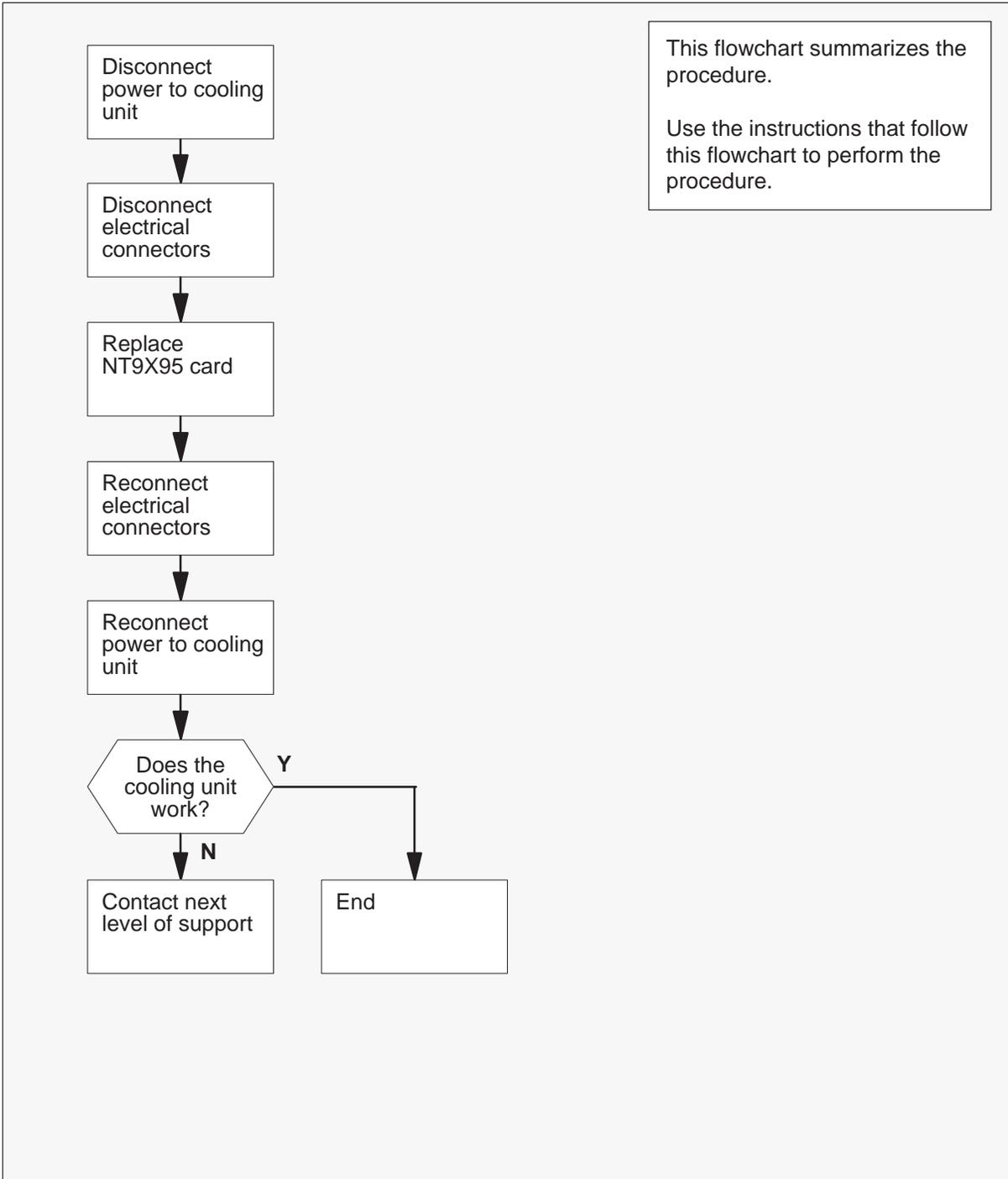
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing an NT9X95 card in a cooling unit (continued)

Summary of Replacing an NT9X95 card in a cooling unit



Replacing an NT9X95 card in a cooling unit (continued)

Replacing an NT9X95 card in a cooling unit

At your current location

1



DANGER

Risk of injury or damage to equipment

When you replace an electronic module for the cooling unit, do not wear jewelry (for example, rings, bracelets or necklaces).



DANGER

Risk of injury or damage to equipment

When you replace an electronic module for the cooling unit, do not wear jewelry (for example, rings, bracelets or necklaces).



WARNING

Possible equipment damage

Do not remove power to the cooling unit for more than 30 minutes. Extended removal of power can cause the unit to overheat and cause damage.



WARNING

Possible equipment damage

Do not remove power to the cooling unit for more than 30 minutes. Extended removal of power can cause the unit to overheat and cause damage.

Obtain a replacement electronic module for the cooling unit. Ensure that the replacement card has the same product engineering code (PEC) and PEC suffix as the card that you remove.

At the front of the cabinet

2 Record the cabinet number.

Note: The cabinet number (for example, D00) is on the front of the cabinet, above the doors.

Replacing an NT9X95 card in a cooling unit (continued)

- 3 Consult office records or operating company personnel. Determine if power to the cooling unit connects through a power distribution center (PDC) or a cabinetized PDC (CPDC).

If power for the cooling unit	Do
connects through a PDC	step 4
connects through a CPDC	step 6

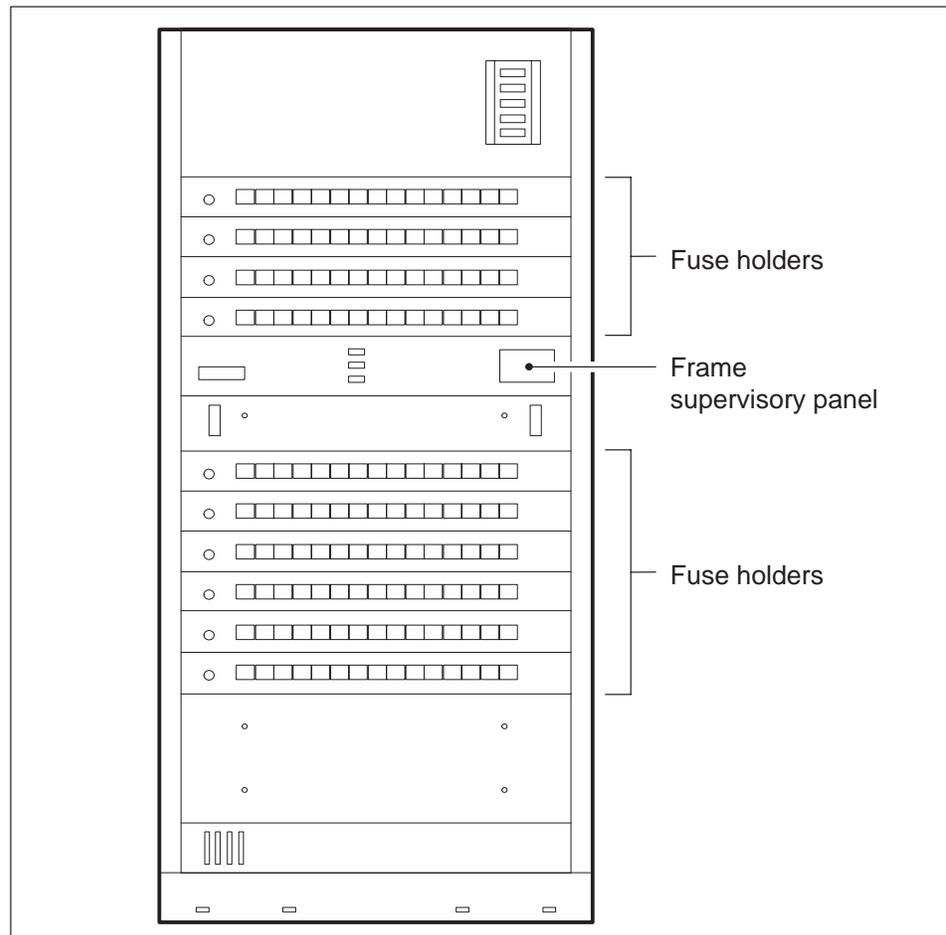
Replacing an NT9X95 card in a cooling unit

(continued)

At the front of the PDC

- 4 Locate the cooling unit fuses.

Note: The cooling unit fuse cartridges are on the front panel of the PDC. The fuse cartridges contain two cooling unit fuses. One fuse is for the side A power feed, and one fuse is for the side B power feed. The cabinet number (recorded in step 2) is above each fuse cartridge. The letters SN CU (SuperNode cooling unit) are below each fuse cartridge.



- 5



DANGER

Risk of injury

Electricity can arc when you remove a fuse cartridge from the cooling unit. Wear eye protection.

Replacing an NT9X95 card in a cooling unit (continued)



DANGER

Risk of injury

Electricity can arc when you remove a fuse cartridge from the cooling unit. Wear eye protection.



CAUTION

Possible loss of service

Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.



CAUTION

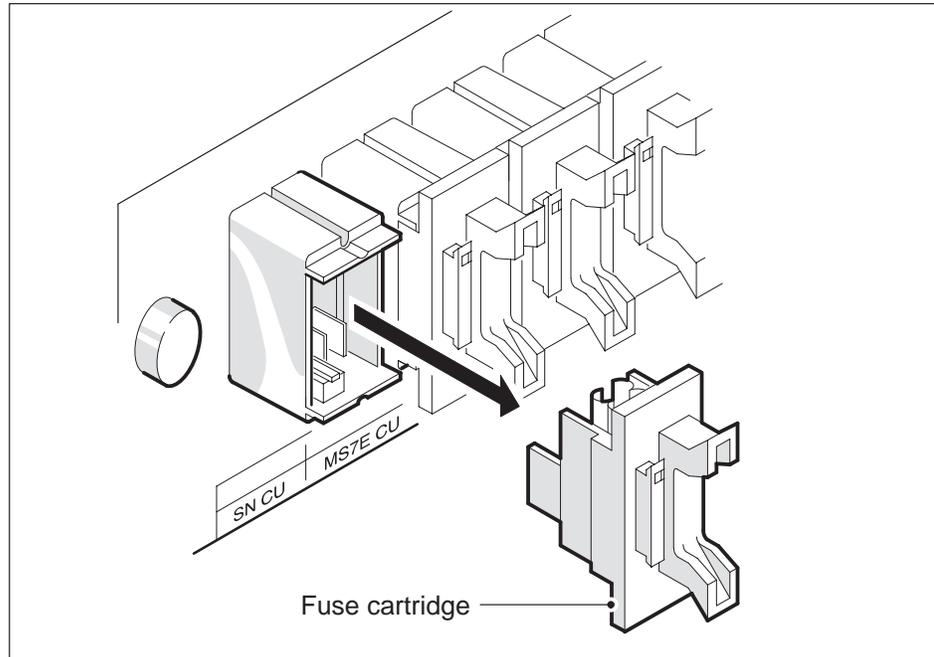
Possible loss of service

Remove only the cooling unit fuses. Removal of the wrong fuses can disconnect power to a critical hardware component and cause loss of service.

To remove the cooling unit fuses, pull the fuse cartridges straight out from the front panel of the PDC.

Note: When you remove the fuse cartridges, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn on. The fan failure lamp is at the top of the cabinet between the doors.

Replacing an NT9X95 card in a cooling unit (continued)

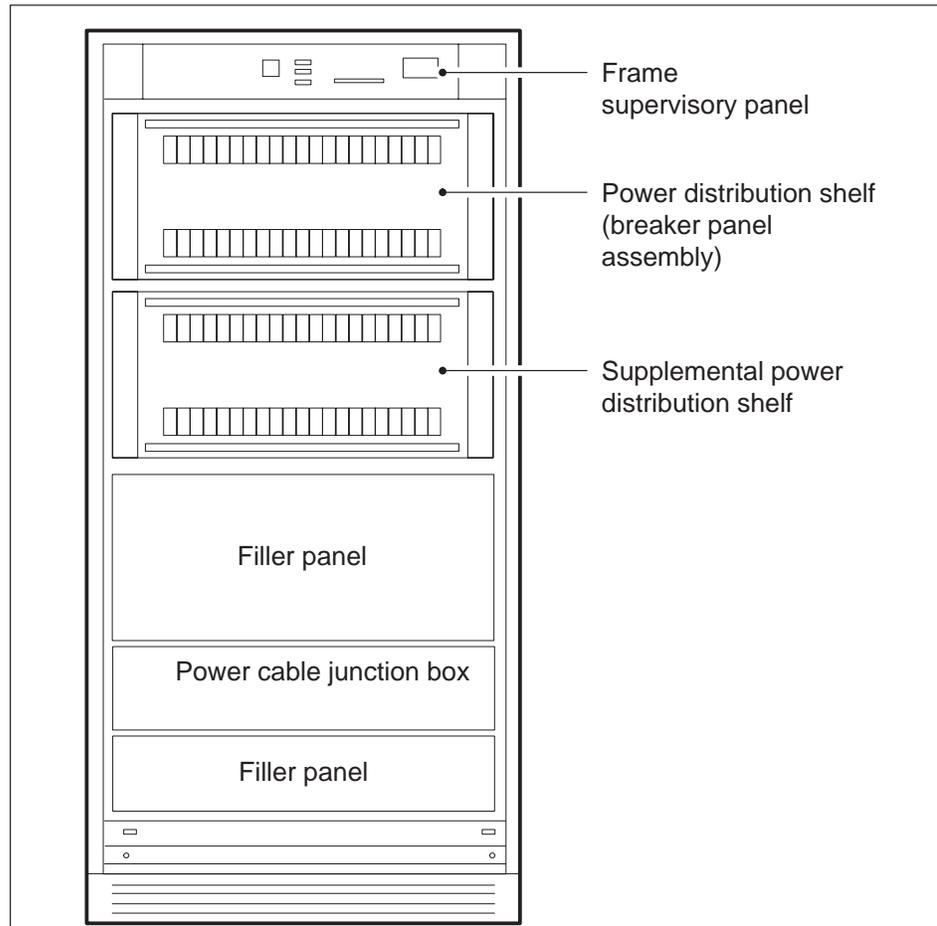


At the front of the CPDC

- 6 Locate the circuit breakers for the cooling unit.

Replacing an NT9X95 card in a cooling unit (continued)

Note: The two cooling unit circuit breakers are on the front panel of the CPDC. One circuit breaker is for the side A power feed. The other circuit breaker is for the side B power feed. The cabinet number (recorded in step 2) is above each breaker. The letters SN CU (SuperNode cooling unit) are below each breaker.



Replacing an NT9X95 card in a cooling unit

(continued)

7



DANGER

Risk of injury

Electricity can arc when you throw a cooling unit circuit breaker. Wear eye protection.



DANGER

Risk of injury

Electricity can arc when you throw a cooling unit circuit breaker. Wear eye protection.



CAUTION

Possible loss of service

Make sure that you disconnect power to the cooling unit before you throw the circuit breakers. If you throw the wrong breakers, you can disconnect power to a critical hardware component and cause loss of service.



CAUTION

Possible loss of service

Make sure that you disconnect power to the cooling unit before you throw the circuit breakers. If you throw the wrong breakers, you can disconnect power to a critical hardware component and cause loss of service.

Throw the circuit breakers for the cooling unit.

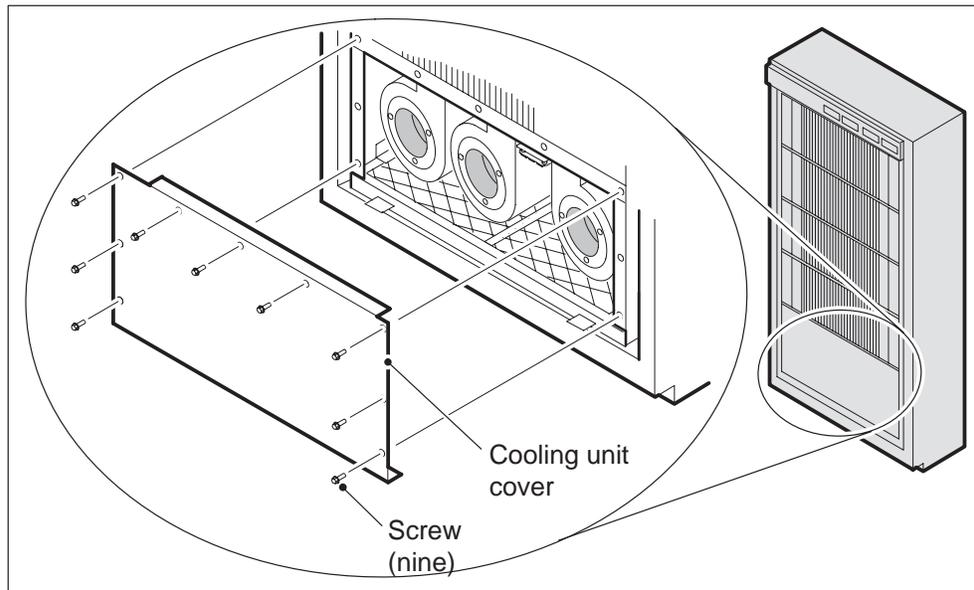
Note: When you throw the circuit breakers, you remove power from the cooling unit. Removal of power from the cooling unit causes the fan failure lamp to turn ON. The fan failure lamp is at the top of the cabinet between the doors.

Replacing an NT9X95 card in a cooling unit (continued)

At the front of the cabinet

- 8 Open the cabinet doors.
- 9 To remove the cooling unit cover at the bottom of the cabinet, remove the nine mounting screws from the cover.

Note: Do not remove the four bolts that fasten the cooling unit to the cabinet. The procedure *Replacing a cooling unit assembly* in this document shows the location of these screws.



At the back of the cabinet

- 10 Remove the two screws that fasten the electronic module to the cooling unit assembly.

Note: The screws are near the upper left-hand corner of the back plate of the cooling unit.
- 11 Disconnect the power connector from the electronic module.

Note: The power connector is near the upper left-hand corner of the back plate of the cooling unit.

Replacing an NT9X95 card in a cooling unit

(continued)

At the front of the cabinet

12



CAUTION

Possible equipment damage or service interruption

Label all electrical connectors before you disconnect them. If you reconnect to the wrong electrical connector, you can cause equipment damage or service interruption.



CAUTION

Possible equipment damage or service interruption

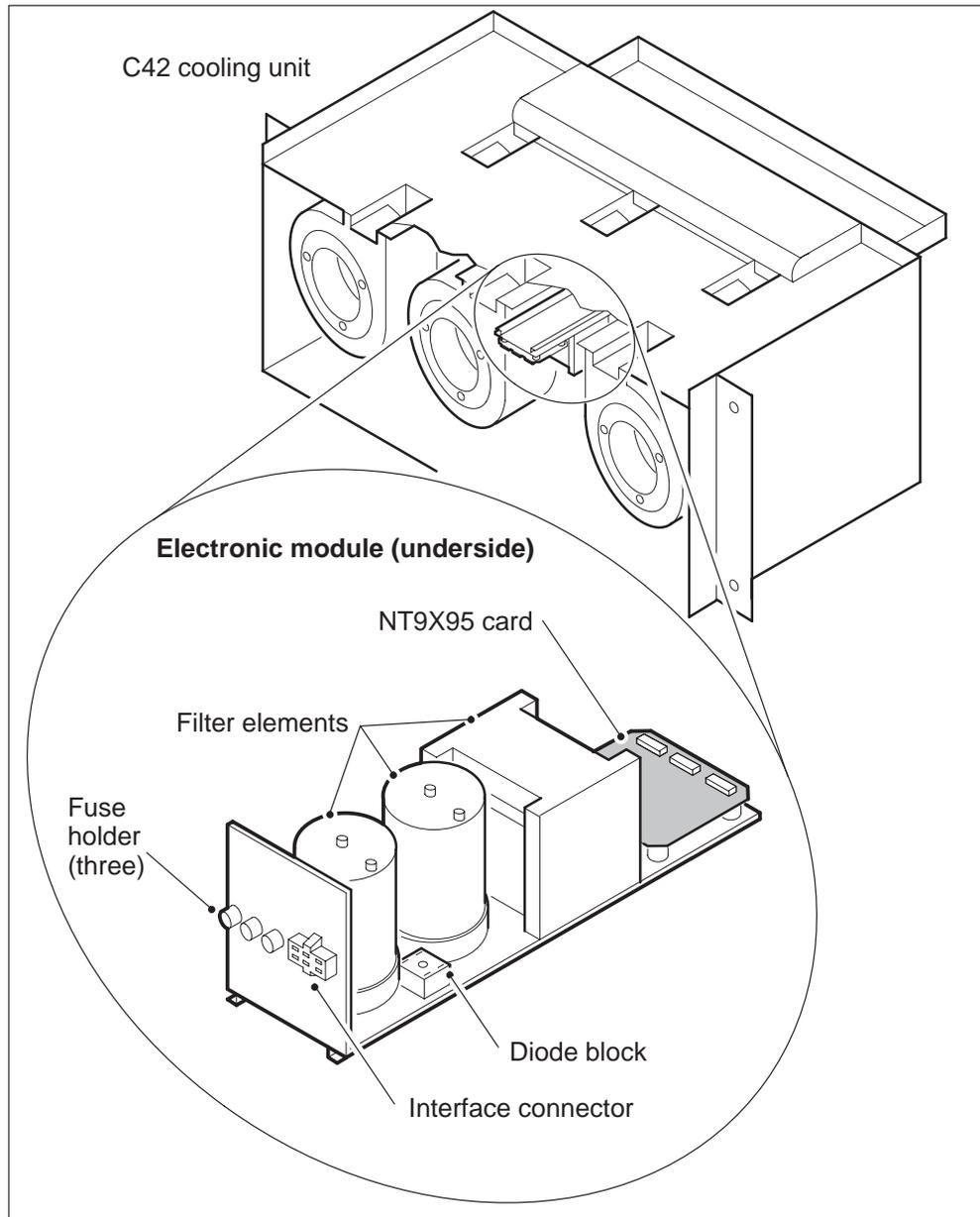
Label all electrical connectors before you disconnect them. If you reconnect to the wrong electrical connector, you can cause equipment damage or service interruption.

Disconnect the four electrical connectors at the front of the electronic module.

Note: Use both hands to disconnect the connectors. Grasp the top of the connector in one hand and the bottom of the connector in the other hand. Press the releases at the sides of the connector top and pull on the connector bottom.

Replacing an NT9X95 card in a cooling unit (continued)

- 13 Slide out the electronic module for the cooling unit.



- 14 Disconnect the electrical connector that connects the NT9X95 card to the electronic module.

Replacing an NT9X95 card in a cooling unit

(continued)

- 15 To remove the NT9X95 card, remove the four screws that mount the card to the electronic module.
- 16 To install the replacement NT9X95 card, insert the four screws that mount the card to the electronic module.
- 17 Reconnect the electrical connector that you disconnected in step 14.
- 18 Slide the electronic module back in until the module touches the cooling unit backplate.
- 19 Reconnect the four electrical connectors you disconnected in step 12.
Note: To reconnect each connector, press the releases on the connector top and insert the connector bottom until it locks in place. If you cannot insert the connector bottom, turn it one-half turn and try to insert it again.

At the back of the cabinet

- 20 Insert the screws that fasten the electronic module back into the cooling unit assembly. You removed these screws in step 10.
- 21 Reconnect the power connector you disconnected in step 11.
- 22 Determine if power for the cooling unit connects through a PDC or a CPDC.

If power for the the cooling unit	Do
connects through a PDC	step 23
connects through a CPDC	step 24

At the front of PDC

- 23 Insert the cooling unit fuses into the front panel of the PDC. Push the fuse cartridges straight into the front panel.
Go to step 25.

Replacing an NT9X95 card in a cooling unit (end)

At the front of CPDC

24



DANGER
Risk of injury
 Electricity can arc when you throw a circuit breaker for the cooling unit. Wear eye protection.



DANGER
Risk of injury
 Electricity can arc when you throw a circuit breaker for the cooling unit. Wear eye protection.

Throw the cooling unit circuit breakers.

At the front of the cabinet

25 Determine if all cooling unit fans work.

Note: If one or more of the cooling unit fans does not work, the fan failure lamp turns on. The fan failure lamp is at the top of the cabinet between the doors.

If	Do
all fans work	step 26
any fans do not work	step 28

26 Replace the cooling unit cover.

Note: Step 9 shows the location of the mounting screws.

27 Close the cabinet doors.

Go to step 29.

28 For additional help, contact the next level of support.

29 The procedure is complete.

Replacing cooling unit NTRX91AA

Application

Use this procedure to replace a cooling unit (NTRX91AA) that has faults in the following cabinetized frames:

- NTMX89FA: cabinetized remote switching center/line card module (CRSC/LCM)
- NTMX89FB: cabinetized remote switching center/integrated services digital network (CRSC/ISDN)
- NTMX90AB: Global Peripheral Platform (GPP) cabinet
- NTRX89FC: cabinetized extension module (CEXT)

Definition

Perform this procedure on a cooling unit that has faults. The illumination of the FAN FAIL indicator on the front of the modular supervisory panel (MSP) indicates a cooling unit that has faults.

Common procedures

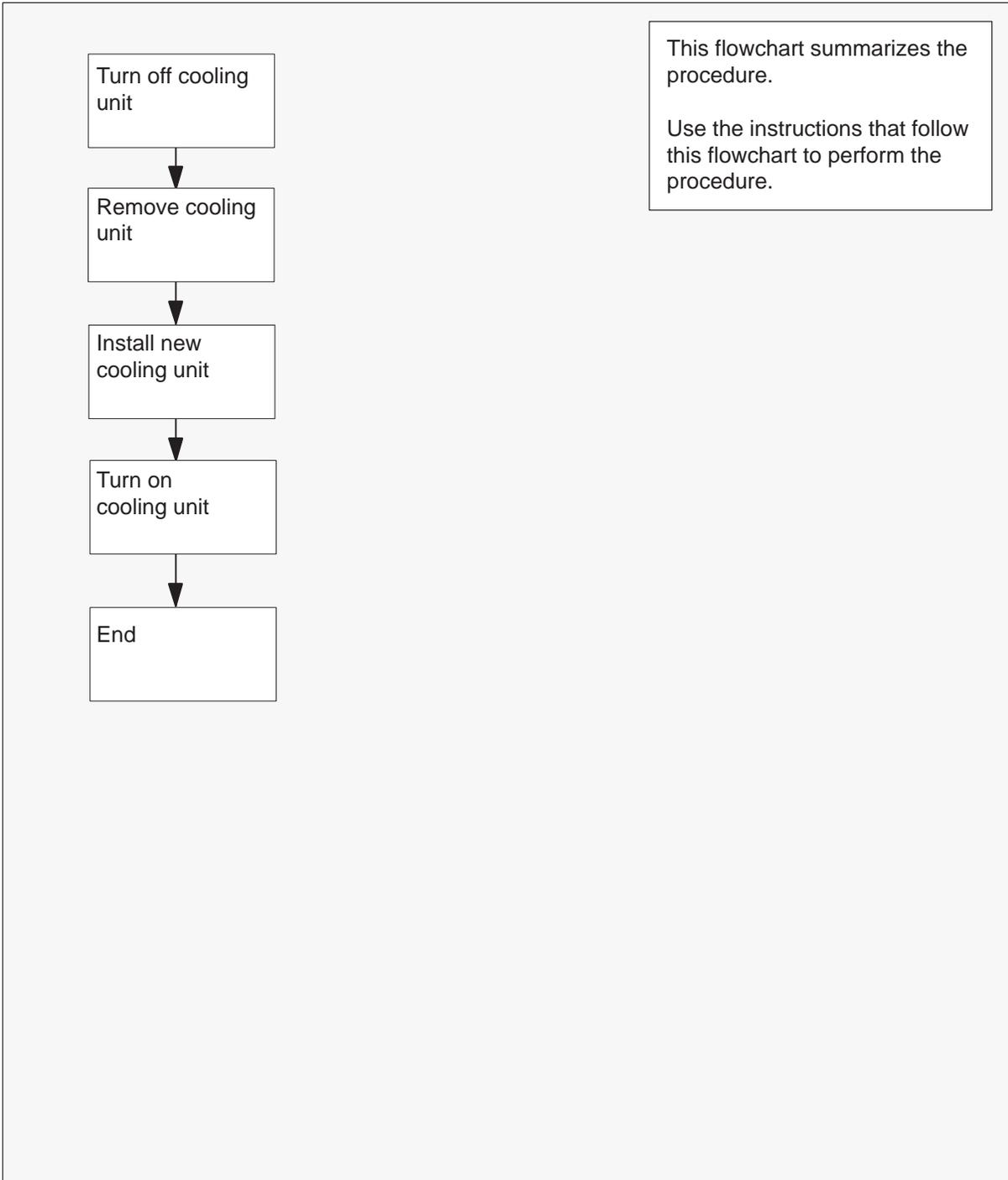
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Replacing cooling unit NTRX91AA (continued)

Summary of Replacing cooling unit NTRX91AA



Replacing cooling unit NTRX91AA

(end)

Replacing cooling unit NTRX91AA

At your current location

1



WARNING

To prevent overheating

Do not turn off the cooling unit for longer than 30 mins.



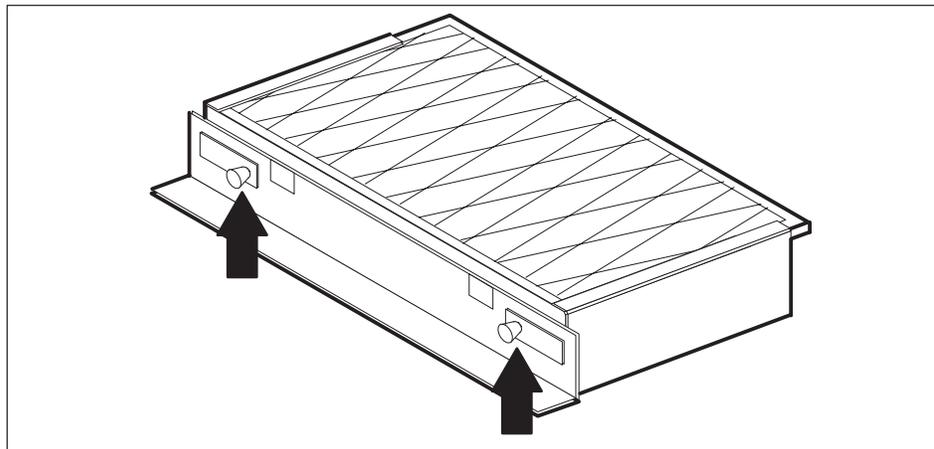
WARNING

To prevent overheating

Do not turn off the cooling unit for longer than 30 mins.

To make sure that the cooling unit fans are off, remove the two fuses on the faceplate of the modular supervisory panel (MSP).

- 2 Turn the two knobs on the front panel of the cooling unit counter-clockwise. Slide the cooling unit out.



- 3 Slide in the new cooling unit (NTRX91AA) until both sides lock into place.
- 4 Replace the two fuses that you removed in step 1.
- 5 The procedure is complete.

Reseating a line card

Application

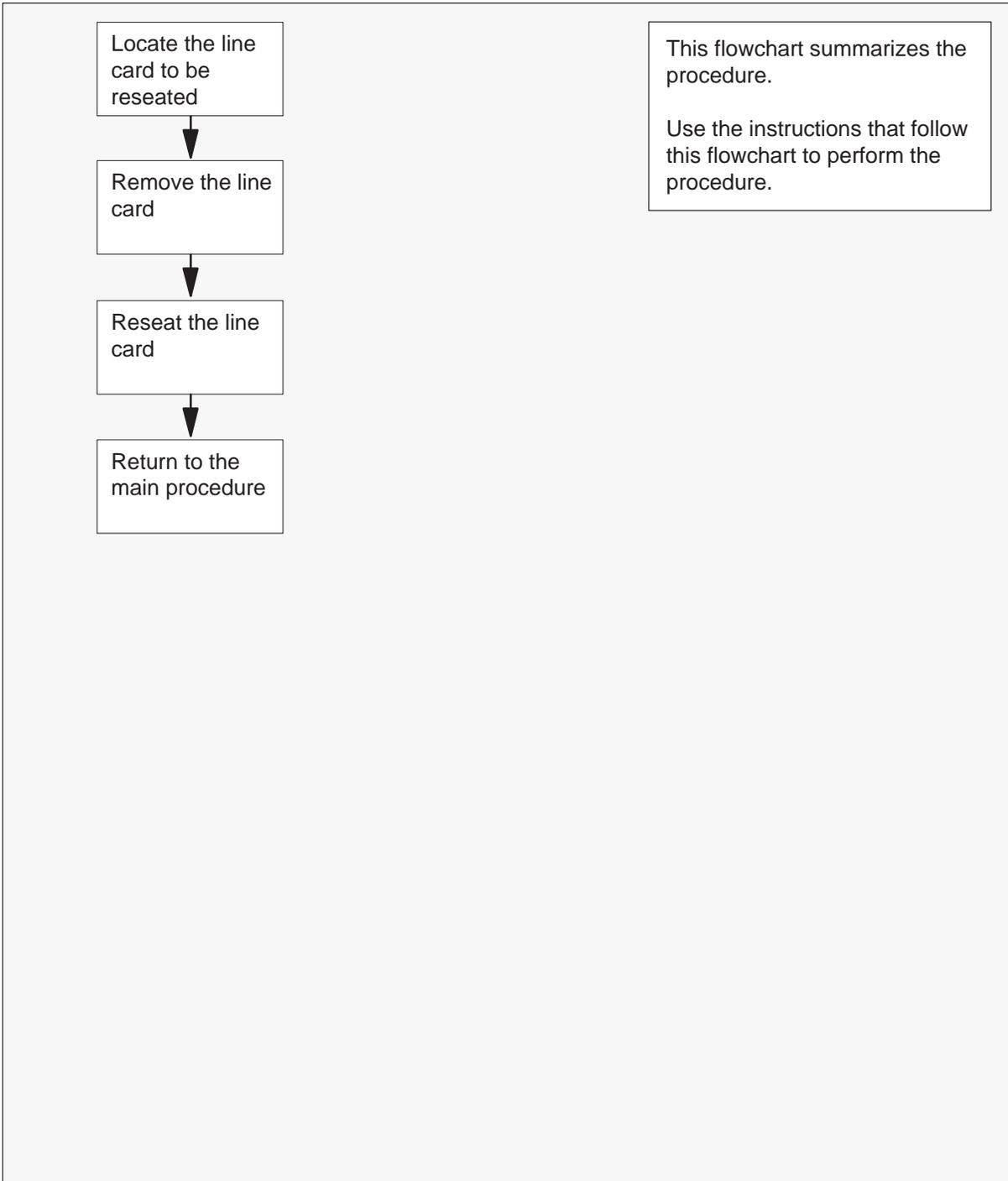
Use this procedure to reseat a line card in an ISDN enhanced line concentrating module (LCME). This procedure ensures the correct electrical connection between the line card and the connector pins on the drawer.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Reseating a line card (continued)

Summary of Reseating a line card

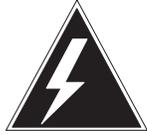


Reseating a line card (continued)

Reseating a line card

At the MAP terminal

1



WARNING

Possible equipment damage

Proceed only when a step in a maintenance procedure directs you to this procedure. Independent use of this procedure can cause equipment damage or loss of service.



CAUTION FOR ESDS

Possible equipment damage

Proceed only when a step in a maintenance procedure directs you to this procedure. Independent use of this procedure can cause equipment damage or loss of service.

To display the location and product engineering code (PEC) for the line card, type

```
>MAPCI;MTC;LNS;LTP;LTPISDN
>Post D or L <Dir No.> or <Len No.>
>CKTLOC
```

and press the Enter key.

Example of a MAP response:

```
CKTLOC
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 03 C01 LCEI01 18 LCME 01 02:09 BX27AA
```

Note: In this example, the location of the line card is

Site	in the HOST office
Flr	on the 3rd floor
RPos	in row C and in line equipment bay 01
Bay_id	in ISDN line concentrating equipment, bay 01
Shf	on shelf 18
Description	in hardware device LCME, bay 01
Slot	in slot 02, drawer 09

Note: In this example, the PEC of the line card PEC is BX27AA.

2 Record the location of the line card.

Reseating a line card (continued)

At the shelf

3



WARNING

Static electricity damage

When you handle circuit cards, wear a wrist-strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.



CAUTION FOR ESDS

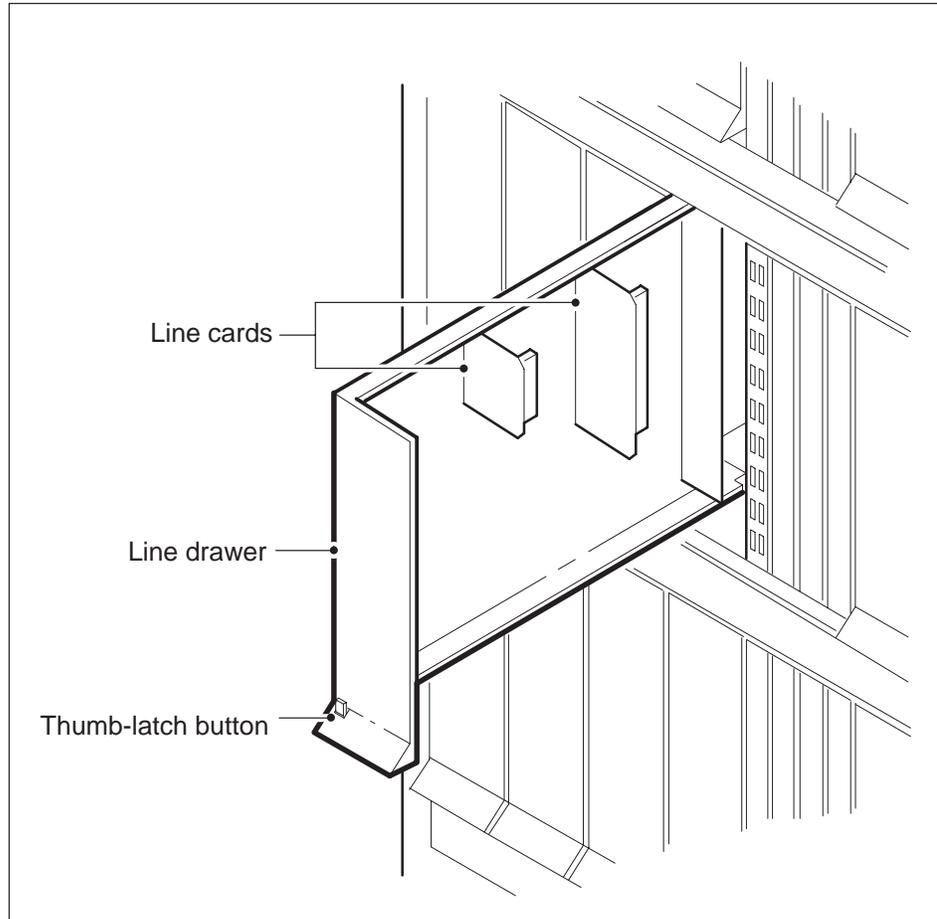
Static electricity damage

When you handle circuit cards, wear a wrist-strap that connects to the wrist-strap grounding point of a frame supervisory panel (FSP). The wrist-strap protects the cards against static electricity damage.

To locate the drawer for the line card, use the recorded information in step 2.

Reseating a line card (continued)

- 4 Press the small thumb-latch button on the lower left edge of the drawer. Carefully pull the drawer forward.



Reseating a line card (continued)

5



DANGER

Risk of personal injury

The large, flat rectangular component mounted on the front edge can be very hot. To avoid burns to your fingers, use the insertion and withdrawal tool. Use the tool to remove and reseat the card as illustrated in step 6.



DANGER

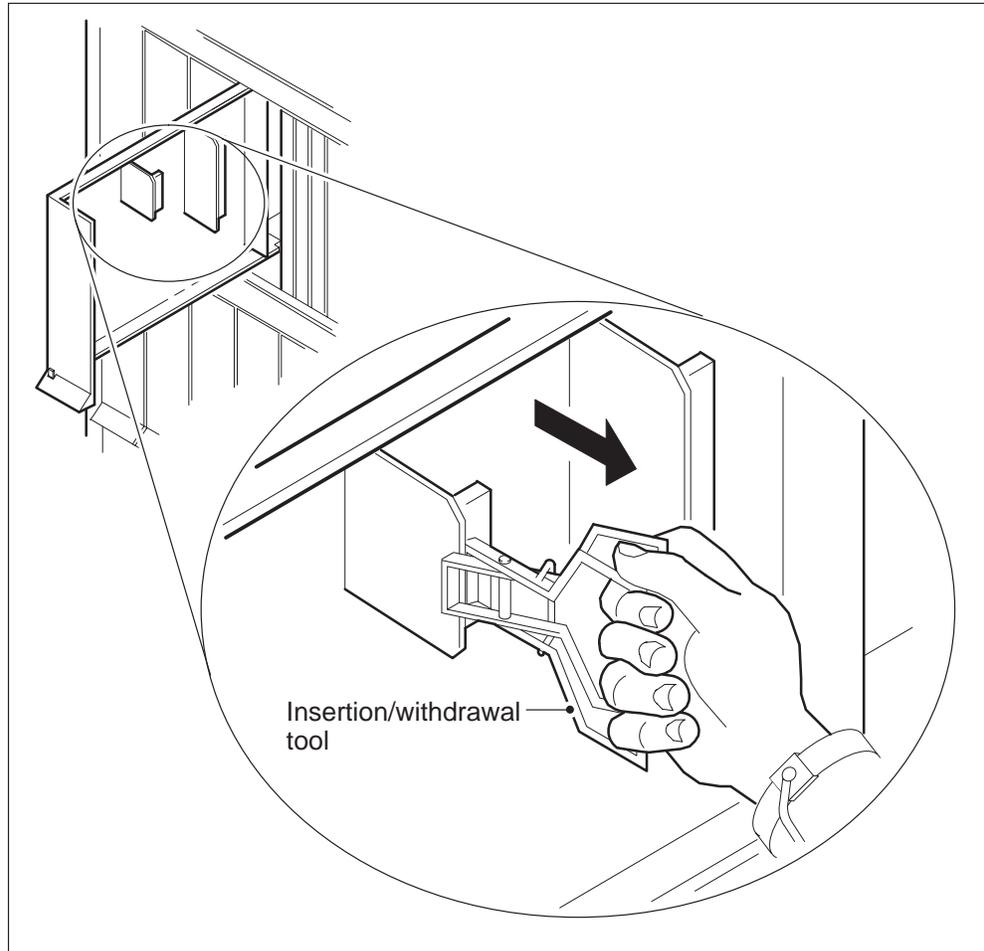
Risk of personal injury

The large, flat rectangular component mounted on the front edge can be very hot. To avoid burns to your fingers, use the insertion and withdrawal tool. Use the tool to remove and reseat the card as illustrated in step 6.

Locate the card you want to remove (it can be either a 3-in or a 6-in card).

Reseating a line card (end)

- 6 Clamp the insertion and withdrawal tool to the front edge of the card, as illustrated below. Carefully remove the card from the connector pins.



- 7 Align the card with the connector pins and carefully reseat the card.
- 8 Ensure the card sits in a secure position.
- 9 Carefully push the drawer back into the shelf until the thumb-latch button locks.
- 10 You have completed this procedure. Return to the main procedure that sent you to this procedure and continue to follow the directions.

Responding to TRMS301 logs

Application

Use this procedure to reply to a TRMS301 log.

Definition

A TRMS301 log indicates that the transactional record management system (TRMS) cannot delete an old database log file. When LOGUTIL is in the EXPERT mode, the log also contains a fault-tolerant file system (FTFS) error code. The FTFS error code explains the problem why the system cannot delete the old log file.

Common procedures

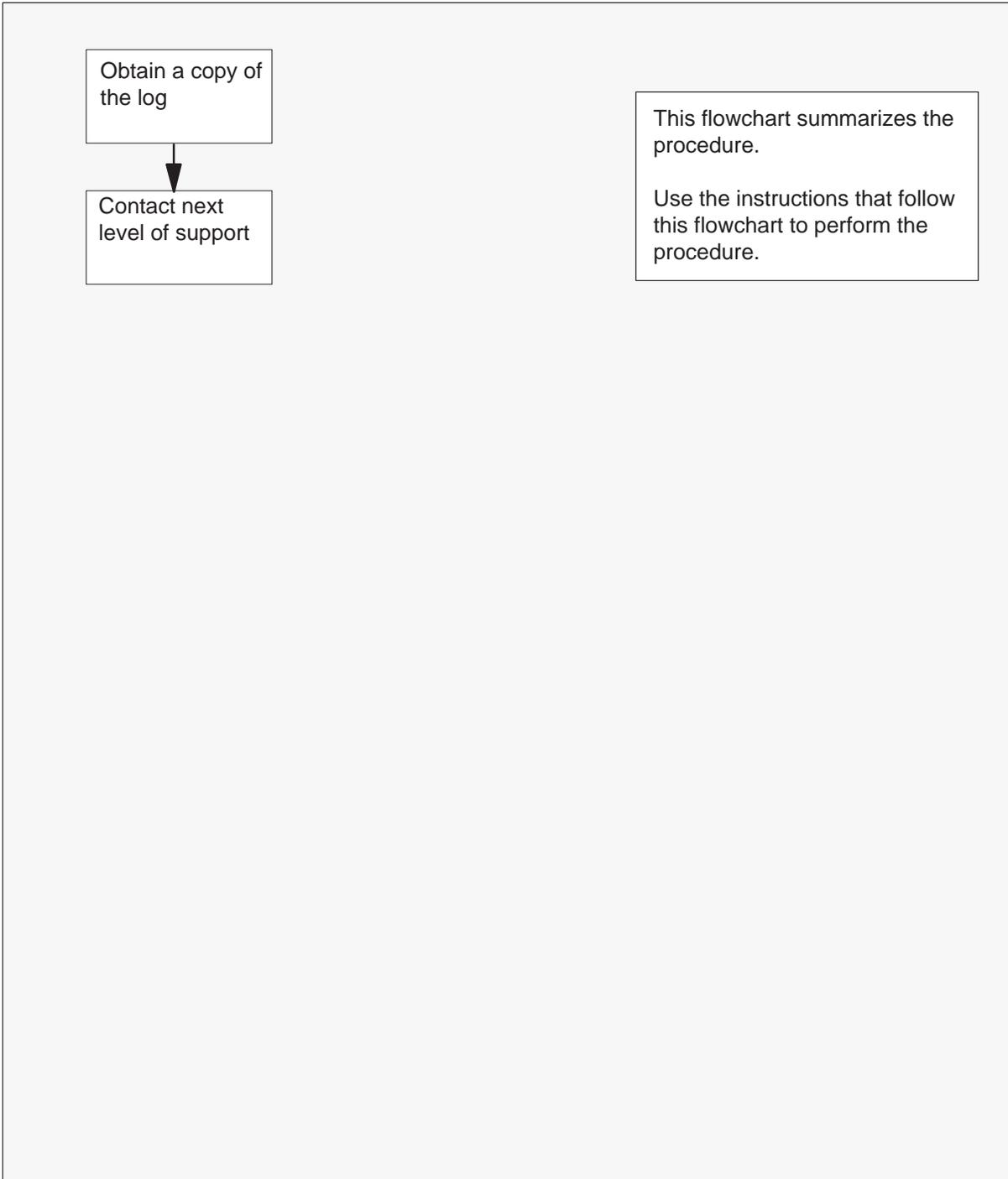
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as an overview of the procedure. Follow the steps to perform the procedure.

Responding to TRMS301 logs (continued)

Summary of Responding to TRMS301 logs



Responding to TRMS301 logs

(end)

Responding to TRMS301 logs

At your current location

- 1 Obtain a copy of the TRMS301 log.
- 2 Note the information contained in the TRMS301 log that follows:
 - the location of the the TRMS failure (for example, FP4)
 - the database log name (for example, 800PLUS__SLAVE__0.LOG002)
- 3 For additional help, contact the next level of support.

Restoring far-end service for a D-channel ISDN PRI single D-channel

Application

Use this procedure to return a D-channel to service when the far end office is out of service.

Definition

The D-channel is in the remote-not-responding (RNR) state. The RNR state indicates that the far-end office is not responding. Log ISDN105 can generate.

Common procedures

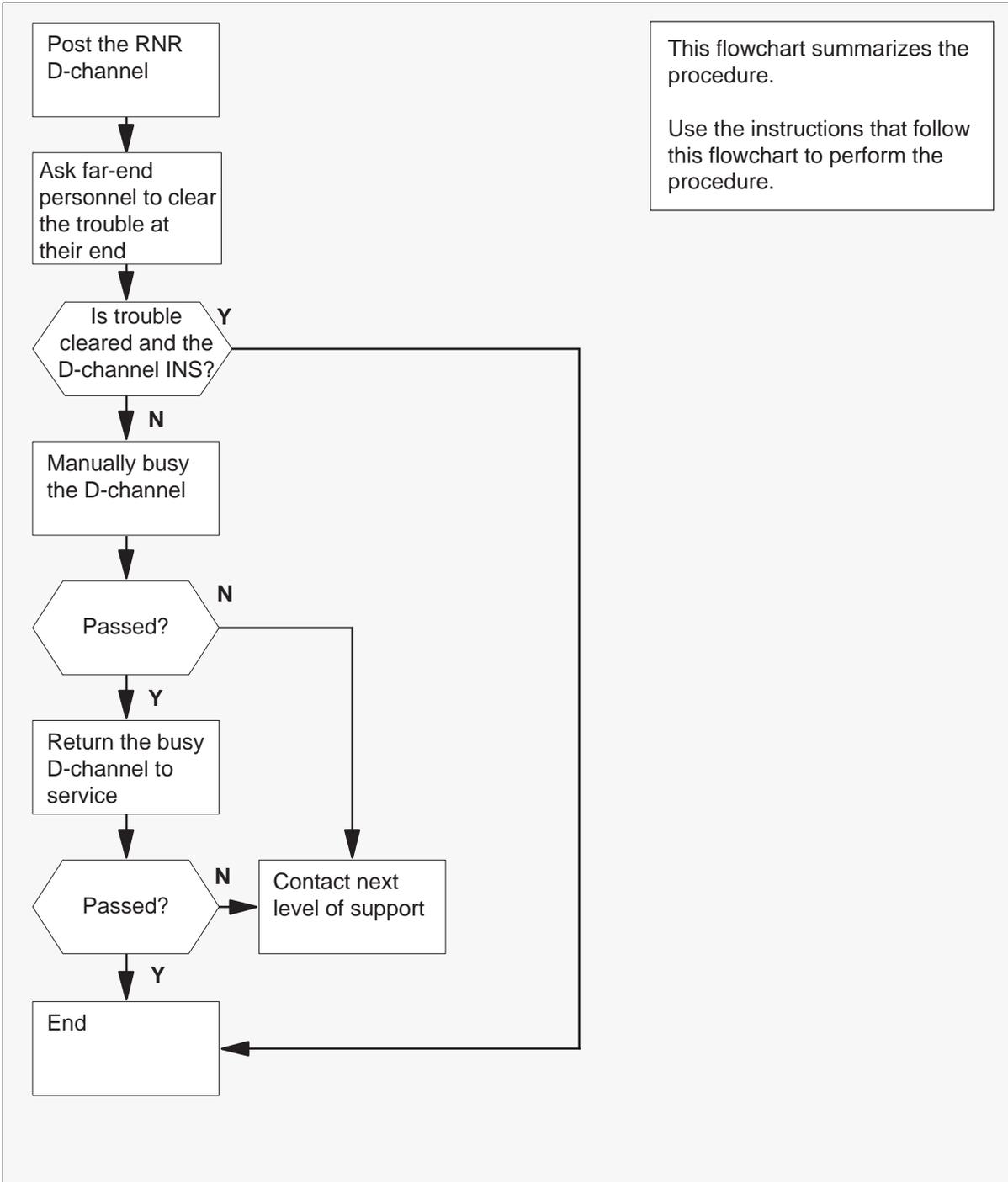
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Restoring far-end service for a D-channel ISDN PRI single D-channel (continued)

Summary of Restoring far-end service for a D-channel



Restoring far-end service for a D-channel ISDN PRI single D-channel (continued)

Restoring far-end service for a D-channel

At the MAP terminal

- 1 Determine the name of the trunk group from office records or operating company personnel.
- 2 Determine your next step.

If directions to this procedure	Do
came from <i>Determining the D-channel state</i>	step 5
came from other than listed here	step 3

- 3 To access the PRADCH level of the MAP display, type
>MAPCI;MTC;TRKS;TTP;PRADCH
and press the Enter key.

- 4 To post the RNR D-channel, type
>POST GD group_name
and press the Enter key.

where

group_name is the trunk group name

Example input:

>POST GD F9876035PRAPRV

Example of a MAP display:

```

POST          DELQ          BUSYQ    DIG
TTP  6-005
CKT TYPE    PM NO          COM LANG          STA S R DOT TE RESULT
2W IS IS DTCI 2 3 24 F9876035PRAPRV DCHL    RNR R
    
```

Example of a MAP response:

```

LAST CKT 3 24
POSTED CKT IDLED
SHORT CLLI IS: F98760
OK,CKT POSTED
    
```

Restoring far-end service for a D-channel ISDN PRI single D-channel (continued)

- 5 Ask operating company personnel at the far-end office to isolate and correct the problem at their end.

Note: The MAP terminal lists the state of the D-channel to the right side of the DCHL header.

If the state of the D-channel	Do
is INS (in service) after the persons at the far-end office correct their problem	step 9
is not INS after the persons at the far-end office correct their problem	step 6

- 6 To manually busy the D-channel, type
>BSY
and press the Enter key.

Example of a MAP response:

STATE CHANGED

Note: The D-channel state changes to MB (manual busy).

If the BSY command	Do
passed	step 7
failed	step 8

- 7 To return the D-channel to service, type
>RTS
and press the Enter key.

Example of a MAP response:

STATE CHANGED

If the RTS command	Do
passed (INS state)	step 9
failed	step 8

Restoring far-end service for a D-channel ISDN PRI single D-channel (end)

- 8 For additional help, contact the next level of support.
- 9 The procedure is complete.

Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels

Application

Use this procedure to return a D-channel back into service when the far-end office is out of service.

Definition

The D-channel is in the remote not responding (RNR) state. The RNR state indicates that the far-end office does not respond. Logs ISDN111, ISDN112, or ISDN114 can generate.

Common procedures

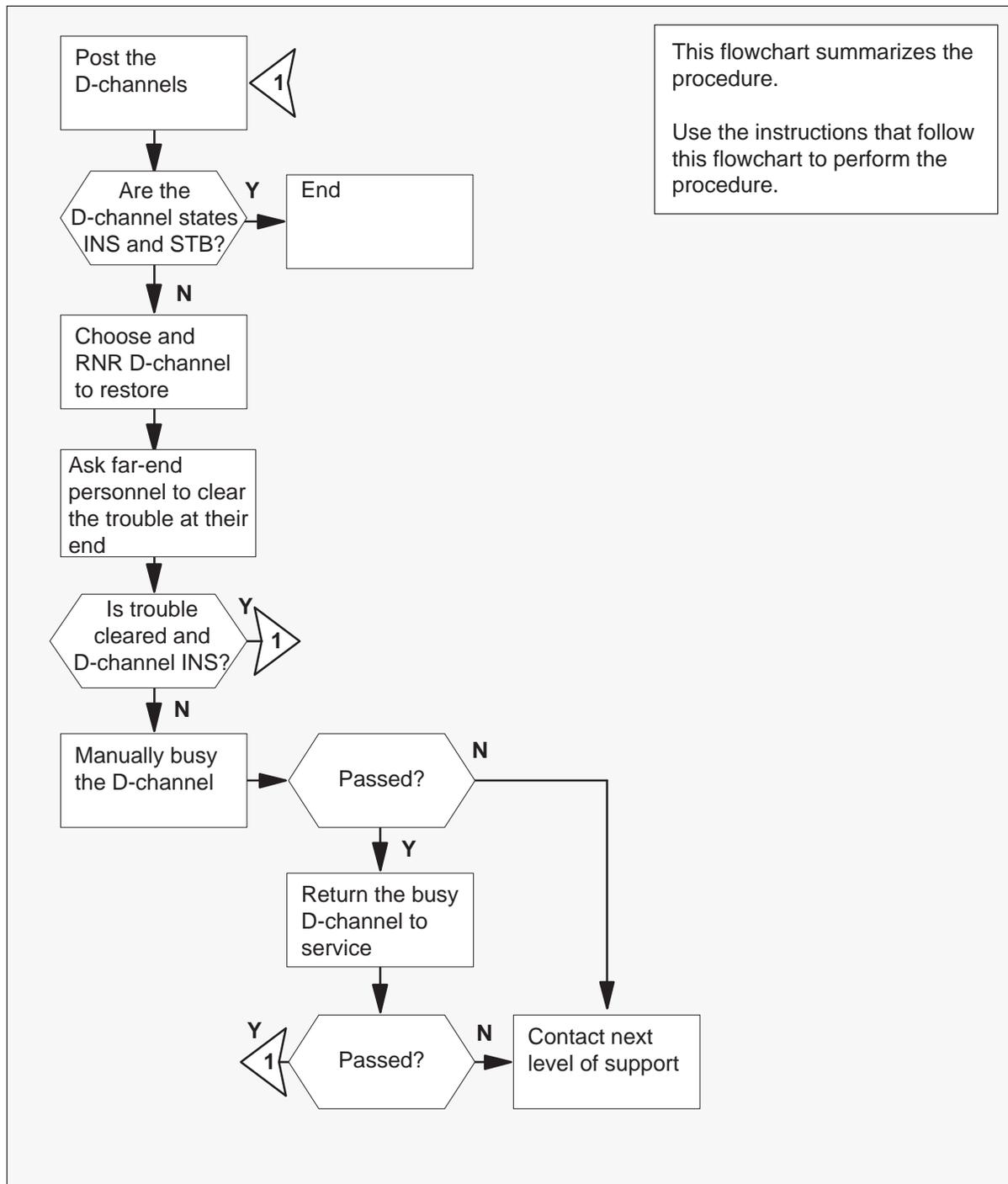
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels (continued)

Summary of Restoring far-end service for a D-channel



Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels (continued)

Restoring far-end service for a D-channel

At the MAP terminal

- 1 Determine the name of the trunk group from office records or operating company personnel.
- 2 Determine your next step.

If directions to this procedure	Do
came from <i>Determining the D-channel state</i>	step 5
came from other than listed here	step 3

- 3 To access the PRADCH level of the MAP display, type
>MAPCI;MTC;TRKS;TTP;PRADCH
and press the Enter key.

- 4 To post the D-channels, type
>POST GD group_name
and press the Enter key.

where

group_name is the trunk group name

Example input:

>POST GD F5678935PAV

Example of a MAP display:

```
POST      1    DELQ      BUSYQ      DIG
TTP      6-005
CKT TYPE   PM NO      COM LANG STA S R DOT TE RESULT
2W IS IS LTC 2 3 24 F5678935PAV D1 INS
          LTC 2 5 24 F5678935PAV D2 RNR R
```

Example of a MAP response:

```
SHORT CLLI IS: F56789
OK,CKT POSTED
```

Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels (continued)

- 5 Determine the states of the D-channels.

Note: The MAP display lists the state of the D-channel to the right side of the DCHL header.

If	Do
one D-channel is <i>INS</i> (in service) and the other is <i>STB</i> (standby)	step 12
one D-channel is <i>RNR</i> (remote not responding), and the other is in a different out-of-service state or <i>INS</i>	step 6
both D-channels are <i>RNR</i>	step 6

- 6 Choose an *RNR* D-channel to restore and record its identifier (D1 or D2).

Note 1: Do not choose an *INS* or *STB* D-channel to clear. An *INS* D-channel is a normal operation state for the primary D-channels. An *STB* D-channel is a normal operation state for the backup D-channels. The *STB* state occurs for a backup D-channel when the primary D-channel is *INS*.

Note 2: You must use the same identifier (D1 or D2) for all procedures and steps used to clear the chosen D-channel. The MAP display lists the identifier under the *LANG* header.

Note 3: When both D-channels are out of service, restore each channel separately. The first restored D-channel becomes the primary and goes into the *INS* state. The the second restored D-channel becomes the backup and goes into the *STB* state.

- 7 Ask operating company personnel at the far-end office to isolate and correct the problem at their end.

If the state of the D-channel	Do
is <i>INS</i> after the personnel at the far-end correct their problem	step 12
is not <i>INS</i> after the personnel at the far-end correct their problem	step 8

Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels (continued)

8



CAUTION

PRI service interruption

The following step takes an in-service D-channel out of service. When you take an in-service D-channel out of service, the backup D-channel automatically switches into service.



CAUTION

PRI service interruption

The following step takes an in-service D-channel out of service. When you take an in-service D-channel out of service, the backup D-channel automatically switches into service.

To manually busy the D-channel, type

>BSY d_channel

and press Enter.

where

d_channel is the D-channel identifier (D1 or D2)

Example of a MAP response:

```
D1: STATE CHANGED
```

or

```
THIS WILL PUT LTC 2 5 24 D2 OUT-OF-SERVICE
```

```
Please confirm ("YES", "Y", "NO", or "N"):
```

9 To confirm the command, type

>YES

and press the Enter key.

Note: The D-channel state changes to manual busy.

If the BSY command	Do
passed	step 10
failed	step 11

Restoring far-end service for a D-channel ISDN PRI primary and backup D-channels (end)

- 10 To return the busy D-channel to service, type

>RTS d_channel

where

d_channel is the D-channel identifier (D1 or D2)

Example of a MAP response:

D2: STATE CHANGED

If the RTS command	Do
passed (INS or STB state)	step 4
failed	step 11

- 11 For additional help, contact the next level of support.
- 12 The procedure is complete.

Returning a busy D-channel to service ISDN PRI primary and backup D-channels

Application

Use this procedure to return a busy D-channel to service.

Definition

The D-channel is in

- the installation busy (INB) state. This state indicates an installed D-channel that is not in service
- the manual-busy (MB) state. This state indicates the manual removal of the D-channel from service

The PRI trunk is D-channel manual busy (DMB). A DMB PRI trunk indicates the manual removal from service of the D-channel associated with the trunk group. Trunk group members associated with the out-of-service D-channel remain DMB until the restoration of the D-channel. Only members that are INB do not remain DMB until the restoration of the D-channel. Logs ISDN111, ISDN112, or ISDN114 can generate.

An out-of-service D-channel addresses problem conditions. Normal activity continues on an in-service D-channel. In this event, you perform a procedure that clears problems on the out-of-service D-channel only. Both D-channels can be out of service. Perform a procedure that clears problems for each D-channel. Start with the condition that affects service the most severely. The first restored D-channel becomes the primary D-channel and is in service (INS). The second restored D-channel becomes the backup D-channel and is standby (STB).

Common procedures

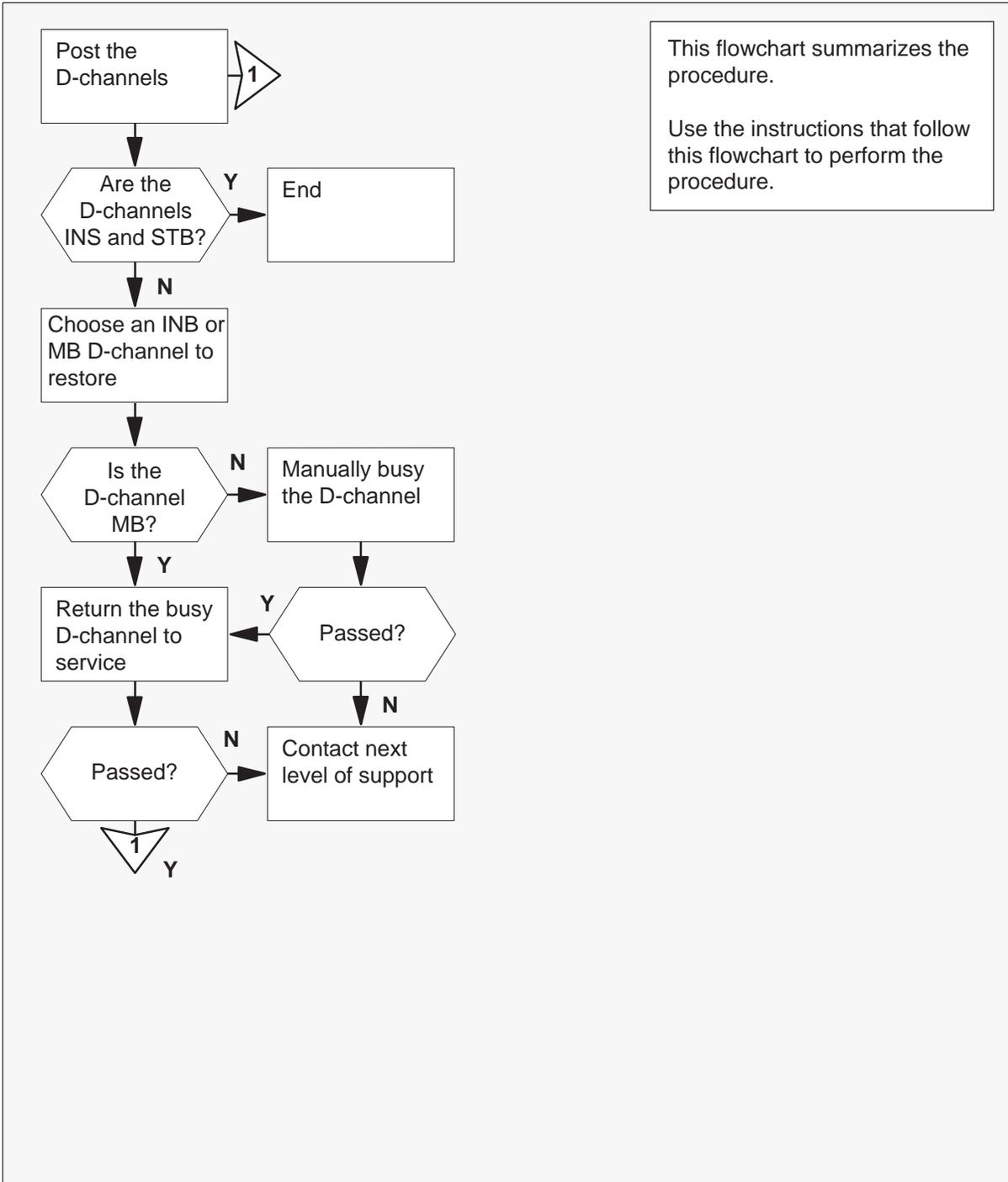
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Returning a busy D-channel to service ISDN PRI primary and backup D-channels (continued)

Summary of Returning a busy D-channel to service



Returning a busy D-channel to service ISDN PRI primary and backup D-channels (continued)

Returning a busy D-channel to service

At the MAP terminal

- 1 Determine the name of the trunk group from office records or operating company personnel.
- 2 Determine your next step.

If directions to this procedure	Do
come from <i>Determining the D-channel state</i>	step 4
come from other than listed here	step 3

- 3 To access the PRADCH level of the MAP display, type
>MAPCI;MTC;TRKS;TTP;PRADCH
and press the Enter key.

- 4 To post the D-channels, type
>POST GD group_name
and press the Enter key.

where

group_name is the name of the trunk group

Example input:

>POST GD F5678935PAV

Example of a MAP display:

```

POST      1      DELQ      BUSYQ      DIG
TTP      6-005
CKT TYPE   PM NO          COM LANG STA S R DOT TE RESULT
2W IS IS LTC 2 3 24 F5678935PAV D1 INS
          LTC 2 5 24 F5678935PAV D2 MB R
    
```

Example of a MAP response:

```

SHORT CLLI IS: F56789
OK,CKT POSTED
    
```

- 5 Determine the state of the D-channel.

Returning a busy D-channel to service ISDN PRI primary and backup D-channels (continued)

Note: The MAP display lists the state of the D-channel to the right side of the DCHL header.

If	Do
one D-channel is <i>INS</i> (in service) and the other is <i>STB</i> (standby)	step 10
one D-channel is <i>INB</i> (installation busy) or <i>MB</i> (manual busy), and the other is in a different out-of-service state or <i>INS</i>	step 6
both D-channels are either <i>INB</i> or <i>MB</i>	step 6

- 6** Choose an *INB* or *MB* D-channel to restore. Record the channel identifier (D1 or D2).

Note 1: Do not choose an in-service (*INS*) or standby (*STB*) D-channel to clear. An *INS* D-channel is a normal operation state for the primary D-channel. An *STB* D-channel is a normal operation state for the backup D-channel. The *STB* state occurs for a backup D-channel when the primary D-channel is *INS*.

Note 2: You must use the same identifier (D1 or D2) for all procedures and steps used to clear the chosen D-channel. The MAP display lists the identifier under the *LANG* header.

Note 3: When both D-channels are out of service, restore each channel separately. The first restored D-channel becomes the primary and is *INS*. The second restored D-channel becomes the backup and is *STB*.

If the state of the D-channel	Do
is <i>INB</i>	step 7
is <i>MB</i>	step 8

Returning a busy D-channel to service ISDN PRI primary and backup D-channels (continued)

7



CAUTION

PRI service interruption

The following step takes an in-service D-channel out of service. When you take an in-service D-channel out of service, the backup D-channel automatically switches into service.



CAUTION

PRI service interruption

The following step takes an in-service D-channel out of service. When you take an in-service D-channel out of service, the backup D-channel automatically switches into service.

To manually busy the D-channel, type

>BSY d_channel

and press the Enter key.

where

d_channel is the D-channel identifier (D1 or D2)

Example of a MAP response:

D2: STATE CHANGED

Note: The D-channel state changes to manual busy.

If the BSY command	Do
passed	step 8
failed	step 9

Returning a busy D-channel to service ISDN PRI primary and backup D-channels (end)

- 8 To return the busy D-channel to service, type

>RTS d_channel

and press the Enter key.

where

d_channel is the D-channel identifier (D1 or D2)

Example of a MAP response:

D2: STATE CHANGED

If the RTS command	Do
passed (INS or STB state)	step 4
failed	step 9

- 9 For additional help, contact the next level of support.
- 10 The procedure is complete.

Returning a busy D-channel to service ISDN PRI single D-channel

Application

Use this procedure to return a busy D-channel to service.

Definition

The D-channel is in

- the installation busy (INB) state. This state indicates an installed D-channel that is not in service
- the manual-busy (MB) state. This state indicates the manual removal of the D-channel from service

The PRI trunk is D-channel manual busy (DMB). The DMB PRI trunk indicates the manual removal from service of the D-channel associated with the trunk group. Trunk group members associated with the out-of-service D-channel remain DMB until the restoration of the D-channel. Only members that are INB do not remain DMB until the restoration of the D-channel.

Common procedures

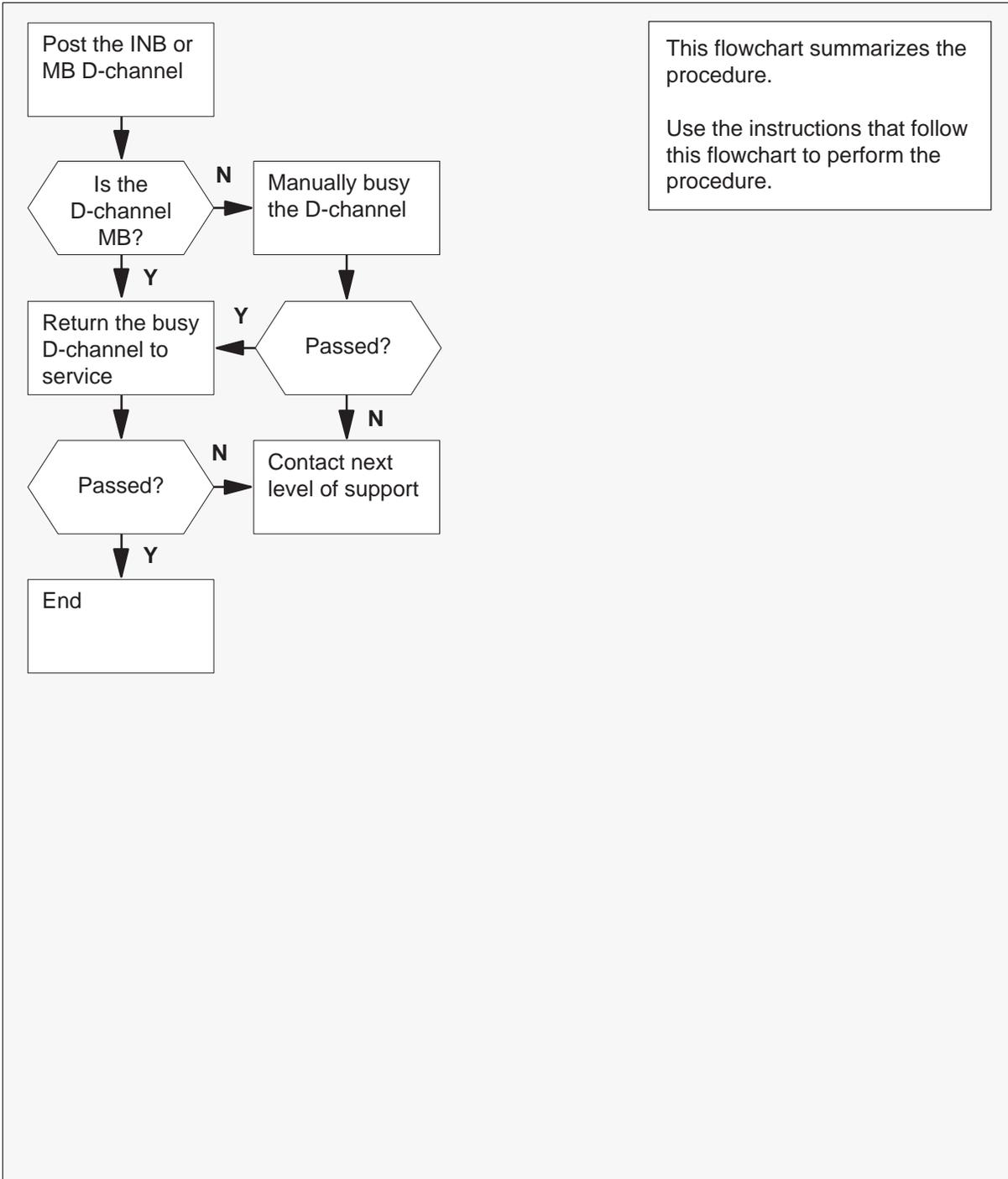
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

Returning a busy D-channel to service ISDN PRI single D-channel (continued)

Summary of Returning a busy D-channel to service



Returning a busy D-channel to service ISDN PRI single D-channel (continued)

Returning a busy D-channel to service

At the MAP terminal

- 1 From office records or operating company persons, determine the name of the trunk group.
- 2 Determine your next step.

If directions to this procedure	Do
came from <i>Determining the D-channel state</i>	step 4
came from other than listed here	step 3

- 3 To access the PRADCH level of the MAP display, type
>MAPCI;MTC;TRKS;TTP;PRADCH
and press the Enter key.
- 4 To post the installation busy or manual busy D-channel, type
>POST GD group_name
and press the Enter key.

where

group_name is the name of the trunk group

Example input:

>POST GD F9876035PRAPRV

Example of a MAP display:

```

POST          DELQ          BUSYQ    DIG
TTP  6-005
CKT TYPE    PM NO          COM LANG          STA S R DOT TE RESULT
2W IS IS DTCI 2 3 24 F9876035PRAPRV DCHL      MBR
    
```

Example of a MAP response:

```

LAST CKT 3 24
POSTED CKT IDLED
SHORT CLLI IS: F98760
OK,CKT POSTED
    
```

- 5 Determine the state of the D-channel.

Returning a busy D-channel to service ISDN PRI single D-channel (end)

Note: The MAP display lists the state of the D-channel to the right side of the DCHL header.

If the state of the D-channel	Do
is INB (installation busy)	step 6
is MB (manual busy)	step 7

- 6** To manually busy the D-channel, type

>BSY

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

Note: The D-channel state changes to manual busy (MB).

If the BSY command	Do
passed	step 7
failed	step 8

- 7** To return the D-channel to service, type

>RTS

and press the Enter key.

Example of a MAP response:

```
STATE CHANGED
```

If the RTS command	Do
passed (INS state)	step 9
failed	step 8

- 8** For additional help, contact the next level of support.

- 9** The procedure is complete.

Returning a busy PRI trunk to service ISDN PRI trunk

Application

Use this procedure to return a busy PRI trunk (B-channel) to service.

Definition

The PRI trunk is installation busy (INB). INB indicates that the PRI trunk is installed but is not in service. The PRI trunk can be manual busy (MB). A PRI trunk that is MB is an indication of the manual removal of the PRI trunk from service.

Common procedures

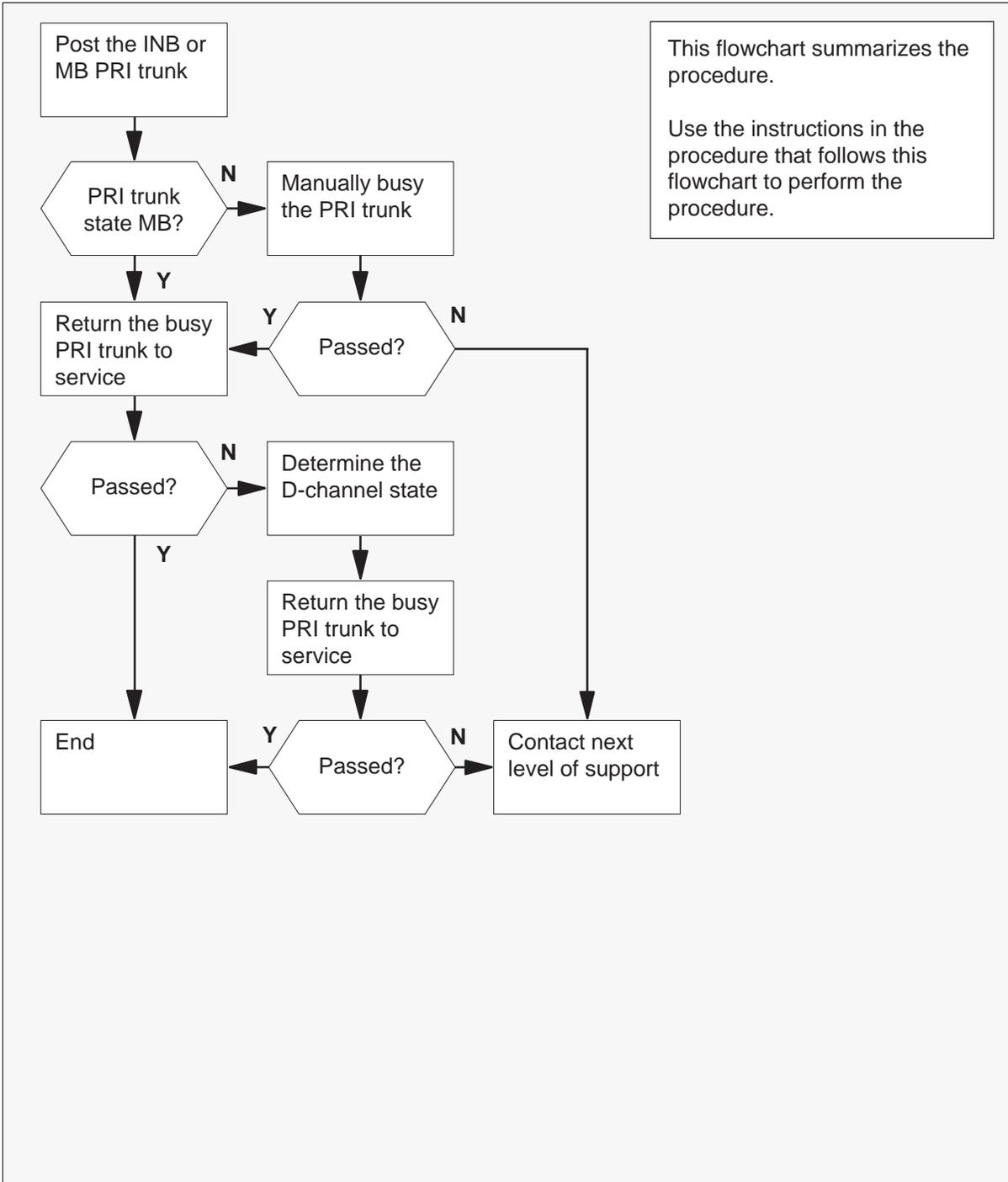
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a busy PRI trunk to service ISDN PRI trunk (continued)

Summary of Returning a busy PRI trunk to service



Returning a busy PRI trunk to service ISDN PRI trunk (continued)

Returning a busy PRI trunk to service

At the MAP terminal

- 1 Determine your next step.

If the system directed you to this procedure from	Do
Determining the PRI trunk state	step 5
other than listed here	step 2

- 2 Determine the name of the trunk group from office records or an office person.

- 3 To access the TTP level of the MAP display, type

>MAPCI;MTC;TRKS;TTP
and press Enter.

- 4 To post the installation busy or manual-busy PRI trunk, type

>POST G group_name
and press Enter.

where

group_name is the name of the trunk group

Example input:

>POST G F1AAA105IPTLA

Example of a MAP display:

```

POST          DELQ          BUSY          QDIG
TTP  6-005
CKT TYPE    PM NO          COM LANG          STA S R DOT TE RESULT
IC IS DTCL 7 9 1 F1AAA105IPTLA          MB    R
    
```

Example of a MAP response:

```

LAST CKTN = 9
POSTED CKT IDLED
SHORT CLLI IS: F1AAA1
OK,CKT POSTED
    
```

Returning a busy PRI trunk to service ISDN PRI trunk (continued)

- 5 Determine the state of the PRI trunk.

Note: The PRI trunk state appears under the STA header on the MAP display.

If the state of the PRI trunk	Do
is INB	step 6
is MB	step 7

- 6 To manually busy the PRI trunk, type

>BSY

and press Enter.

Example of a MAP response:

STATE CHANGED

Note: The state of the PRI trunk changes to manual busy.

If the BSY command	Do
passed	step 7
failed	step 11

- 7 To return the PRI trunk to service, type

>RTS

and press Enter.

Example of a MAP response:

STATE CHANGED

If the RTS command	Do
passed	step 12
failed for a single D-channel	step 8
failed for both primary and backup D-channels	step 9

Returning a busy PRI trunk to service ISDN PRI trunk (end)

- 8 Perform the procedure *Determining the D-channel state ISDN PRI single D-channel* in this document. When the procedure is complete, go to step 10.
- 9 Perform the procedure *D-channels Determining the D-channel state ISDN PRI primary and backup* in this document. When the procedure is complete, return to this point.
- 10 To return the PRI trunk to service, type

>RTS

and press Enter.

Example of a MAP response:

STATE CHANGED

If the RTS command	Do
passed	step 12
failed	step 11

- 11 For additional help, contact the person responsible for the next level of support.
- 12 The procedure is complete.

Returning a card or assembly in Canada

Application

This procedure applies to a circuit card or an assembly, for example, a power converter. Use the procedure to return the card or assembly to Northern Telecom for repair or replacement in Canada.

Interval

Perform this procedure as required.

Common procedures

There are no common procedures.

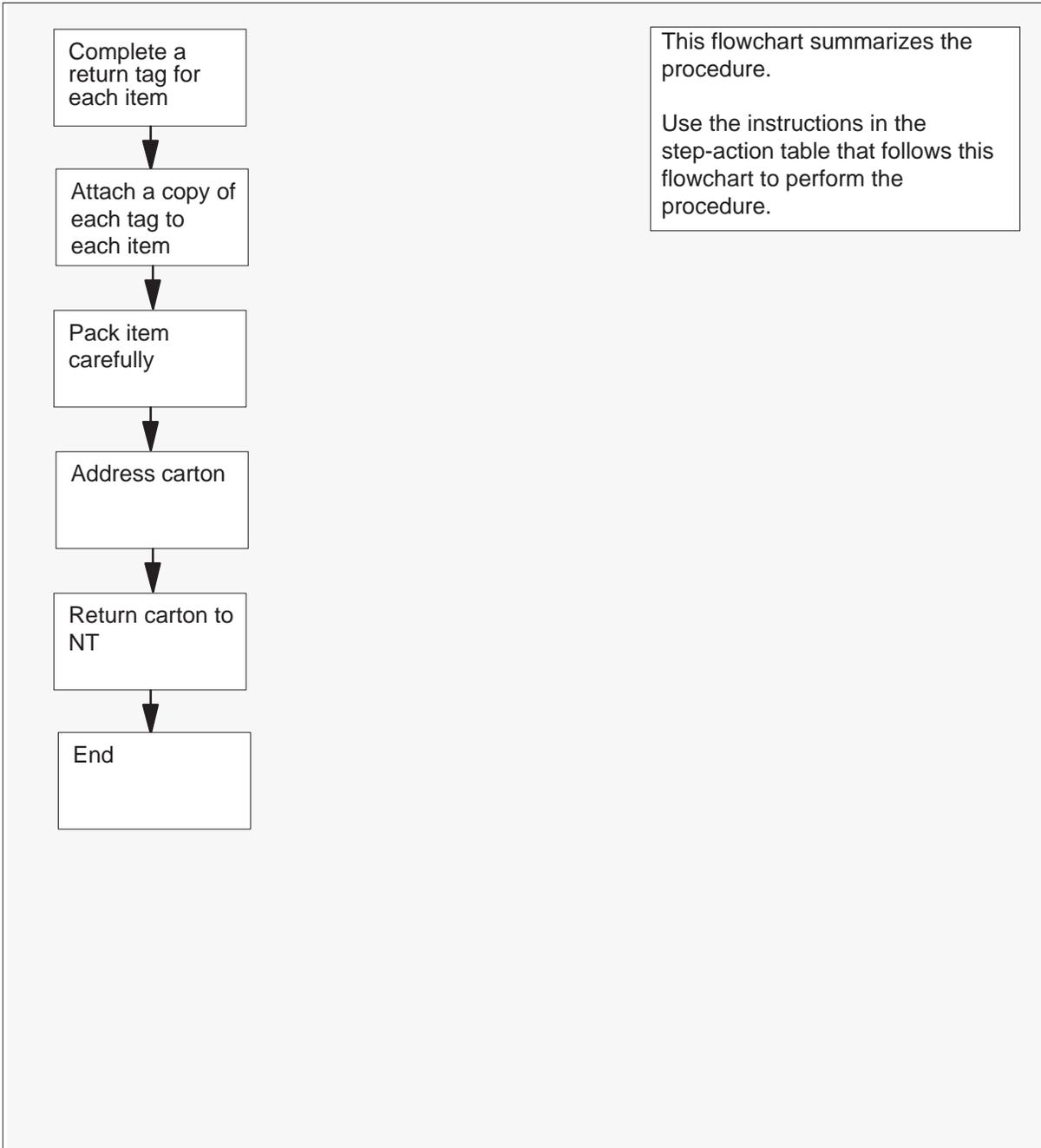
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a card or assembly in Canada

(continued)

Summary of Returning a card or assembly in Canada



Returning a card or assembly in Canada (continued)

Returning a card or assembly in Canada

At your Current Location

- 1 Put the card or assembly that you return into a protective bag for electrostatic discharge (ESD).
- 2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

- return authorization number from customer service
- NT product engineering code (PEC)
- serial number
- release number
- BCS software release used at the time of replacement
- if necessary, include peripheral module (PM) software load name
- description of the failure and action taken for repairs
- the code that describes the fault
- name of your company
- office identifier code
- your name
- site name

If you	Do
need help to complete the return label	step 3
do not need help to complete the return label	step 4

- 3 Call the following number for help to complete the return label:
 - days: 416-454-2808, or 1-800-668-5511
 - evenings: 416-457-9555
- 4 Attach one copy of the return label for each item you return.
- 5 Keep the other copies of the label for your records.

Returning a card or assembly in Canada

(end)

- 6 Pack the card or assembly in a Northern Telecom shipping carton. Seal the carton.

If a Northern Telecom carton	Do
is available	step 8
is not available	step 7

- 7 Use any acceptable carton. Ensure that
- packing paper encloses each card or assembly
 - bubble pack or foam surrounds each card or assembly
 - the carton secures each card or assembly to prevent movement of the contents during shipment
- 8 Address the carton to:
- Northern Telecom Canada Limited
Customer Service Operations
c/o Wes Bell Transport
Unit 3, Door 4
1630 Trinity Road
Mississauga, Ontario
L5T 1L6
- 9 Return the carton to Northern Telecom.
- 10 The procedure is complete.

Returning a card or assembly in Germany

Application

This procedure applies to a circuit card or an assembly, for example, a power converter. Use this procedure to return the card or assembly to Northern Telecom for repair or replacement in Germany.

Interval

Perform this procedure as required.

Common procedures

There are no common procedures.

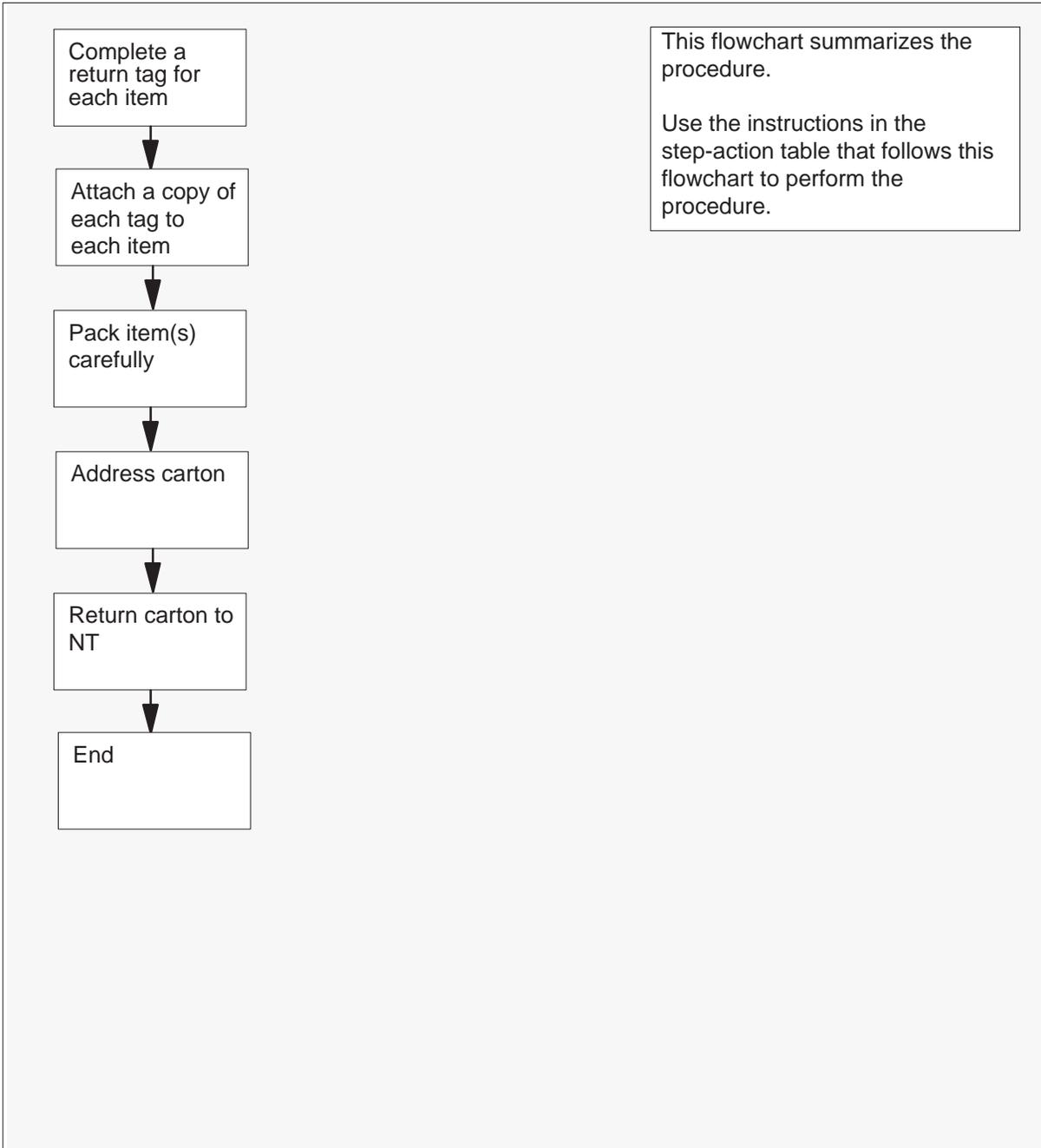
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a card or assembly in Germany

(continued)

Summary of Returning a card or assembly in Germany



Returning a card or assembly in Germany (continued)

Returning a card or assembly in Germany

At your Current Location

- 1 Put the card or assembly that you return into a protective bag for electrostatic discharge (ESD).

- 2 Complete one return label (form 24-115) for each card or assembly that you return.
 Ensure that you include the following information:
 - return authorization number from customer service
 - NT product engineering code (PEC)
 - serial number
 - release number
 - BCS software release used at the time of replacement
 - if necessary, include peripheral module (PM) software load name
 - description of the failure and action taken for repairs
 - the code that describes the fault
 - name of your company
 - office identifier code
 - your name
 - site name

- 3 Attach one copy of the return label for each item you return.

- 4 Keep the other copies of the label for your records.

- 5 Pack the card or assembly in a Northern Telecom shipping carton. Seal the carton.

If a Northern Telecom carton	Do
is available	step 7
is not available	step 6

- 6 Use any acceptable carton. Ensure that
 - packing paper encloses each card or assembly
 - bubble pack or foam surrounds each card or assembly
 - the carton secures each card or assembly to prevent movement of the contents during shipment

Returning a card or assembly in Germany

(end)

- 7 Address the carton to:
Northern Telecom GmbH
Logistik-Zentrum
Neiderhofheimer Str. 56
D-6238 Hofheim/Taunus
- 8 Return the carton to Northern Telecom.
- 9 The procedure is complete.

Returning a card or assembly in Japan

Application

This procedure applies to a circuit card or an assembly, for example, a power converter. Use this procedure to return the card or assembly to Northern Telecom for repair or replacement in Japan.

Interval

Perform this procedure as required.

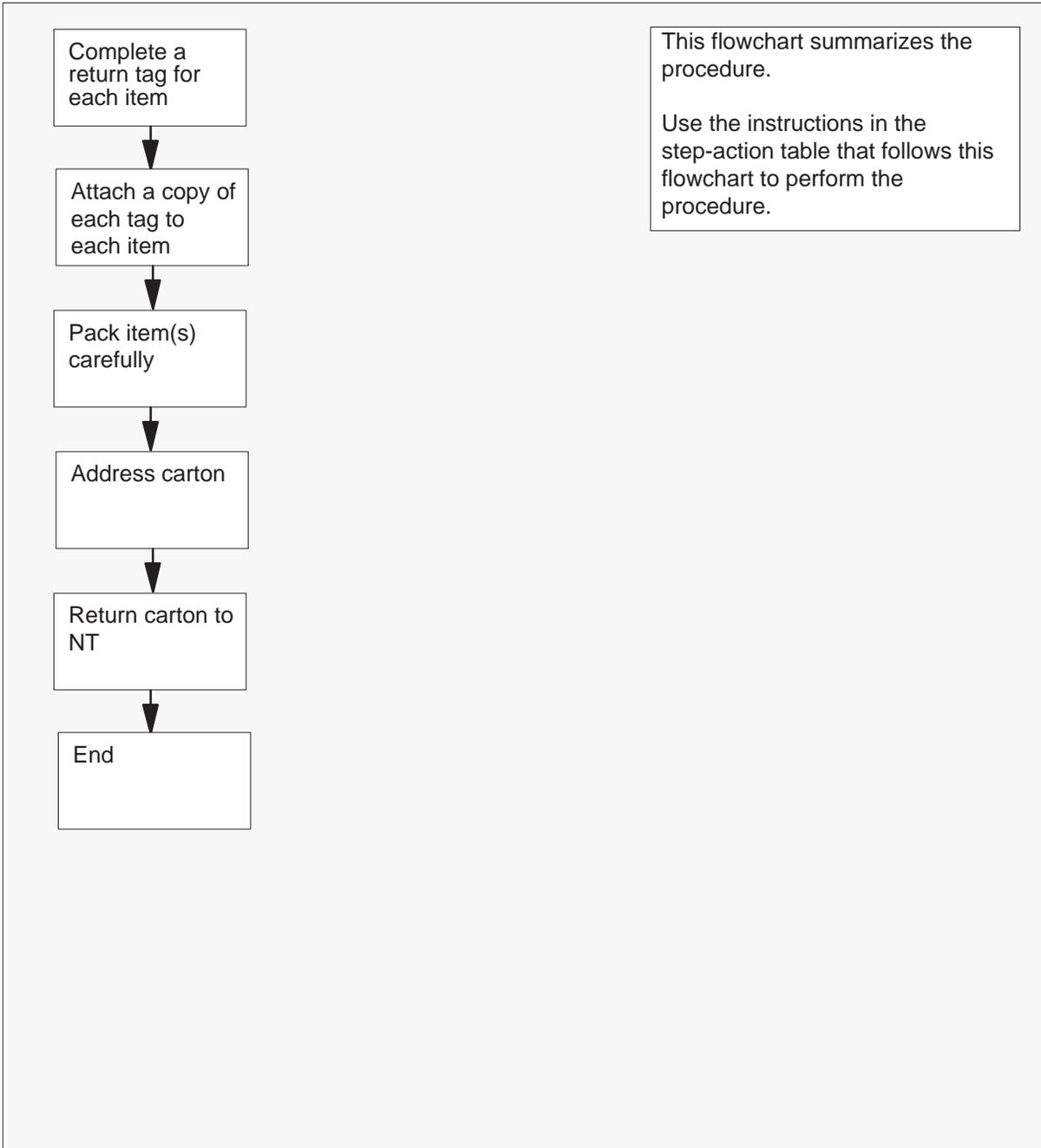
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a card or assembly in Japan

(continued)

Summary of Returning a card or assembly in Japan



Returning a card or assembly in Japan (continued)

Returning a card or assembly in Japan

At your current location:

- 1 Put the card or assembly that you return into a protective bag for electrostatic discharge (ESD).
- 2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

- return authorization number from customer service
- NT product engineering code (PEC)
- serial number
- release number
- BCS software release used at the time of replacement
- if necessary, include peripheral module (PM) software load name
- description of the failure and action taken for repairs
- the code that describes the fault
- name of your company
- office identifier code
- your name
- site name

If you	Do
need help to complete the return label	step 3
do not need help to complete the return label	step 4

- 3 Call the number 03-5696-0302 for help to complete the return label.
- 4 Attach one copy of the return label.
- 5 Keep the other copies of the label for your records.

Returning a card or assembly in Japan

(end)

- 6 Pack the card or assembly in a Northern Telecom shipping carton. Seal the carton.

If a Northern Telecom carton	Do
is available	step 8
is not available	step 7

- 7 Use any acceptable carton. Ensure that
- packing paper encloses each card or assembly
 - bubble pack or foam surrounds each card or assembly
 - the carton secures each card or assembly to prevent movement of the contents during shipment

- 8 Address the carton to:

Northern Telecom Japan Inc.
Attn: Mr. Y. Harada,
c/o Fuji Logitec Inc.
3-5-1 Rinkai-cho 3F
Edogawa-ku, Tokyo

Tel: 03-3877-2816/7; Fax: 03-3877-2818

- 9 Return the carton to Northern Telecom.
- 10 The procedure is complete.

Returning a card or assembly in the United States of America

Application

This procedure applies to a circuit card or an assembly, for example, a power converter. Use this procedure to return the card or assembly to Northern Telecom for repair or replacement in the United States.

Interval

Perform this procedure as required.

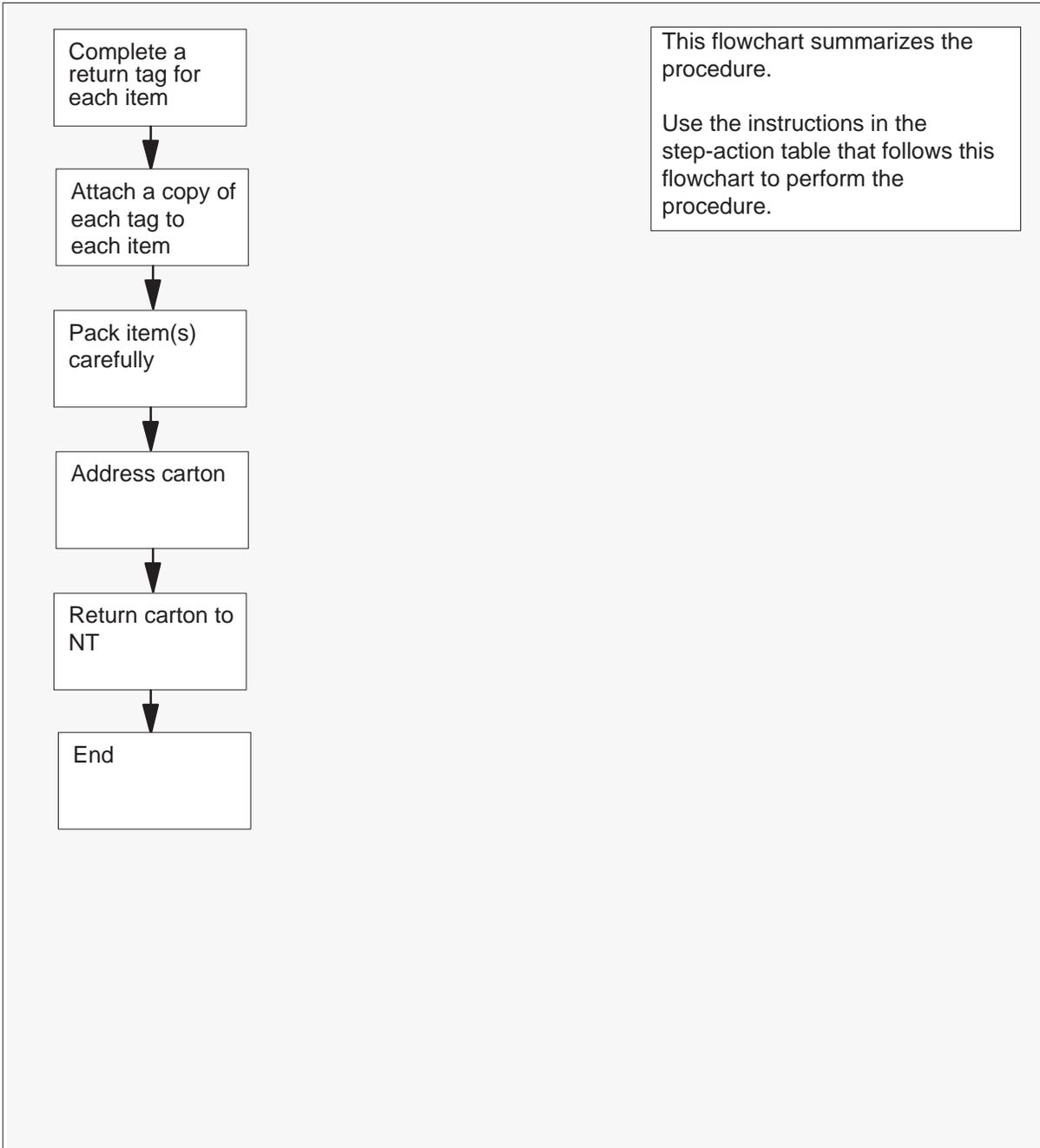
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a card or assembly in the United States of America

(continued)

Summary of Returning a card or assembly in the United States of America



Returning a card or assembly in the United States of America (continued)

Returning a card or assembly in the United States of America

At your current location

- 1 Put the card or assembly that you return into an protective bag for electrostatic discharge (ESD)
- 2 Complete one return label (form 24-115) for each card or assembly that you return.

Ensure that you include the following information:

- return authorization number from customer service
- NT product engineering code (PEC)
- serial number
- release number
- BCS software release used at the time of replacement
- if necessary, include peripheral module (PM) software load name
- description of the failure and action taken for repairs
- the code that describes the fault
- name of your company
- office identifier code
- your name
- site name

If you	Do
need help to complete the return label	step 3
do not need help to complete the return label	step 4

- 3 In the USA, call 919-992-3333 or 1-800-347-4850 (repair or return service) for help to complete the return label.
- 4 Attach one copy of the return label for each item that you return.
- 5 Keep the other copies of the label for your records.

Returning a card or assembly in the United States of America (end)

- 6 Pack the card or assembly in a Northern Telecom shipping carton. Seal the carton.

If a Northern Telecom carton	Do
is available	step 8
is not available	step 7

- 7 Use any acceptable carton. Ensure that
- packing paper encloses each card or assembly
 - bubble pack or foam surrounds each card or assembly
 - the carton secures each card or assembly to prevent movement of the contents during shipment
- 8 Address the carton to:
- Northern Telecom Inc.
Spare Parts Center
4600 Emperor Boulevard
Morrisville, NC
27560
- 9 Return the carton to Northern Telecom.
- 10 The procedure is complete.

Returning a LIM to service

Application

Use this procedure to return a link interface module (LIM) which is manually busy or offline to service.

If the LIM is system busy, it will have an alarm associated with one or more of its units. Refer to the *Alarm and Performance Monitoring Procedures* in order to clear the alarm and return the LIM to service.

Definition

The LIM is out of service when manual busy or offline.

Common procedures

There are no common procedures.

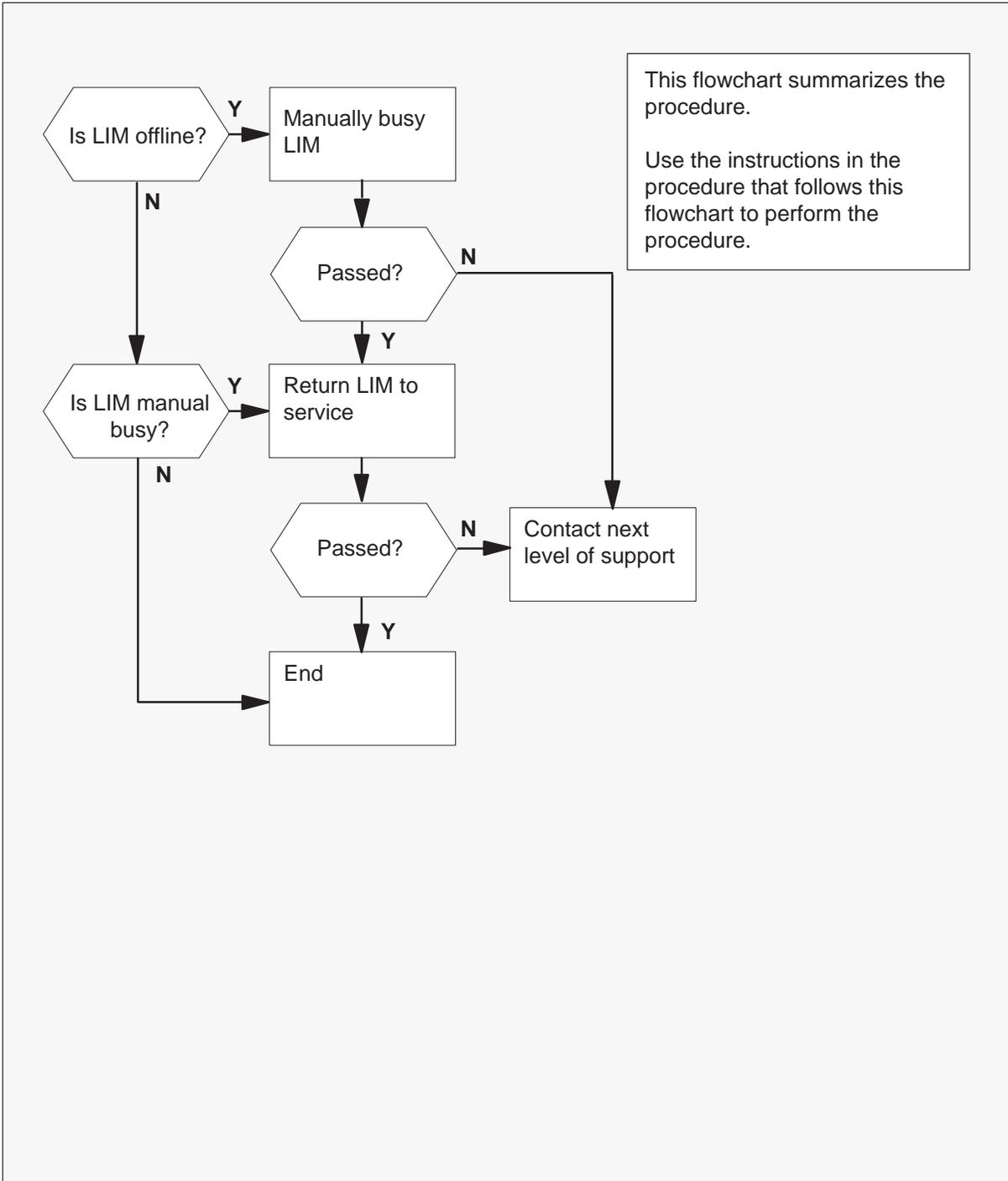
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Returning a LIM to service

(continued)

Summary of Returning a LIM to service



Returning a LIM to service (continued)

Returning a LIM to service

At the MAP terminal

- 1 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
and press Enter.

Example of a MAP display:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	0	1	0	0	0	39

- 2 To determine if offline LIMs are present, type
>POST LIM OFFL
and press Enter.

If the posted set	Do
contains OffL LIMs	step 3
is empty	step 7

- 3 Choose an off-line LIM to work on.
- 4 Determine from office records or an office person the reason that the LIM is offline.

When possible, continue this procedure.
- 5 To manually busy the offline LIM, type
>BSY PM
and press Enter.

If the BSY command	Do
passed	step 6
failed	step 11

Returning a LIM to service

(end)

- 6 To return the LIM to service, type

>RTS PM

and press Enter.

If the RTS command	Do
passed	step 12
failed	step 11

- 7 To determine if manual-busy LIMs are present, type

>POST LIM MANB

and press Enter.

If the posted set	Do
contains ManB LIMs	step 8
is empty	step 12

- 8 Choose a manual-busy LIM on which to work.
- 9 Determine from office records or from an office person why the LIM is manual busy.
When possible, continue with the procedure.

- 10 To return the manual-busy LIM to service, type

>RTS PM

and press Enter.

If the RTS command	Do
passed	step 12
failed	step 11

- 11 For additional help, contact the person responsible for the next level of support.
- 12 The procedure is complete.

Returning a LIM unit to service

Application

Use this procedure to return a link interface module (LIM) unit to service.

Definition

The LIM unit is system busy, manual busy, or offline.

Common procedures

None

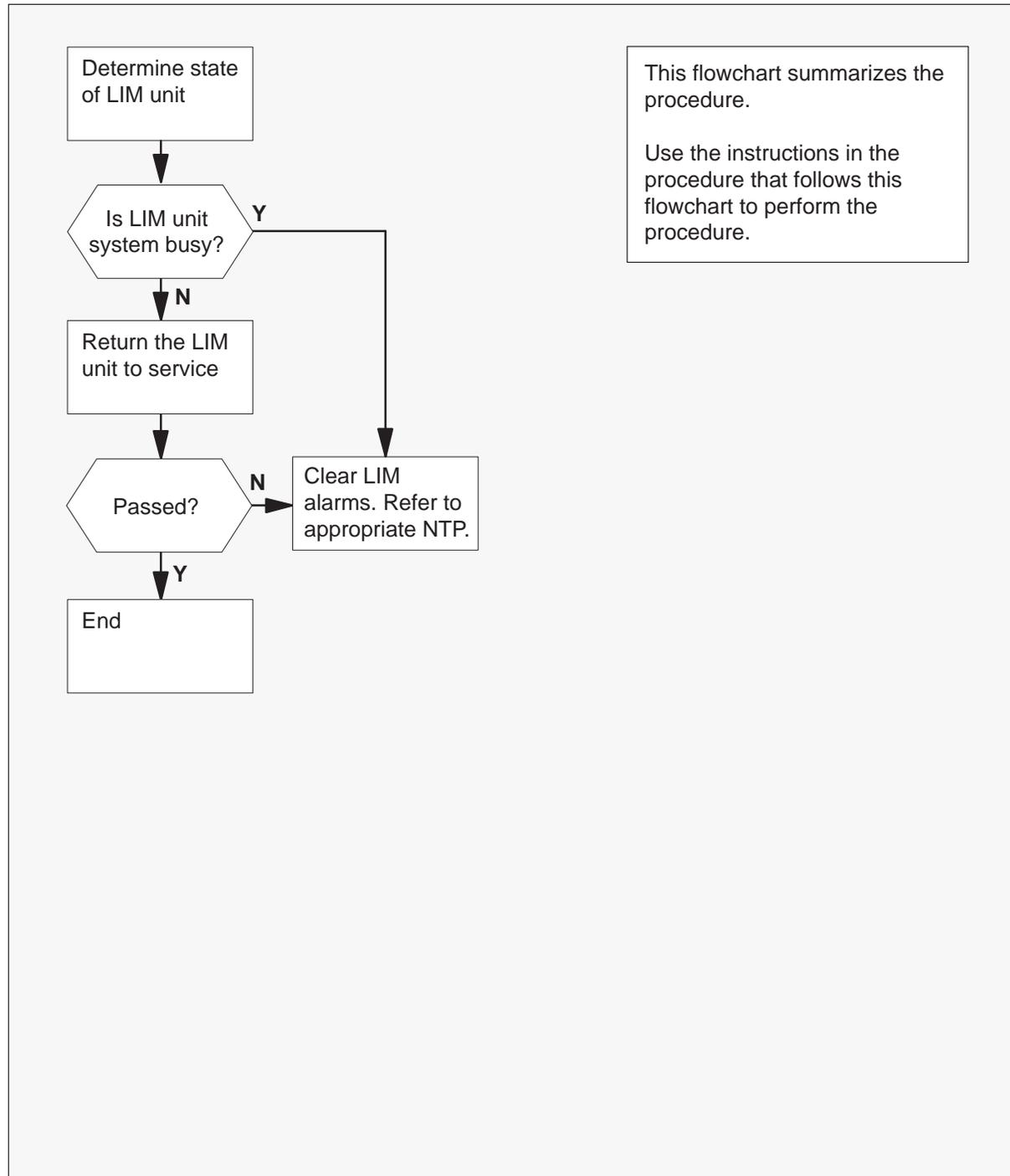
Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Returning a LIM unit to service

(continued)

Summary of Returning a LIM unit to service



Returning a LIM unit to service (continued)

Returning a LIM unit to service

At the MAP terminal

- 1 Access the PM level of the MAP display by typing
>MAPCI;MTC;PM
and pressing the Enter key.

Example of a MAP display:

```

                SysB   ManB   OffL   CBsy   ISTb   InSv
PM              0     1     0     0     0     39
    
```

- 2 Post the LIM containing the unit to be returned to service by typing
>POST LIM lim_no
and pressing the Enter key.

where

lim_no is the number of the LIM (0 to 16)

Example of a MAP display:

```

LIM 1  ISTb
      Unit0: ManB           Links_OOS  Taps_OOS
      Unit1: ISTb           6           5
                        0           0
    
```

- 3 Determine the state of the LIM unit.

If the state of the LIM unit is	Do
SysB	step 5
ManB	step 4

Returning a LIM unit to service

(end)

- 4 Return the LIM unit on which you are working to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no is the number of the LIM unit (0 or 1)

Example of a MAP response:

```
LIM lim_no UNIT unit_no Return to Service initiated.
```

If the RTS command	Do
passed	step 6
failed	step 5

- 5 The MAP display indicates a LIM alarm. Perform the appropriate alarm clearing procedure in the *Alarm and Performance Monitoring Procedures*. When you have completed the procedure, return to this point.
- 6 You have completed this procedure.

Running a C7BERT

Application

Use this procedure to do the following:

- local or remote loopback on an NT9X77AA, NT9X78BA, NT9X78CA, NT9X78DA or NT9X78DB card for LIUBASIC
- local or remote loopback on an NTEX26AA channelized access link
- link fault sectionalization
- CCS7 bit error rate test (C7BERT)
- inject bit errors during C7BERT

Definition

Tests of bit error rate measure the quality of a CCS7 digital transmission path.

Run a C7BERT in the following conditions:

- before a CCS7 signaling link goes into service
- when isolating faults

Common procedures

There are no common procedures.

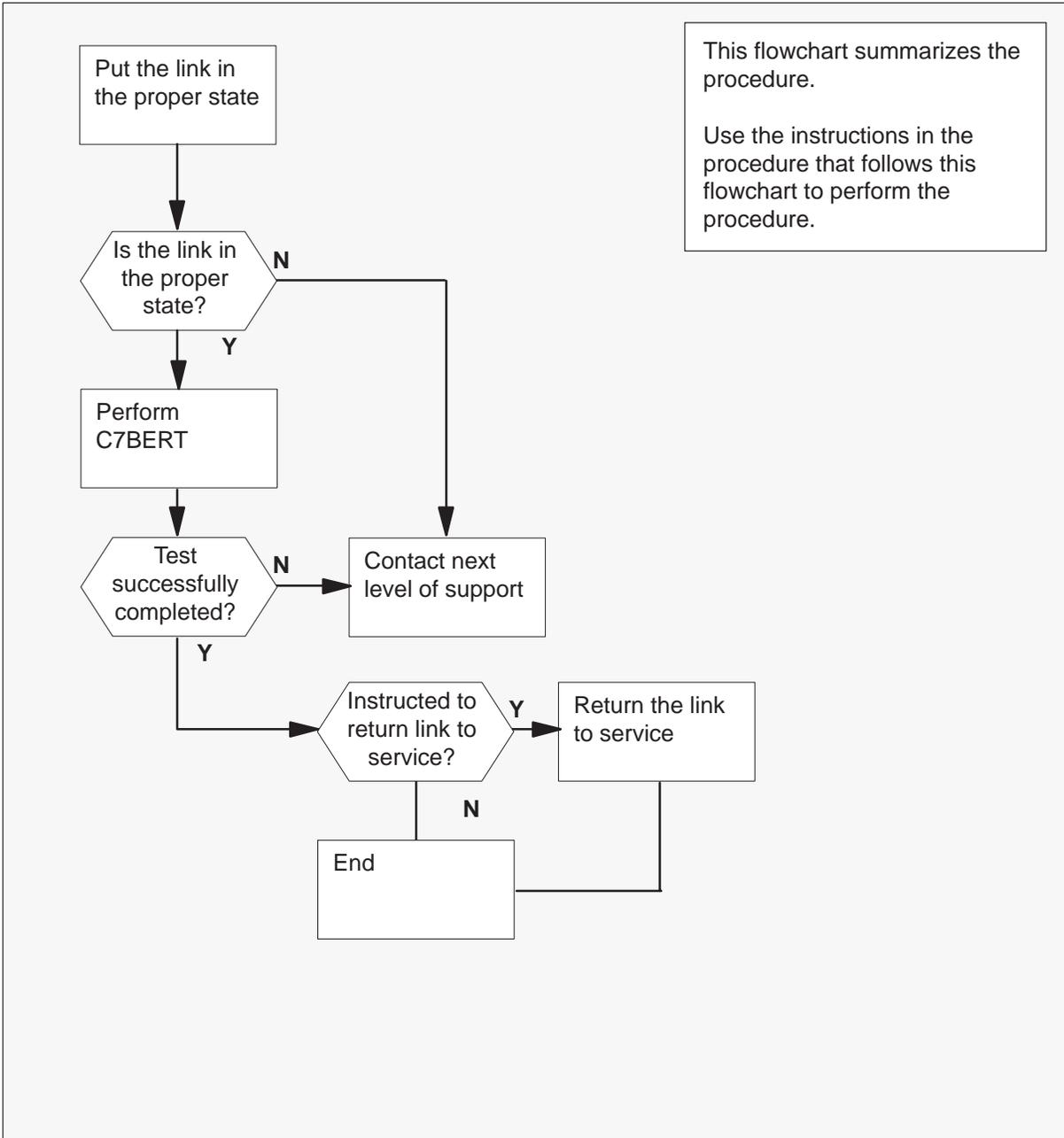
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Running a C7BERT

(continued)

Summary of Running a C7BERT



Running a C7BERT (continued)

Running a C7BERT

ATTENTION

To run link fault sectionalization (LFS) the SOC option TEL0007 must have the RTU set to “Y” and the state set to “on”.

ATTENTION

If link fault sectionalization (LFS) is activated, an anomaly in the NT9X78BA and NT9X78CA cards can cause latch past to occur. When the last DS0DP is a BA or CA paddle board, LFS may latch past the last DS0DP link.

For example, if the fifth and last device in a link is a BA or CA card, LFS may latch the sixth or seventh DS0DP.

Before running this procedure, check the number and type of devices on a link. This information helps reduce the link diagnosis time.

At the MAP terminal

- 1 Contact the next level of support to obtain the following information:
 - how the test will stop (manually or automatically), and
 - if periodic reports are required, and if so, how many times each hour (1 to 12)
- 2 If you perform a remote loopback, inform a person at the far-end office that
 - you will busy and deactivate the link, and
 - the person must busy and deactivate the link at their end
- 3 To access the C7LKSET level of the MAP display, type
>MAPCI;MTC;CCS;CCS7;C7LKSET
 and press Enter.

Example of a MAP response:

Traf Sync	Link
LK Stat Stat Resource Stat Physical Access Stat	Action

Running a C7BERT

(continued)

- 4 To post the linkset that includes the link you want to test, type

>POST C linkset_name

and press Enter.

where

linkset_name is the name of the linkset (as defined in table C7LKSET)

Example of a MAP response:

```

      Traf Sync                               Link
LK Stat Stat Resource Stat Physical Access Stat Action
0 OffL DAct LIU7 12 OffL TTC7LKS1_TL
1 ManB DAct LIU7 13 InSv TTC7LKS1_TL
Size of Posted Set = 2
    
```

If the linkset	Do
has more than 4 entries	step 5
has 4 or less than 4 entries	step 6

- 5 To display the rest of the links in the linkset, type

>NEXT

and press Enter.

- 6 Determine the state of the CCS7 link interface unit (LIU7) for the link you want to test.

Note: The LIU7 state appears under the Stat header that is to the right of Resource.

If the LIU7 state	Do
is SysB, or OffL	step 7
is ManB	step 10
is InSv, or ISTb	step 13
is other than listed here	step 66

Running a C7BERT (continued)

- 7 To access the PM level of the MAP display, type

>PM
and press Enter.

Example of a MAP display:

```

          SysB   ManB   OffL   CBsy   ISTb   InSv
PM          1     10     12     0     6     49
    
```

- 8 To post the LIU7, type

>POST LIU7 liu7_no
and press Enter.

Note: The number of the LIU7 appears under the Resource header of the MAP display. In the example in step 4, the LIU7 that connects to link1 is 13.

where

liu7_no is the number of the LIU7 that connects to the link you want to test

Example of a MAP response:

```
LIU7 13 InSv
```

- 9 To force the LIU7 to busy, type

>BSY FORCE
and press Enter.

If the BSY command	Do
passed	step 10
failed	step 66

- 10 To reset the LIU7, type

>PMRESET
and press Enter.

If the PMRESET command	Do
passed	step 11
failed	step 66

Running a C7BERT

(continued)

- 11 To return the LIU7 to service, type
>RTS
and press Enter.

If the RTS command	Do
passed	return to C7LKSET level of MAP
failed	step 66

- 12 To access the C7LKSET level of the MAP display, type
>CCS;CCS7;C7LKSET
and press Enter.

Example of a MAP response:

```
      Traf Sync                               Link
LK Stat Stat Resource Stat Physical Access Stat Action
0 OffL DAct LIU7 12 OffL DS0A
1 ManB DAct LIU7 13 InSv DS0A
Size of Posted Set = 2
```

- 13 Determine the traffic state of the link you want to test.

Note: The traffic state of the link appears under the Traf Stat header of the MAP display.

If the traffic state	Do
is ManB	step 15
is other than listed here	step 14

Running a C7BERT (continued)

- 14 To manually busy the link, type

>BSY link_no
and press Enter.

where

link_no is the number of the link you want to test (0 to 15)

If the BSY command	Do
passed	step 15
failed	step 66

Example of a MAP response:

```

      Traf Sync
LK Stat Stat Resource Stat Physical Access Stat Link
1 ManB Sync LIU7 109 InSv TTC7LKS1_TL 1 SZD Action
Size of Posted Set = 1
    
```

- 15 To deactivate the link, type

>DEACT link_no FORCE
and press Enter.

where

link_no is the number of the link you want to deactivate (0 to 15)

Note: The response can take 10 minutes. Wait for the status to change InSv and confirm that the link is deactivated.

If the DEACT command	Do
passed	step16
failed	step 66

- 16 To access the C7BERT level of the MAP display, type

>C7BERT
and press Enter.

Running a C7BERT

(continued)

1 Determine the purpose of the next step.

If the next step is to perform	Do
a local loopback	step 18
a remote loopback	step 19
a link fault sectionalization	step 67

Running a C7BERT (continued)

18 To activate a local loopback, type

>PMLOOP LOCON link_no
and press Enter.

where

link_no is the number of the link you want to test (0 to 15)

If the response	Do
is This command is not implemented	step 22
is Link nn: Failed - PM not equipped with 9X78DA or 9X78DB	step 22
is Link 1: Failed - C7BERT already active on this link	step 23
is Link 1: Loopback Local on completed	step 30
is Link 1: Failed - PMLOOP <Local> is already active	step 48
is Link 1: Failed - PMLOOP <Remote> is already active	step 49
is Link 1: Loopback Local on completed. WARNING: In DTE mode, the V.35 clock must be present for C7BERT to pass	step 66
is other than listed here	step 66

19 If you perform a remote loopback, inform a person at the far-end office that

- you will busy and deactivate the link, and
- the person must busy and deactivate the link at their end

Running a C7BERT

(continued)

- 20 Before activating a remote loopback, access the C7BERT level of the MAP display at the far end office, typing

>C7BERT
and pressing Enter.

- 21 To activate a remote loopback, at the far end office, type

>PMLOOP RMTON link_no
and press Enter.

where

link_no is the number of the link you want to test (0 to 15)

If the response	Do
is This command is not implemented	step 22
is Link 1: Failed - C7BERT already active on this link	step 23
is Link 1: Loopback Remote On completed	step 30
is Link 1: Failed - PMLOOP <Local> is already active	step 48
is Link 1: Failed - PMLOOP <Remote> is already active	step 49
is Failed - Cannot seize trunk	Check the corresponding DTC, and retry the remote loopback.
is Failed - Cannot install NIU connection (NIU-LIU)	Check the corresponding NIU, and retry the remote loopback.
is Link 1: Loopback Remote On completed. WARNING: In DTE mode, the V.35 clock must be present for C7BERT to pass	step 66
is other than listed here	step 66

Running a C7BERT (continued)

- 22 PM loop functionality is not available on your switch.

If	Do
you want to run a C7BERT	step 24
other than listed here	step 66

- 23 To stop the C7BERT that exists, type

>STOP link_no
and press Enter.

where

link_no is the number of the link that you entered in PMLOOP command

Note: The STOP command overrides a preset stop time without warning.

If the response	Do
is Link 1: C7BERT stopped	repeat PMLOOP
is other than listed here	step 66

- 24 Apply manual loopbacks to the network elements that you will test.

- 25 To determine if a set stop time exists, type

>SETSTOP link_no STATUS
and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Stop time set at: is time	step 26
is Link nn: No stop time has been set	step 27
is other than listed here	step 66

Running a C7BERT

(continued)

26 To clear the stop time, type

>SETSTOP link_no CLEAR

and press Enter.

where

link_no is the number of the link that the C7BERT runs on

If the response	Do
is Stop time cleared	step 27
is other than listed here	step 66

27 To set the stop time to a new value, type

>SETSTOP link_no SET day hours minutes

and press Enter.

where

link_no is the number of the link (0 to 15) the C7BERT is running on

day is the day you want the test to stop automatically (MON, TUE, WED, THU, FRI, SAT, or SUN)

hours is the hour you want the test to stop automatically (0 to 23)

minutes is the minute you want the test to stop automatically (00 to 59)

Example input:

>SETSTOP 3 SET MON 10 30

Note: The example entry sets the stop time for link 3 on every Monday at 10:30 a.m.

If the response	Do
is Link nn: Stop time set at: is 19xx/yy/zz is hh:mm:00.000 ddd	step 28
is other than listed here	step 66

Running a C7BERT (continued)

28 Determine if the stop time is correct.

If the stop time	Do
is correct	step 29
is wrong	step 26

29 Wait until the C7BERT stops.

Go to step 45.

30 To start the C7BERT, type

>START link_no
and press Enter.

where

link_no is the number of the link you want to test (0 to 15)

If the response	Do
is Link n: C7BERT started	step 31
is Link n:Failed - Link state is invalid for C7BERT Link must be ManB and DAct (or LFS)	step 6
is other than listed here	step 66

Running a C7BERT

(continued)

- 31 To display the test results of the C7BERT, type

>QUERY link_no
and press Enter.

where

link_no is the number of the tested link. (0 to 15)

Example of a MAP response:

```
query 1
Link 1: C7BERT query
Run Time      :          662   Err Free Secs:          662
Tx Frames     :          19016  Rx Sync Errs :           0
Rx Frames     :          19019  Rx Bad Frames:           0
Rx Bit Errors :           0     Rx Bits       :   38931896
Bit Err Rate  : 0 x 10-15
```

If the response	Do
is a display of C7BERT statistics	step 32
is other than listed here	step 66

- 32 Determine the if any transmitted Tx frames exist.

Note: The number of frames transmitted appears to the right of the Tx Frames header of the MAP display. In the example in step 31, the number of frames transmitted is 19 016 .

If Transmitted Tx Frames	Do
are present	step 33
are not present	step 66

Running a C7BERT (continued)

- 33** The test runs correctly. The C7BERT generates test results when you request periodic reports, stop the test manually, or stop the test automatically at a preset time. Decide the action you want to take.

Note: If a switch restart occurs when a C7BERT runs on a link, the test stops automatically. If the LIU7 for the link fails, the test also stops automatically.

If	Do
you want to request periodic reports	step 40
you want to stop the test manually	step 44
you want to stop the test automatically at a preset time	step 50
the link connects to a NT9X78DA/DB card and you want to inject bit errors	step 34

- 34** To display C7BERT results, type

>QUERY link_no
and press Enter.

where

link_no is the number of the tested link. (0 to 15)

Example of a MAP response:

```
Link 1: C7BERT query
Run Time      :      1224   Err Free Secs:      1133
Tx Frames     :      32538  Rx Sync Errs :          0
Rx Frames     :      32580  Rx Bad Frames:          1
Rx Bit Errors :          0   Rx Bits       : 66673662
Bit Err Rate  : 1 x 10-8
```

If the response	Do
is a display of test statistics	step 35
is other than listed here	step 66

- 35** Record the number of Rx bit errors.

Note: In the example in step 34, the number of bit errors received appears to the right of Rx Bit Errors.

Running a C7BERT

(continued)

36 To inject bit errors, type

>INJERR link_no
and press the Enter key.

where

link_no is the number of the link you tested in step 30

Example of a MAP response:

```
injerr 1
```

If the response	Do
is Link 1: INJECT ERROR completed	step 37
is Link n:Failed - C7BERT is not active on this link	step 30
is other than listed here	step 66

37 To display the result of bit error injection, type

>QUERY link_no
and press Enter.

where

link_no is the number of the tested link (0 to 15)

Example of a MAP response:

```
Link 1: C7BERT query
Run Time      :      1134   Err Free Secs:      1133
Tx Frames     :     32568   Rx Sync Errs :         0
Rx Frames     :     32570   Rx Bad Frames:         1
Rx Bit Errors :         6   Rx Bits       : 66670792
Bit Err Rate  : 1 x 10-8
```

If the response	Do
is a display of test statistics	step 38
is other than listed here	step 66

Running a C7BERT (continued)

38 Determine the result of bit error injection.

Note: In the example in step 37, the number of bit errors received appears to the right of Rx Bit Errors.

39 Subtract the result of the C7BERT recorded in step 35 from the result obtained in step 38.

If the difference	Do
is 6	step 33
is other than listed here	step 66

40 To determine if any requests existed for periodic reports, type

>REPORT link_no STATUS

and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Report interval already set at: mm times per hour	step 41
is Link nn: Automatic query reporting is not active	step 42
is other than listed here	step 66

41 To clear the last report interval, type

>REPORT link_no OFF

and press Enter.

where

link_no is the number of the link that the C7BERT runs on

MAP response:

Link nn: Automatic query reporting has been terminated

Running a C7BERT

(continued)

- 42 To set the number of reports per hour, type

>REPORT link_no ON number

and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

number is the number of reports per hour (1 to 12)

Example input:

>REPORT 1 ON 6

If the response	Do
is Link nn: Report interval set at: is nn times per hour	step 43
is other than listed here	step 66

- 43 Determine if the report interval is correct.

If the interval	Do
is correct	step 33
is wrong	step 41

- 44 Stop the C7BERT that exists, type

>STOP link_no

and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

Note: The STOP command overrides any preset stop time without warning.

If the response	Do
is Link 1: C7BERT stopped is with a display of test statistics	step 45
is other than listed here	step 66

Running a C7BERT
(continued)

- 45 Give the results to the persons responsible for the next level of support.

If	Do
the link stops on an NT9X77AA, NT9X78BA/CA/DA/DB, or NTEX26AA card, and you just ran a peripheral module (PM) local or remote loopback. If instructions required you to return the link to service	step 48 or 49
the link stops on an NT9X77AA, NT9X78BA/CA/DA/DB, or NTEX26AA card, and you just ran a PM local or remote loopback. If instructions required you to perform more tests	step 48 or 49
the link does not stop on an NT9X77AA, NT9X78BA/CA/DA/DB, or NTEX26AA card	step 46
other than listed here	step 110

- 46 Remove the manual loopback across network elements.
- 47 Your next step depends on the instructions received from your next level of support.

If	Do
instructions required you to return the link to service	step 55
instructions required you to perform more tests	step 24
other than listed here	step 110

Running a C7BERT

(continued)

- 48 To deactivate a local loopback, type

>PMLOOP LOCOFF link_no

and press Enter.

where

link_no is the number of the link you tested in step 18

If the response	Do
is pmloop off 1 Link 1: Loopback Local off completed	step 55
is other than listed here	step 66

- 49 To deactivate a remote loopback, type

>PMLOOP RMTOFF link_no

and press Enter.

where

link_no is the number of the link you tested in step 18

If the response	Do
is pmloop off 1 Link 1: Loopback Remote off completed	step 55
is other than listed here	step 66

Running a C7BERT (continued)

50 To determine if a set stop time exists, type

>SETSTOP link_no STATUS

and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Stop time set at: is time	step 51
is Link nn: No set stop time	step 52
is other than listed here	step 66

51 To clear the stop time, type

>SETSTOP link_no CLEAR

and press Enter.

where

link_no is the number of the link that the C7BERT runs on

If the response	Do
is Stop time cleared	step 52
is other than listed here	step 66

Running a C7BERT

(continued)

52 To set the stop time that is new, type

>SETSTOP link_no SET day hours minutes
and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on
day is the day you want the test to stop automatically (MON, TUE, WED, THU, FRI, SAT, or SUN)
hours is the hour you want the test to stop automatically (0 to 23)
minutes is the minute you want the test to stop automatically (00 to 59)

Example input:

>SETSTOP 3 SET MON 10 30

Note: The example entry sets the stop time for link 3 on every Monday at 10:30 a.m.

If the response	Do
is Link nn: Stop time set at: is 19xx/yy/zz is hh:mm:00.000 ddd	step 53
is other than listed here	step 66

53 Determine if the stop time is correct.

If the stop time	Do
is correct	step 54
is wrong	step 51

54 Wait until the C7BERT stops.

Go to step 45.

55 To quit the C7BERT level of the MAP display, type

>QUIT
and press Enter.

Running a C7BERT (continued)

- 56 To activate the link that the C7BERT ran on, type

>ACT link_no
and press Enter.

where

link_no is the number of the link (0 to 15)

If the ACT command	Do
passed	step 57
failed	step 66
other than listed here	step 66

- 57 Determine the synchronization state of the link.

Note: The synchronization state appears under the Sync Stat header of the MAP display.

If the synchronization state	Do
is Alnd	step 54
is other than listed here	step 58

- 58 Wait 8 minutes, and continue with the procedure.

- 59 Determine the synchronization state of the link.

If the synchronization state is not Alnd, and you	Do
did not ask the far-end office to activate the link	step 60
already asked the far-end office to activate the link	step 62

- 60 Determine from office records the far-end office that connects to the linkset posted in step 4.

Running a C7BERT

(continued)

- 61 Contact the far-end office. Tell the person at that location that
- you are going to busy and deactivate the link in order to realign it, and that
 - the person at the far end and you must activate the link after you busied and deactivated the link

Go to step 57.

- 62 To deactivate the link, type
- >DEACT link_no FORCE**
and press Enter.

where

link_no is the number of the link you activated in step 56

- 63 Tell the person at the far-end office to activate the link. To activate the link from your end, type

>ACT link_no
and press Enter.

where

link_no is the number of the link you activated in step 56

If the ACT command	Do
passed	step 64
failed	step 66

- 64 To return the link to service, type

>RTS link_no
and press Enter.

where

link_no is the number of the link you activated in step 56

If the RTS command	Do
passed	step 65
failed	step 66

Running a C7BERT (continued)

65 To unhibit the link, type

>UINH link_no
and press Enter.

where

link_no is the number of the link you activated in step 56

If the UINH command	Do
passed	step 110
failed	step 66

66 For additional help, contact the next level of support.

Running a C7BERT

(continued)

67

ATTENTION

To run link fault sectionalization (LFS) the SOC option TEL0007 must have the RTU set to "Y" and the state set to "on".

ATTENTION

If link fault sectionalization (LFS) is activated, an anomaly in the NT9X78BA and NT9X78CA cards can cause latch past to occur. When the last DS0DP is a BA or CA paddle board, LFS may latch past the last DS0DP link.

For example, if the fifth and last device in a link is a BA or CA card, LFS may latch the sixth or seventh DS0DP.

Before running this procedure, check the number and type of devices on a link. This information helps reduce the link diagnosis time.

To activate link fault sectionalization, type

>LFSLOOP START link_no element_type loopback_type occurrence
and press Enter.

where

link_no is the number of the link you want to test (0 to 15)
element_type is the type of network element that the loopback will use (DS0DP, OCUDP, CSU, NEI, or DSU)
loopback_type is if the loopback latches or does not latch (LATCH or NONLATCH)
occurrence is the occurrence of the element type where link fault sectionalization will initiate (1 to 16)

Example input:

>LFSLOOP START 1 DS0DP LATCH 1

Running a C7BERT (continued)

68 Your next step depends on the generated response.

If the response	Do
is Link nn: LFS ON complete is Looped back at element mm	step 79
Link nn: LFS ON complete Looped back at element mm WARNING: Physical loop may exist as confirmation byte not received.	step 79
is LFS non-latching sequence initiated for element mm. Run C7BERT to verify loop-back at element mm.	step 79
is Link nn: Failed - C7BERT already active on this link	step 72
is Link 1: Failed - LFS already active on this link	step 70
is Link nn: Has not gone into loopback. is Element mm has not responded is Link nn: LFS OFF complete	step 71
is Link nn: Has not gone into loopback. is Link nn: LFS OFF complete	step 71
is Link nn: Failed - PM not equipped with 9X78DA or 9X78DB	step 69
is other than listed here	step 109

Running a C7BERT

(continued)

- 69 PM loop functionality is not available on your switch.

If	Do
you still want to run a C7BERT	step 73
other than listed here	step 109

- 70 To remove the link fault sectionalization already applied, type

>LFSLOOP STOP link_no

and press Enter.

where

link_no is the number of the link you entered in step 67

If the response	Do
is LFSLoop stop n Link n: LFS OFF complete	step 67
is other than listed here	step 109

- 71 Record the element type and occurrence specified in step 67.

Note: The link fault sectionalization failed at the element type and occurrence you specified.

The failure occurred for one of the following reasons:

- The element type and occurrence specified is beyond the location of the link problem.
- There is no element type and occurrence.

Go to step 109.

Running a C7BERT (continued)

72 To stop the C7BERT that exists, type

>STOP link_no
and press Enter.

where

link_no is the number of the link that you entered in step 67

Note: The STOP command overrides the preset stop time without warning.

If the response	Do
is Link 1: C7BERT stopped	step 67
is other than listed here	step 109

73 Apply manual loopbacks to the network elements that you will test.

74 To determine if a stop time is set, type

>SETSTOP link_no STATUS
and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Stop time set at: is time	step 75
is Link nn: No set stop time.	step 76
is other than listed here	step 109

Running a C7BERT

(continued)

75 To clear the stop time, type

>SETSTOP link_no CLEAR

and press Enter.

where

link_no is the number of the link that the C7BERT runs on

If the response	Do
is Stop time cleared	step 76
is other than listed here	step 109

76 To set the stop time that is new, type

>SETSTOP link_no SET day hours minutes

and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

day is the day you want the test to stop automatically (MON, TUE, WED, THU, FRI, SAT, or SUN)

hours is the hour you want the test to stop automatically (0 to 23)

minutes is the minute you want the test to stop automatically (00 to 59)

Example input:

>SETSTOP 3 SET MON 10 30

Note: The example entry sets the stop time for link 3 on every Monday at 10:30 a.m.

If the response	Do
is Link nn: Stop time set at: is 19xx/yy/zz is hh:mm:00.000 ddd	step 77
is other than listed here	step 109

Running a C7BERT
(continued)

77 Determine if the stop time is correct.

If the stop time	Do
is correct	step 78
is wrong	step 75

78 Wait until the C7BERT stops.

Go to step 94.

79 To start the C7BERT, type

>START link_no
and press Enter.

where

link_no is the number of the link you want to test (0 to 15)

If the response	Do
is Link n: C7BERT started	step 80
is Link n:Failed - Link state is invalid for C7BERT Link must be ManB and DAct (or LFS)	step 6
is other than listed here	step 109

Running a C7BERT

(continued)

- 80 To display the test results of the C7BERT, type

>QUERY link_no

and press Enter.

where

link_no is the number of the tested link (0 to 15)

Example of a MAP response:

```
query 1
Link 1: C7BERT query
Run Time      :          662   Err Free Secs:          662
Tx Frames     :          19016  Rx Sync Errs :           0
Rx Frames     :          19019  Rx Bad Frames:           0
Rx Bit Errors:           0     Rx Bits       : 38931896
Bit Err Rate : 0 x 10-15
```

If the response	Do
is a display of C7BERT statistics	step 81
is other than listed here	step 109

- 81 Determine if any transmitted Tx frames exist.

Note: The number of frames transmitted appears to the right of the Tx Frames header of the MAP display. In the example in step 31, the number of frames transmitted is 19 016 .

If Transmitted Tx Frames	Do
are present	step 82
are not present	step 109

- 82 The test runs correctly. The test generates results when you request periodic reports. The test also generates results when you stop the test manually, or when the test stops automatically at a preset time. Decide the action you want to take.

Running a C7BERT (continued)

Note: If a switch restart occurs when a C7BERT runs on a link, the test stops automatically. If the LIU7 for the link fails, the test also stops automatically.

If	Do
you want to request periodic reports	step 89
you want to stop the test manually	step 93
you want to stop the test automatically at a preset time	step 74
the link connects to a NT9X78DA/DB card and you want to inject bit errors	step 83

83 To display C7BERT results, type

>QUERY link_no
and press Enter.

where

link_no is the number of the tested link. (0 to 15)

Example of a MAP response:

```
Link 1: C7BERT query
Run Time      :      1224   Err Free Secs:      1133
Tx Frames     :      32538  Rx Sync Errs :          0
Rx Frames     :      32580  Rx Bad Frames:          1
Rx Bit Errors :          0   Rx Bits       : 66673662
Bit Err Rate  : 1 x 10-8
```

If the response	Do
is a display of test statistics	step 84
is other than listed here	step 109

84 Record the number of Rx bit errors.

Note: In the example in step 83, the number of received bit errors appears to the right of Rx Bit Errors.

Running a C7BERT

(continued)

85 To inject bit errors, type

>INJERR link_no

and press Enter.

where

link_no is the number of the link you tested in step 79

Example of a MAP response:

```
injerr 1
```

If the response	Do
is Link 1: INJECT ERROR completed	step 86
is Link n:Failed - C7BERT is not active on this link	step 79
is other than listed here	step 109

86 To display the result of bit error injection, type

>QUERY link_no

and press Enter.

where

link_no is the number of the tested link (0 to 15)

Example of a MAP response:

```
Link 1: C7BERT query
Run Time      :      1134   Err Free Secs:      1133
Tx Frames     :      32568  Rx Sync Errs :         0
Rx Frames     :      32570  Rx Bad Frames:         1
Rx Bit Errors :         6   Rx Bits       : 66670792
Bit Err Rate  : 1 x 10- 8
```

If the response	Do
is a display of test statistics	step 87
is other than listed here	step 109

Running a C7BERT (continued)

87 Determine the result of bit error injection.

Note: In the example in step 87, the number of bit errors received appears to the right of Rx Bit Errors.

88 Subtract the result of the C7BERT recorded in step 84 from the result obtained in step 87.

If the difference	Do
is 6	step 82
is other than listed here	step 109

89 To determine if any requests existed for periodic reports, type

>REPORT link_no STATUS

and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

If the response	Do
is Link nn: Report interval already set at: mm times per hour	step 90
is Link nn: Automatic query reporting is not active	step 91
is other than listed here	step 109

90 To clear the last report interval, type

>REPORT link_no OFF

and press Enter.

where

link_no is the number of the link that the C7BERT runs on

MAP response:

Link nn: Automatic query reporting has been terminated

Running a C7BERT

(continued)

- 91 To set the number of reports per hour, type

>REPORT link_no ON number

and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

number is the number of reports per hour (1 to 12)

Example input:

>REPORT 1 ON 6

If the response	Do
is Link nn: Report interval set at: is nn times per hour	step 92
is other than listed here	step 109

- 92 Determine if the report interval is correct.

If the interval	Do
is correct	step 82
is wrong	step 90

- 93 To stop the C7BERT, type

>STOP link_no

and press Enter.

where

link_no is the number of the link (0 to 15) that the C7BERT runs on

Note: The STOP command overrides any preset stop time without warning

If the response	Do
is Link 1: C7BERT stopped is with a display of test statistics	step 94
is other than listed here	step 109

Running a C7BERT
(continued)

94 Give the results to the person responsible for the next level of support.

If	Do
the link stops on an NT9X77AA or NT9X78BA/CA/DA/DB card, and you just ran a link fault sectionalization. If instructions required you to return the link to service	step 98
the link stops on an NT9X77AA or NT9X78BA/CA/DA/DB card, and you just ran a link fault sectionalization. If instructions required you to perform more tests	step 70
link does not stop on an NT9X77AA or NT9X78BA/CA/DA/DB card	step 95
other than listed here	step 110

95 Remove the manual loopback across network elements.

96 The next step depends on the instructions received from the next level of support.

If	Do
instructions require you to return the link to service	step 98
instructions require you to perform more tests	step 73
other than listed here	step 110

Running a C7BERT

(continued)

- 97 To remove the link fault sectionalization, type

>LFSLOOP STOP link_no

and press Enter.

where

link_no is the number of the tested link (0 to 15)

If the response	Do
is LFSLoop stop n is Link n: LFS OFF complete	step 98
is other than listed here	step 109

- 98 To quit the C7BERT level of the MAP display, type

>QUIT

and press Enter.

- 99 To activate the link that the C7BERT ran on, type

>ACT link_no

and press Enter.

where

link_no is the number of the link (0 to 15)

If the ACT command	Do
passed	step 100
failed	step 109
is other than listed here	step 109

Running a C7BERT (continued)

100 Determine the synchronization state of the link.

Note: The synchronization state appears under the Sync Stat header of the MAP display.

If the synchronization state	Do
is Alnd	step 107
is other than listed here	step 101

101 Wait 8 minutes, and continue with this procedure.

102 Determine the synchronization state of the link.

If the synchronization state is not Alnd, and you	Do
did not ask the far-end office to activate the link	step 103
already asked the far-end office to activate the link	step 105

103 Determine from office records the far-end office that connects to the linkset posted in step 4.

104 Contact the far-end office. Tell the person at that location that

- you are going to busy and deactivate the link in order to realign it, and that
- the person and you must activate the link from both ends after you busied and deactivated the link

Go to step 100.

105 To deactivate the link, type

>DEACT link_no FORCE
and press Enter.

where

link_no is the number of the link you activated in step 99

Running a C7BERT

(continued)

- 106** Tell the person at the far-end office to activate the link. Activate the link from your end, type

>ACT link_no
and press Enter.

where

link_no is the number of the link you activated in step 99

If the ACT command	Do
passed	step 107
failed	step 109

- 107** To return the link to service, type

>RTS link_no
and press Enter.

where

link_no is the number of the link you activated in step 99

If the RTS command	Do
passed	step 110
failed	step 109

- 108** To uninhibit the link, type

>UINH link_no
and press Enter.

where

link_no is the number of the link you activated in step 99

If the UINH command	Do
passed	step 110
failed	step 109

- 109** For additional help, contact the person responsible for the next level of support.

Running a C7BERT
(end)

110 The procedure is complete.

Running a C7BERT for high-speed links

Application

Use this procedure to do the following:

- perform local or remote loopback on an NTEX78AA card for LIUBASIC
- perform far-end DS-1 ESF loopback (CARLOOP)
- inject bit errors during HSL C7BERT
- run the CCS7 bit-error rate test for high-speed links (HSL C7BERT)

Definition

Bit error rate testing measures the quality of a CCS7 digital transmission path.

Run an HSL C7BERT in the following situations:

- before bringing a CCS7 high-speed signaling link into service
- when isolating faults

Common procedures

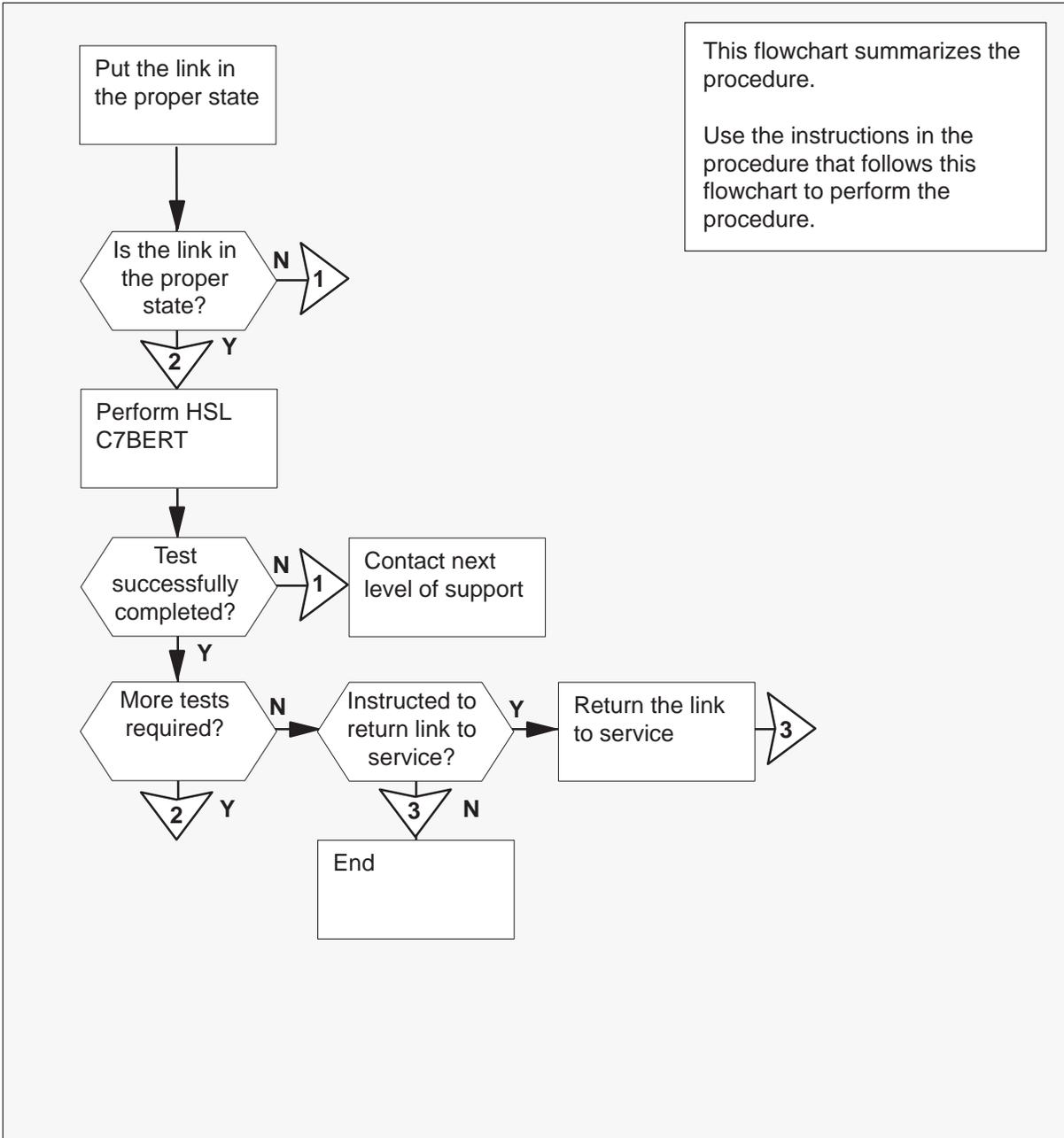
None

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Running a C7BERT for high-speed links (continued)

Summary of Running a C7BERT for high-speed links



Running a C7BERT for high-speed links

(continued)

Running a C7BERT for high-speed links



CAUTION

Risk of service interruption

The following procedure takes a CCS7 link out of service. Before proceeding, consult your next level of support to ensure network impact is minimized.

At the MAP terminal

- 1 Contact the next level of support to obtain the following information:
 - how to stop the test (manually or automatically)
 - if periodic reports are required and how many times each hour (1 to 12)
- 2 If you want to perform a remote loopback, inform personnel at the far-end office that
 - you want to busy and return the link to service
 - they must busy and return the link to service at their end
- 3 To enter the C7LKSET level of the MAP display, type
>MAPCI;MTC;CCS;CCS7;C7LKSET
and press the Enter key.

Example of a MAP response:

	Traf	Sync								Link
LK	Stat	Stat	Resource	Stat	Physical	Access	Stat			Action

Running a C7BERT for high-speed links (continued)

- 4 To post the linkset that includes the link that you want to test type

>POST C linkset_name

and press the Enter key.

where

linkset_name is the name of the linkset (as defined in table C7LKSET)

Example of a MAP response:

```

      Traf Sync                               Link
LK Stat Stat Resource Stat Physical Access Stat Action
0 OffL DAct DLIU 12 OffL DS1
1 SysB DAct DLIU 13 InSv DS1
Size of Posted Set = 2
    
```

- 5 Determine the state of the DLIU associated with the link to be tested.

Note: The DLIU state is visible under the Stat header to the right of the Resource header.

If the DLIU state is	Do
SysB, ManB, or OffL	step 6
InSv, or ISTb	step 16
anything else	step 78

Note: The DLIU consists of two peripherals: the high-speed link router (HSLR) and the high-speed link interface unit (HLIU).

- 6 To enter the PM level of the MAP display, type

>PM

and press the Enter key.

Example of a MAP display:

```

          SysB   ManB   OffL   CBsy   ISTb   InSv
PM          1     10     12     0     6     49
    
```

Running a C7BERT for high-speed links (continued)

- 7 To post the HLIU, type

>POST HLIU dliu_no
and press the Enter key.

where

dliu_no is the number of the DLIU connected to the link you want to test

Note: The number of the DLIU is under the Resource header of the MAP display. In the example in step 4, the HLIU connected to link 1 is 13.

Example of a MAP response:

HLIU 13 InSv

If the HLIU state is	Do
SysB	step 8
Of fL	step 9
ManB	step 10
InSv or ISTb	step 11

- 8 Wait 1 to 3 min for the HLIU to change from SysB to InSv.

After 3 min, if the state of the HLIU is	Do
InSv	step 11
SysB	step 78
anything else	step 78

- 9 To busy the HLIU, type

>BSY
and press the Enter key.

If the BSY command	Do
passed	step 10
failed	step 78

Running a C7BERT for high-speed links (continued)

- 10 To return to service the HLIU, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 11
failed	step 78

- 11 To post the HSLR, type

>POST HSLR dliu_no

and press the Enter key.

where

dliu_no is the number of the DLIU associated with the HSLR you want to post

If the state of the HSLR is	Do
InSv or ISTb	step 15
ManB	step 14
OffL	step 13
SysB	step 12

- 12 Wait 1 to 3 min for the HSLR to change from SysB to InSv.

After 3 min, if the state of the HSLR is	Do
InSv	step 15
SysB	step 78
anything else	step 78

Running a C7BERT for high-speed links

(continued)

- 13 To busy the HSLR, type

>BSY

and press the Enter key.

If the BSY command	Do
passed	step 15
failed	step 78

- 14 To return the HSLR to service, type

>RTS

and press the Enter key.

If the RTS command	Do
passed	step 15
failed	step 78

- 15 To enter the C7LKSET level of the MAP display, type

>MAPCI;MTC;CCS;CCS7;C7LKSET

and press the Enter key.

- 16 Determine the traffic state of the link you want to test.

Note: The traffic state of the link is visible under the Traf Stat header of the MAP display. The synchronization state is visible under the Sync Stat header of the MAP display.

If the traffic and synchronization states are in the sequence given	Do
Offl DAct	step 17
Bsy DAct	step 18
SysB DAct	step 22
SysB SysB	step 20
anything else	step 19

Running a C7BERT for high-speed links (continued)

17 To busy the link, type

>BSY link_no
and press the Enter key.

where

link_no is the number of the link you want to test (0 to 15)

If the BSY command	Do
passed	step 19
failed	step 78

18 To return the link to service, type

>RTS link_no
and press the Enter key.

where

link_no is the number of the link you want to test (0 to 15)

Note: This action places the link into the SysB/DAct state.

If the RTS command	Do
passed	step 22
failed	step 78

19 To inhibit the link you want to test, type

>INH link_no
and press the Enter key.

where

link_no is the number of the link you want to test (0 to 15)

If the INH command	Do
passed	step 20
failed	step 78

Running a C7BERT for high-speed links (continued)

20 To manually busy the link, type

>BSY link_no

and press the Enter key.

where

link_no is the number of the link you want to test (0 to 15)

If the BSY command	Do
passed	step 21
failed	step 78

21 To return the link to service, type

>RTS link_no

and press the Enter key.

where

link_no is the number of the link you want to test (0 to 15)

Note: This action places the link into the SysB/DAct state.

If the RTS command	Do
passed	step 22
failed	step 78

Running a C7BERT for high-speed links (continued)

- 22 To enter the C7BERT level of the MAP display, type
>C7BERT
 and press the Enter key.

If you want to	Do
perform a local loopback	step 23
perform a remote loopback	step 25
perform a far-end DS-1 ESF loopback	step 33
run C7BERT	step 39
enable the high-speed signaling terminal (HST) to scan for control codes	step 63
perform an intermediate loopback C7BERT test	step 38

Running a C7BERT for high-speed links

(continued)

- 23 To activate a local loopback, type

>PMLOOP LOCON link_no

and press the Enter key.

where

link_no is the number of the link you want to test (0 to 15)

If the response is	Do
Link 1: Loopback Local on completed	step 24
Link 1: Failed - PMLOOP <Local Remote Enable> is already active	step 27
Link 1: Failed - C7BERT already active on this link	step 32
Link 1: Failed - Link state is invalid for HSL PMLoop. Link must be SysB and DAct	step 16
anything else	step 78

- 24 At this point you have an option to test DS-1 carrier states or to continue with this procedure. Testing DS-1 carrier states to make sure that they are in the correct states is not necessary, but it can prevent a failure of the C7BERT.

If you do not want to test the DS-1 carrier states, go to step 39.

If you want to test the DS-1 carrier states, perform the "Test the DS-1 carrier states" procedure in this document. After completing the procedure, go to step 39.

Running a C7BERT for high-speed links (continued)

25 To activate a remote loopback, type

```
>PMLOOP RMTON link_no
```

and press the Enter key.

where

link_no is the number of the link you want to test (0 to 15)

Note: A remote loopback establishes a loopback for the far end. The far end must run C7BERT to test the quality of the link.

If the response is	Do
Link 1: Loopback Remote On completed	step 26
Link 1: Failed - PMLOOP <Local Remote Enable> is already active	step 27
Link 1: Failed - C7BERT already active on this link	step 32
Link 1: Failed - Link state is invalid for HSL PMLoop. Link must be SysB and DAct	step 16
anything else	step 78

Running a C7BERT for high-speed links

(continued)

- 26 Inform personnel at the far end that the remote loopback is active and the far-end personnel can begin their tests. After the far-end tests are finished, release the loopback. Type

>PMLOOP RMTOFF link_no

and press the Enter key.

where

link_no is the number of the link you entered in PMLOOP command

If the PMLOOP command	Do
passed and you want to perform more C7BERT procedures	step 22
passed and you do not want to perform more C7BERT procedures	step 68
failed	step 78

- 27 To enter the PM level of the MAP display, type

>PM

and press the Enter key.

- 28 To post the HLIU, type

>POST HLIU dliu_no

and press the Enter key.

- 29 To clear the loopback state, type

>LOOPBK C

and press the Enter key.

If the response is	Do
LoopBk passed	step 30
anything else	step 78

Running a C7BERT for high-speed links (continued)

30 To enter the C7LKSET level of the MAP display, type
>MAPCI;MTC;CCS;CCS7;C7LKSET
 and press the Enter key.

31 To enter the C7BERT level of the MAP display, type
>C7BERT
 and press the Enter key.

If you want to	Do
activate a local loopback	step 23
activate a remote loopback	step 25

32 To stop the existing HSL C7BERT, type
>STOP link_no
 and press the Enter key.

where

link_no is the number of the link you entered in step 23 or 25

Note: The STOP command overrides any preset stop time without warning.

If you want to	Do
activate a local loopback	step 23
activate a remote loopback	step 25

33 Contact personnel at the far end to confirm that the far-end signaling terminal is able to receive control codes.

Note: If the equipment type is DMS, personnel at the far-end can determine the signaling terminal status as follows:

- Type **PM** and press the Enter key to access the PM level of the MAP display.
- Type **POST HLIU dliu_no** and press the Enter key to post the HLIU.
- Type **LOOPBK S** and press the Enter key to display the terminal status.

Users of equipment that is not DMS should contact their next level of support to obtain the procedures for their equipment.

Running a C7BERT for high-speed links

(continued)

- 34 To activate the far-end DS-1 ESF loopback from your end, type

>CARLOOP START link_no loopback_type

and press the Enter key.

where

link_no is the number of the link you want to test (0 to 15)

loopback_type indicates if the loopback is line (R) or payload (P)

Example input:

>CARLOOP START 1 R

- 35 Your next step depends on the response.

If the response is	Do
Link nn: DS-1 ESF Loop ON complete Carrier line loopback at far-end paddleboard	step 39
Link nn: Failed - C7BERT already active on this link	step 36
Link 1: Failed - Far-end DS-1 ESF already active on this link	step 37
Link nn: Failed - Has not gone into loopback.	step 78
anything else	step 78

Running a C7BERT for high-speed links (continued)

36 To stop the existing HSL C7BERT, type

>STOP link_no
and press the Enter key.

where

link_no is the number of the link you entered in step 34

Note: The STOP command overrides any preset stop time without warning.

If the response is	Do
Link 1: C7BERT stopped	step 34
anything else	step 78

37 To remove the far-end DS-1 ESF loopback already applied, type

>CARLOOP STOP link_no
and press the Enter key.

where

link_no is the number of the link you entered in step 34

If the response is	Do
CARLoop stop n Link n: DS-1 ESF OFF complete	step 34
anything else	step 78

Running a C7BERT for high-speed links

(continued)

38 Contact personnel at the intermediate point and request a loopback.

39 To start the HSL C7BERT, type

>START link_no
and press the Enter key.

where

link_no is the number of the link you want to test (0 to 15)

If the response is	Do
Link n: C7BERT started	step 40
Link n:Failed - Link state is invalid for HSL C7BERT Link must be SysB/DAct or SysB/CAR	step 16
anything else	step 78

40 To display the test results of the HSL C7BERT, type

>QUERY link_no PR
and press the Enter key.

where

link_no is the number of the link being tested (0 to 15)

Example of a MAP response:

```
query 1 pr
Link 1: C7BERT query
Run Time      :      662   Err Free Secs:      662
Tx Frames     :    19016   Rx Sync Errs :      0
Rx Frames     :    19019   Rx Bad Frames:      0
Rx Bit Errors :      0     Rx Bits       : 38931896
Bit Err Rate  : 0 x 10-15
```

If the response is	Do
a display of HSL C7BERT statistics	step 41
anything else	step 78

Running a C7BERT for high-speed links (continued)

41 Determine if any Tx frames were transmitted.

Note: The number of frames transmitted appears to the right of the Tx Frames header of the MAP display. In the example in step 40, the number of frames transmitted is 19 016.

If	Do
any Tx frames were transmitted	step 42
no Tx frames were transmitted	step 78

42 The test is running correctly.

Test results generate when:

- the periodic reporting function is active
- operating company personnel stop the test manually
- the test stops automatically at a pre-set time

Note: If the switch restarts when an HSL C7BERT is running on a link, the test stops automatically. The test also stops automatically if the HLIU associated with the link fails.

If	Do
you want to request periodic reports	step 54
you want to stop the test manually	step 58
you want to stop the test automatically at a pre-set time	step 43
you want to inject bit errors	step 48

Running a C7BERT for high-speed links

(continued)

- 43 To determine if a stop time has been set, type

>SETSTOP link_no STATUS

and press the Enter key.

where

link_no is the number of the link (0 to 15) on which the HSL C7BERT is running

If the response is	Do
Link nn: Stop time set at: time	step 44
Link nn: No stop time has been set	step 45
anything else	step 78

- 44 To clear the stop time, type

>SETSTOP link_no CLEAR

and press the Enter key.

where

link_no is the number of the link on which the HSL C7BERT is running

If the response is	Do
Stop time cleared	step 45
anything else	step 78

Running a C7BERT for high-speed links (continued)

45 To set the new stop time, type

>SETSTOP link_no SET day hours minutes
and press the Enter key.

where

link_no is the number of the link (0 to 15) on which the HSL C7BERT is running
 day is the day on which you want the test to stop automatically (MON, TUE, WED, THU, FRI, SAT, or SUN)
 hours is the hour at which you want the test to stop automatically (0 to 23)
 minutes is the minute at which you want the test to stop automatically (00 to 59)

Example input:

>SETSTOP 3 SET MON 10 30

Note: The example entry sets the stop time for link 3 on Mondays at 10:30 a.m.

If the response is	Do
Link nn: Stop time set at: 19xx/yy/zz hh:mm:00.000 ddd	step 46
anything else	step 78

46 Determine if the stop time is correct.

If the stop time is	Do
correct	step 47
incorrect	step 44

47 Wait until the stop time.

Go to step 59.

Running a C7BERT for high-speed links (continued)

- 48 To display HSL C7BERT results, type

>QUERY link_no PR

and press the Enter key.

where

link_no is the number of the link that you want to test (0 to 15)

Example of a MAP response:

```
Link 1: C7BERT query
Run Time      :      1224   Err Free Secs:      1133
Tx Frames     :      32538  Rx Sync Errs :          0
Rx Frames     :      32580  Rx Bad Frames:          1
Rx Bit Errors :          0   Rx Bits       : 66673662
Bit Err Rate  : 1 x 10-8
```

If the response is	Do
a display of test statistics	step 49
anything else	step 78

- 49 Record the number of Rx bit errors.

Note: In the example in step 48, the number of bit errors received appears to the right of Rx bit errors.

Running a C7BERT for high-speed links (continued)

50 To inject bit errors, type

>INJERR link_no
and press the Enter key.

where

link_no is the number of the link you tested in step 39

Example of a MAP response:

```
injerr 1
```

If the response is	Do
Link 1: INJECT ERROR completed	step 51
Link n:Failed - C7BERT is not active on this link	step 39
anything else	step 78

51 To display the result of injecting bit errors, type

>QUERY link_no PR
and press the Enter key.

where

link_no is the number of the link that you want to test (0 to 15)

Example of a MAP response:

```
Link 1: C7BERT query
Run Time      :      1134   Err Free Secs:      1133
Tx Frames     :     32568   Rx Sync Errs :         0
Rx Frames     :     32570   Rx Bad Frames:         1
Rx Bit Errors :         1   Rx Bits       : 66670792
Bit Err Rate  : 1 x 10- 8
```

If the response is	Do
a display of test statistics	step 52
anything else	step 78

Running a C7BERT for high-speed links

(continued)

- 52 Determine the result of injecting bit errors.

Note: In the example in step 51, the number of bit errors received appears to the right of Rx Bit Errors.

- 53 Subtract the result of the HSL C7BERT recorded in step 49 from the result obtained in step 51. This action checks for correct bit error rate (BER) circuit operation.

If the difference is	Do
1	step 42
anything else	step 78

- 54 To determine if periodic reports have been requested, type

>REPORT link_no STATUS

and press the Enter key.

where

link_no is the number of the link (0 to 15) on which the HSL C7BERT is running

If the response is	Do
Link nn: Automatic query reporting active at: mm times per hour	step 55
Link nn: Automatic query reporting is not active	step 56
anything else	step 78

- 55 To clear the previous report interval, type

>REPORT link_no OFF

and press the Enter key.

where

link_no is the number of the link on which the HSL C7BERT is running

MAP response:

Link nn: Automatic query reporting has been terminated

Running a C7BERT for high-speed links (continued)

56 To set the number of reports per hour, type

>REPORT link_no ON number

and press the Enter key.

where

link_no is the number of the link (0 to 15) on which the HSL C7BERT is running

number is the number of reports per hour (1 to 12)

Example input:

>REPORT 1 ON 6

If the response is	Do
Link nn: Report interval set at: nn times per hour	step 57
anything else	step 78

57 Determine if the report interval is correct.

If the interval is	Do
correct	step 42
not correct	step 55

58 To stop the HSL C7BERT, type

>STOP link_no

and press the Enter key.

where

link_no is the number of the link (0 to 15) on which the HSL C7BERT is running

Note: The STOP command overrides any preset stop time without warning.

If the response is	Do
Link 1: C7BERT stopped	step 59
anything else	step 78

Running a C7BERT for high-speed links

(continued)

- 59 Give the results to the personnel responsible for the next level of support. Your next step depends on the instructions received from your next level of support.

If	Do
the far-end DS-1 loopback is established	step 61
the local loopback is established	step 60
an intermediate loopback is established	step 62

- 60 To remove the local loopback, type

>PMLOOP LOCOFF link_no

and press the Enter key.

where

link_no is the number of the link you tested (0 to 15)

If the response is	Do
pmloop off and more tests are required	step 22
pmloop off and you want to exit from C7BERT	step 68
anything else	step 78

Running a C7BERT for high-speed links (continued)

61 To remove the far-end DS-1 ESF loopback, type

>CARLOOP STOP link_no
and press the Enter key.

where

link_no is the number of the link you tested (0 to 15)

If the response is	Do
Link n: DS-1 ESF OFF complete and more tests are required	step 22
Link n: DS-1 ESF OFF complete and you want to exit C7BERT	step 68
anything else	step 78

62 Tell personnel at the intermediate point to remove the intermediate loopback.

If you want to	Do
run more tests	step 22
exit from C7BERT	step 68

63 To enter the PM level of the MAP display, type

>PM
and press the Enter key.

64 To post the HLIU, type

>POST HLIU dliu_no
and press the Enter key.

Running a C7BERT for high-speed links

(continued)

- 65 To enable the HST to scan for control codes, type

>LOOPBK E

and press the Enter key.

If the response is	Do
loopbk passed	step 66
anything else	step 78

- 66 Wait for the far end to finish testing. When far-end testing is complete, clear the loopback state. Type

>LOOPBK C

and press the Enter key.

If the response is	Do
loopbk passed	step 67
anything else	step 78

- 67 To enter the C7LKSET level of the MAP display, type

>MAPCI;MTC;CCS;CCS7;C7LKSET

and press the Enter key.

If	Do
more tests are required	step 22
you want to exit C7BERT	step 68

- 68 To quit the C7BERT level of the MAP display, type

>QUIT

and press the Enter key.

Running a C7BERT for high-speed links (continued)

69 To activate the link on which the HSL C7BERT was running, type

>ACT link_no

and press the Enter key.

where

link_no is the number of the link (0 to 15)

If the ACT command	Do
passed	step 70
failed	step 78

70 Determine the synchronization state of the link.

Note: The synchronization state appears under the Sync Stat header of the MAP display.

If the synchronization state is	Do
Sync	step 77
anything else	step 71

71 Wait 8 min, then continue the procedure.

72 Determine the synchronization state of the link.

If the synchronization state is	Do
sysB, and you have not asked the far-end office to activate the link	step 74
sysB, and you have asked the far-end office to activate the link	step 73

73 Use office records to determine which far-end office connects to the linkset posted in step 4.

Running a C7BERT for high-speed links

(end)

74 Contact the far-end office. Tell the personnel there that you will reactivate the link.

75 Tell personnel at the far-end office to activate the link.

76 To activate the link from your end, type

>ACT link_no

and press the Enter key.

where

link_no is the number of the link you activated in step 69

If the ACT command	Do
passed	step 77
failed	step 78

77 To uninhibit the link, type

>UINH link_no

and press the Enter key.

where

link_no is the number of the link you activated in step 69

If the UINH command	Do
passed	step 79
failed	step 78

78 For additional help, contact the personnel responsible for the next level of support.

79 You have completed this procedure.

Replacing an NTFX39 bulkhead splitter unit

Application

Use this procedure to replace a bulkhead splitter unit.

Definition

The bulkhead splitter unit is a connection unit that mounts on the cabinetized integrated services module (CISM) bulkhead. The unit connects the input/output module (IOM) paddle boards on the integrated service module (ISM) shelf to the input/output devices (IOD).

Common procedures

There are no common procedures.

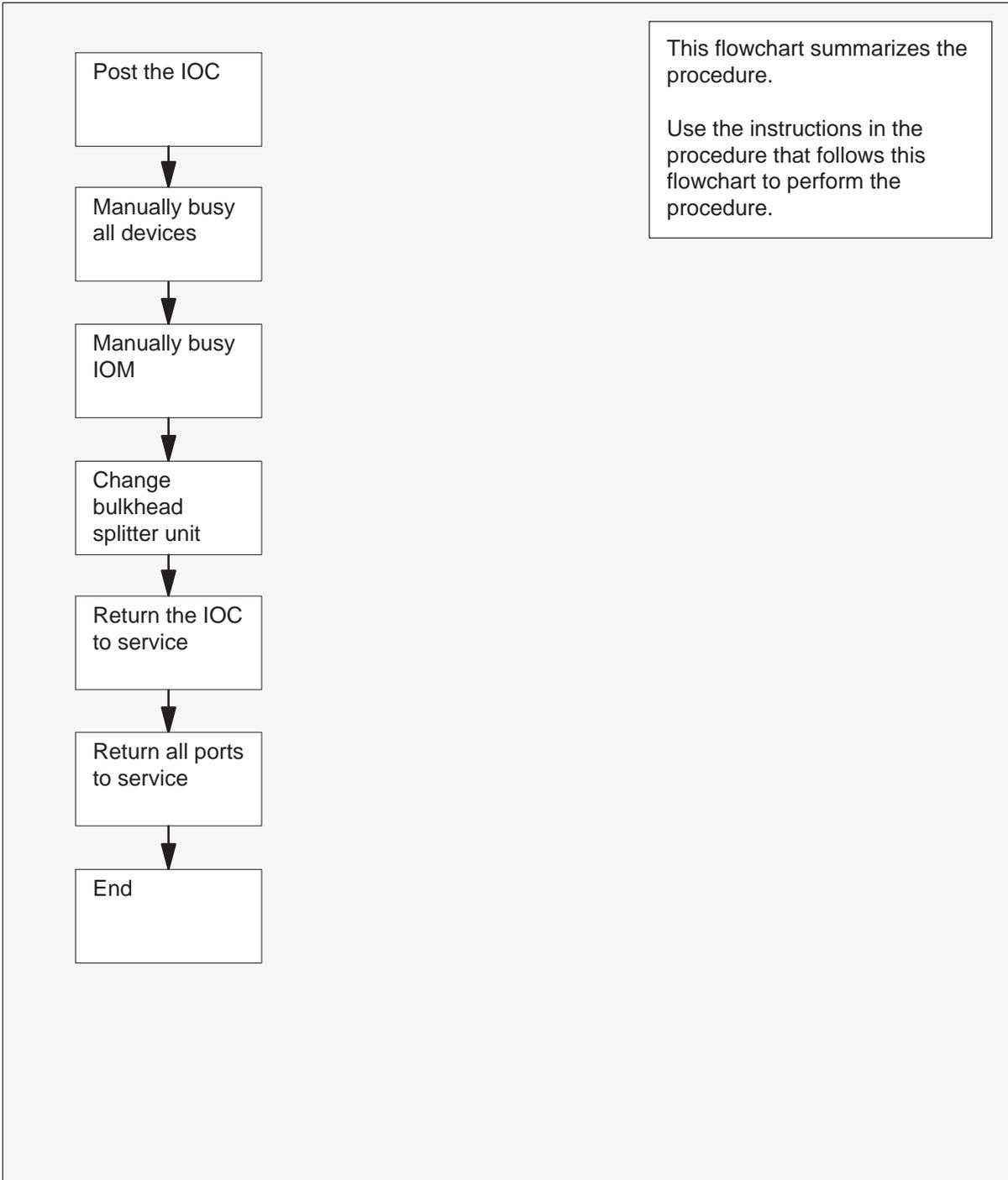
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Replacing an NTFX39 bulkhead splitter unit

(continued)

Summary of Replacing an NTFX39 bulkhead splitter unit



Replacing an NTFX39 bulkhead splitter unit (continued)

Replacing an NTFX39 bulkhead splitter unit

ATTENTION

This procedure includes directions to manually busy the controller card for the IOM. Perform this procedure from a MAP terminal that does not connect to the IOM that has the manual-busy controller card.



CAUTION

Loss of service

This procedure instructs you to disconnect the IOM controller card and the connected devices to replace the splitter unit. Perform this procedure to recover out-of-service components. Perform this procedure during periods of low traffic.



CAUTION

Loss of service

This procedure instructs you to disconnect the IOM controller card and the connected devices to replace the splitter unit. Perform this procedure to recover out-of-service components. Perform this procedure during periods of low traffic.

At the MAP terminal

- 1 Obtain a replacement splitter unit. Ensure that the replacement unit has the same PEC and PEC suffix as the removed unit.
- 2 To access the IOD level of the MAP display, type
>MAPCI;MTC;IOD
and press Enter.

Example of a MAP display:

```

IOD
IOC  0  1  2  3
STAT .  .  .  S

DIRP: SMDR B XFER:   .   SLM :   .   NPO:   .   NX25:   .
MLP  :   .   DPPP:   .   DPPU:   .   SCAI :
    
```

Replacing an NTFX39 bulkhead splitter unit (continued)

- 3 To post the configured IOM controller, type

>IOC ioc_no
and press Enter.

where

`ioc_no` is the IOM identification number

Example of a IOM MAP display:

```

IOD
IOC  0  1  2  3
STAT .  .  .  S

DIRP: SMDR B XFER: .   SLM : .   NPO: .   NX25: .
MLP : .   DPPP: .   DPPU: .   SCAI :

IOC  PORT 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
(IOM) STAT . . . - . . - - - . - - - - - - - - -
0      TYPE C C C  C M      M
          O O O  O T      P
          N N N  N D      C
    
```

- 4 Determine if any terminal controller ports are on the shelf.

If terminal controller ports	Do
are on the shelf	step 5
are not on the shelf	step10

- 5 Note the CONS ID and status for each port.

If	Do
ports are ManBsy	step 9
one or more ports are Offl	step 55
one or more ports are . (dot) in service	step 6
ports are in any other state that is out of service	step 8

Replacing an NTFX39 bulkhead splitter unit (continued)

6 Inform office personnel of the removal from service of the CONS IDs for the controller card. Wait until all persons cease activity for these CONS IDs.

7 To post the port for the replaced CONS, type

>PORT port_no
and press Enter.

where

port_no is the port identification number

Example of a IOM MAP display:

```
Port 0  Status      0
        Cons Id    MAP
        ConType    CYB
```

8 To manually busy the port, type

>BSY
and press Enter.

where

port_no is the port identification number

If the BSY command	Do
passed	step 9
failed	step 57

9 Repeat step 8 until you manually busy all CONS ports.

10 The next action depends on any provisioned multiprotocol controller (MPC) ports that are on the controller card.

If provisioned MPC ports	Do
are present	step 11
are not present	step 18

Replacing an NTFX39 bulkhead splitter unit (continued)

- 11 To post a port for the MPC, type

>PORT port_no
and press Enter.

where

port_no is the port identification number

Example of a IOM MAP display:

```
Port 9  Unit      0
        User      SYSTEM  PROTOCOL  LINK
        Status    Ready   X2584    COMACT  ENABLED
```

- 12 Determine the state of the port.

If the port state	Do
is ManB	step 17
is OFFL	step 55
is other than listed here	step 13

- 13 To display status information on current MPC conversations, type

>QCONV
and press Enter.

Example of a MAP response:

```
MPC  L  LCN  STATUS  CCC  SEC  PARDEV  INP  OPEN  OWNER
---  -  ---  - - - -  ---  ---  - - - -  ---  - - - -
  0   3   1  INACTIVE none  none  none   FIL   0   none
  0   3   2  INACTIVE none  none  none   FIL   0   none
```

If	Do
one or more sessions is active	step 14
all sessions are inactive	step 15

- 14 Notify all users that there will be an interruption in the MPC service. Wait until all sessions are inactive before you proceed. Repeat step 13 to verify MPC session activity.

Replacing an NTFX39 bulkhead splitter unit (continued)

- 15 To manually busy the port and the port links, type

>BSY FORCE
and press Enter.

Example of MAP response:

```
TYPE YES TO VERIFY FORCE, NO TO CANCEL COMMAND
Please confirm ("YES", "Y", "NO", or "N")
```

- 16 To confirm the command, type

>YES
and press Enter.

Example of MAP response:

```
REQUEST PASSED FOR PORTS
REQUEST PASSED FOR LINKS
```

If the BSY command	Do
passed	step 17
failed	step 57

- 17 Repeat steps 11 to 16 for each MPC port on the IOM controller card.
- 18 The next action depends on any provisioned disk drive units (DDU) ports that are on the controller card.

If provisioned DDU ports	Do
are on the shelf	step 19
are not on the shelf	step 24

Replacing an NTFX39 bulkhead splitter unit (continued)

- 19 To post a port for the DDU, type

>PORT port_no
and press Enter.

where

port_no is the port identification number

Example of a IOM MAP display:

```
Port 16  Unit      0
(SCSI)   User      system  Drive_State
        Status    Ready   On_line
```

- 20 Determine the state of the port.

If the port state	Do
is ManB	step 24
is OFFL	step 55
is other than listed here	step 21

Replacing an NTFX39 bulkhead splitter unit (continued)

21 To determine if open files on the DDU exist, type

>ALLOC

and press Enter.

Example of a MAP display:

VOLID	VOL_NAME	SERIAL_NO	BLOCKS	ADDR	TYPE	R/O	FILES_OPEN
0	IMAGE	2800	45000	D000	0	NO	0
1	XPMLOADS	2801	35000	D000	0	NO	0
2	RTMLOADS	2802	20000	D000	0	NO	0
.							
.							
.							
7	SMDR	2807	5000	D000	0	NO	0
8	AMA1	2808	5000	D000	0	NO	0
9	TST	2809	50	D000	0	NO	0
10	AMA2	280A	500	D000	0	NO	0

If files	Do
are open	step 56
are not open	step 22

22 To manually busy the port on the controller card, type

>BSY

and press Enter.

Example of MAP response:

```
bsy
OK
```

23 Repeat steps 19 to 22 for the second DDU in the occurrence of two provisioned DDUs.

Replacing an NTFX39 bulkhead splitter unit

(continued)

- 24 The next action depends on any provisioned magnetic tape drive (MTD) ports that are on the controller card.

If provisioned MTD ports	Do
are on the shelf	step 25
are not on the shelf	step 30

- 25 To post a port for the MTD, type

>PORT port_no
and press Enter.

where

port_no is the port identification number

Example of a IOM MAP display:

```
Port 5   MTD      0      DevType
         TapeName  User
         Status   Idle
```

- 26 Determine the state of the port.

If the port state	Do
is ManB	step 30
is OFFL	step 55
is Idle	step 28
is other than listed here	step 27

- 27 Notify all users that there will be an interruption in service for the device. Wait until all users stop use of the device before you proceed to the next step.

- 28 To manually busy the port, type

>BSY
and press Enter.

Example of MAP response:

```
bsy
OK
```

Replacing an NTFX39 bulkhead splitter unit (continued)

- 29 Repeat steps 24 to 28 for all magnetic tape drive ports provisioned on the controller card.
- 30 To return to the IOC level of the MAP display, type
>QUIT
and press Enter.
- 31 Determine the state of the IOM.

If the state of the IOM	Do
is M	step 34
is other than listed here	step 32

- 32 To manually busy the IOM controller card, type
>BSY IOC
and press Enter.

Example of MAP response:

```
bsy
OK
```

- 33 Repeat steps 3 to 32 for other IOM units configured on the splitter unit.

Replacing an NTFX39 bulkhead splitter unit (continued)

At the modular supervisory panel

34



WARNING

Static electricity damage

To handle circuit cards, wear a wrist-strap that connects to a wrist-strap grounding point of a modular supervisory panel (MSP). The wrist-strap protects the cards against static electricity damage.



CAUTION FOR ESDS

Static electricity damage

To handle circuit cards, wear a wrist-strap that connects to a wrist-strap grounding point of a modular supervisory panel (MSP). The wrist-strap protects the cards against static electricity damage.

Put on a wrist strap.

At the rear of the ISM shelf

- 35 Locate bulkhead splitter unit and disconnect the four cable connectors (C05 to C08) from the harness. Disconnect the shrouded pin unit connections at the rear of the splitter unit.
Note the pin unit positions.
- 36 Remove the nuts in the back of the splitter unit.
- 37 Replace the splitter unit.
- 38 Secure the replacement unit with the nuts.
- 39 Reconnect the four cable connectors (C05 to C08) at the front of the splitter unit. Reconnect the shrouded pin unit connections at the back of the unit.
- 40 Repeat step 36 for the cable connectors and shrouded pin connections on the second IOM.

Replacing an NTFX39 bulkhead splitter unit (continued)

- 41 The next action depends on the reason for the performance of this procedure.

If a maintenance procedure	Do
directed you to this procedure	step 42
did not direct you to this procedure	step 43

- 42 Return to the maintenance procedure that sent this procedure and continue as directed.

At the MAP terminal

- 43 To return an IOM to service, type

>RTS IOC
and press Enter.

- 44 The next action depends on any provisioned consoles, disk drives and magnetic tape drives.

If provisioned consoles, disk drives and magnetic tape drive ports	Do
are present	step 45
are not present	step 48

- 45 To post the device port, type

>PORT port_no
and press Enter.

where

port_no is the port identification number (0 to 17)

- 46 To return the device to service, type

>RTS
and press Enter.

- 47 Repeat steps 45 and 46 for all provisioned disk drives, consoles, and magnetic tape drive ports.

Replacing an NTFX39 bulkhead splitter unit (continued)

- 48 The next action depends on any provisioned MPC ports.

If provisioned MPC ports	Do
are present	step 49
are not present	step 50

- 49 To post the MPC port, type

>PORT port_no
and press Enter.

where

port_no is the port identification number (0 to 17)

- 50 To return the MPC to service, type

>RTS
and press Enter.

Example of MAP response:

```
REQUEST PASSED FOR UNIT  
REQUEST PASSED FOR LINKS
```

- 51 Check the status of MPC components

If	Do
the system status is <i>Ready</i> , the port status is <i>COMACT</i> , and the link status is <i>enabled</i> for each provisioned link.	step 52
other than listed here	step 57

- 52 Repeat steps 49 to 51 for each provisioned port on the shelf.
- 53 Notify users that MPC service is available.
- 54 Repeat steps 43 to 53 to put the second IOM back into service.
- 55 Consult an office person to determine why the component is off-line. Continue as directed by the office person.

Replacing an NTFX39 bulkhead splitter unit (end)

- 56 You cannot busy the controller if files are open. The result can be the loss of billing data. For additional help, contact the person responsible for the next level of support.
- 57 For additional help, contact the person responsible for the next level of support.
- 58 The procedure is complete.

Scheduling an automatic REx test

Application

Use this procedure to schedule a routine exercise (REx) test for a link interface module (LIM).

Definition

The REx test schedule must include the LIMs that are new in the system.

Common procedures

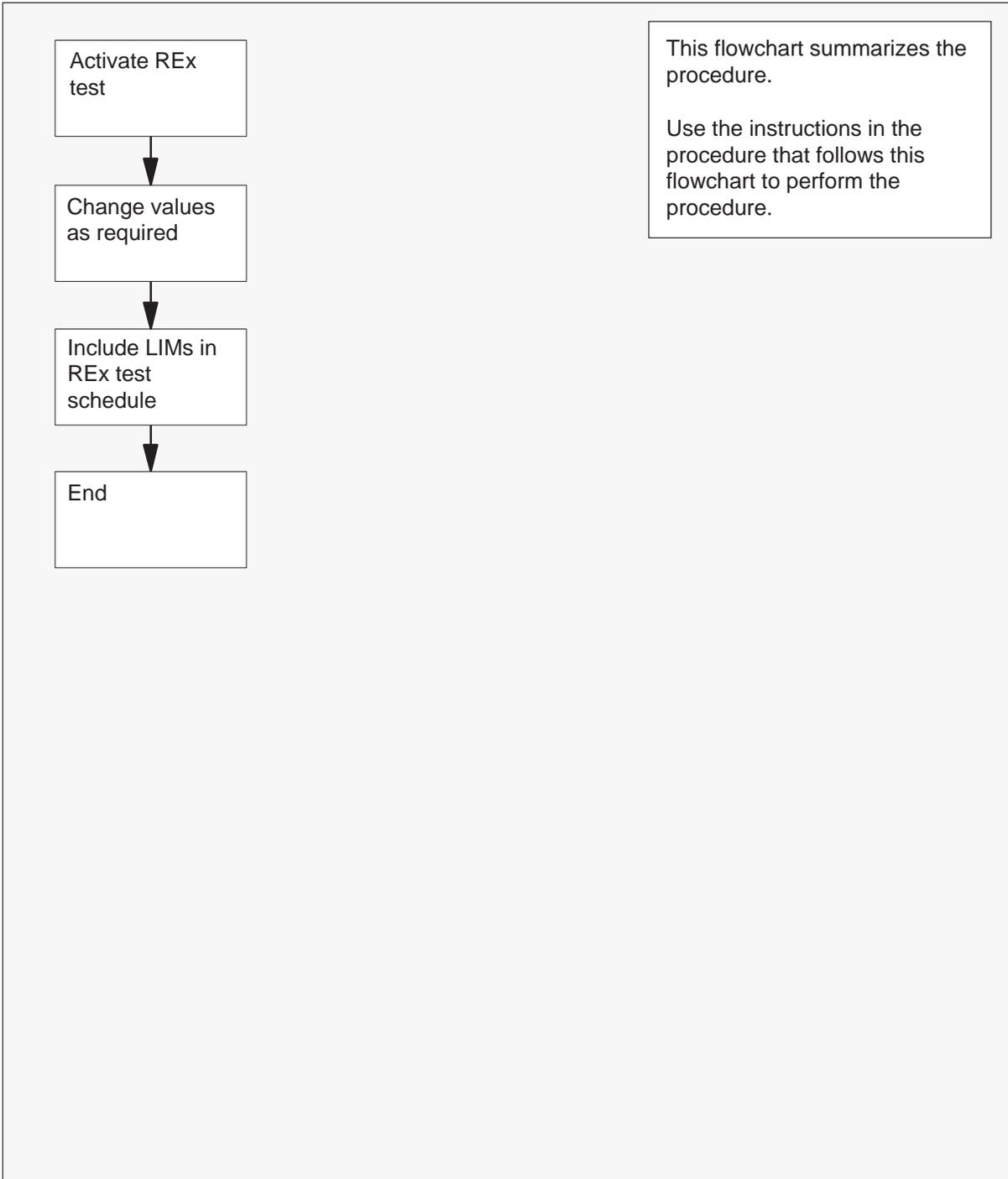
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Scheduling an automatic REx test (continued)

Summary of Scheduling an automatic REx test



Scheduling an automatic REx test

(continued)

Scheduling an automatic REx test

At the MAP terminal

- 1 To access table OFCVAR, type
>TABLE OFCVAR
and press Enter.
- 2 To position on office parameter NODEREXCONTROL, type
>POSITION NODEREXCONTROL
and press Enter.

Example of a MAP response:

```
NODEREXCONTROL Y 1 30 3 30
```

Note: In the example, Y indicates the activation of the REx test. 1 30 is the start time of the REx test on the 24-h clock. 3 30 is the end time of the REx test on the 24-h clock.

- 3 To display the fields and tuples, type
>LIST
and press Enter.

Example of a MAP response:

<u>PARMNAME</u>	<u>PARMVAL</u>
NODEREXCONTROL	Y 1 30 3 30

- 4 To specify that you want to change office parameter NODEREXCONTROL, type
>CHANGE
and press Enter.

MAP response:

```
ENTER Y TO  
CONTINUE PROCESSING  
OR N TO QUIT
```

- 5 To continue to process, type
>Y
and press Enter.

Example of a MAP response:

```
PARMVAL: Y 1 30 3 30
```

Scheduling an automatic REx test (continued)

- 6 To activate automatic REx testing, and enter a new value for office parameter NODEREXCONTROL, type

>Y h1 m1 h2 m2

and press Enter.

where

h1 m1 is the start time of the REx test on the 24 h clock, for example, 02 30

h2 m2 is the end time of the REx test on the 24 h clock, for example, 04 30

Note: The value in NODEREXCONTROL must allow enough time to test all the LIMs that you want to test. Add 30 minutes to the parameter of all LIMs.

Example input:

>Y 02 30 04 30

Example of a MAP response:

TUPLE TO BE CHANGED:

NODEREXCONTROL Y 02 30 04 30

ENTER Y TO CONFIRM, N TO REJECT, OR E TO EDIT.

- 7 To confirm the change, type

>Y

and press Enter.

Example of a MAP response:

TUPLE CHANGED

- 8 To quit from the table editor and return to the CI level of the MAP display, type

>QUIT

and press Enter.

Scheduling an automatic REx test

(end)

9



CAUTION

Possible loss of service

Do not isolate nodes on the F-bus of the LIM you are testing. If you isolate any of the nodes on the F-bus of the LIM you are testing, the REx test will not proceed.



CAUTION

Possible loss of service

Do not isolate nodes on the F-bus of the LIM you are testing. If you isolate any of the nodes on the F-bus of the LIM you are testing, the REx test will not proceed.

To post the LIM that you want to include in the REx test, type

```
>MAPCI;MTC;PM;POST LIM lim_no
```

and press Enter.

where

lim_no is the number of the first LIM that you will post (0 to 16)

10 To include the posted LIM in the REx test schedule, type

```
>REX ON
```

and press Enter.

Example of a MAP response:

```
LIM x UNIT y has been included in the REX Schedule.
```

11 The procedure is complete.

Scheduling ISUP trunk audits

Application

Use the following procedure to schedule ISDN user part (ISUP) trunk audits.

Definition

ISUP trunk audits switch units with CCS7 and trunk test position (TTP) improvements for trunks that use CCS7 signaling (ISUP trunks). To correct state mismatches, the trunk audit runs on all ISUP trunks one time a day. In table OFCENG, office parameter CIRCUIT_QUERY_AUDIT_START_TIME specifies ISUP trunk audit time.

Common procedures

There are no common procedures.

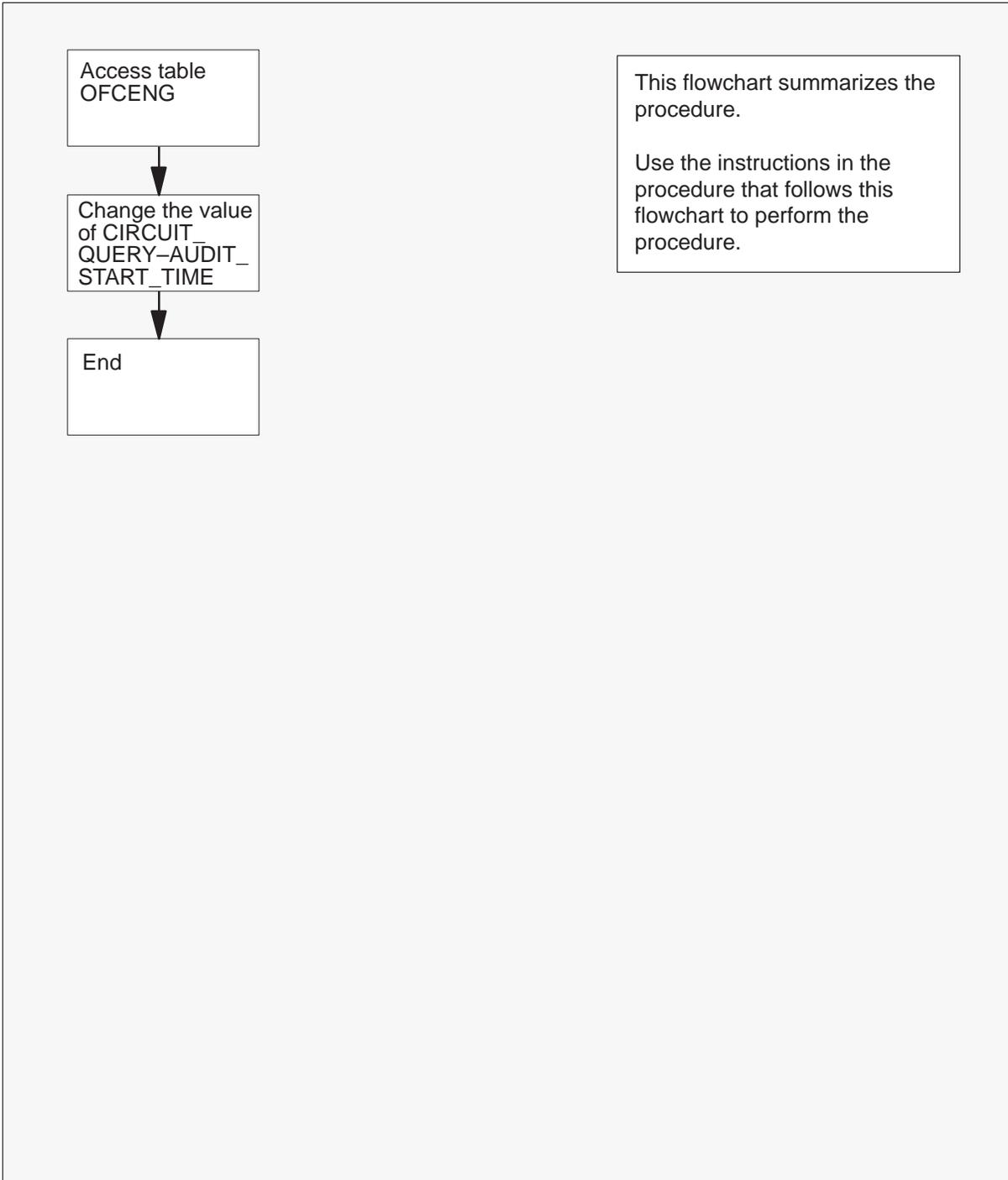
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Scheduling ISUP trunk audits

(continued)

Summary of Scheduling ISUP trunk audits



Scheduling ISUP trunk audits (continued)

Scheduling ISUP trunk audits

At the MAP terminal

1



CAUTION

Possible loss of service

Ensure table TRKSGRP is datafilled to include the ISUP trunks on which you want to perform the audit before you run the ISUP audit. For more information on table TRKSGRP, refer to the data schema section of the *Translations Guide*.



CAUTION

Possible loss of service

Ensure table TRKSGRP is datafilled to include the ISUP trunks on which you want to perform the audit before you run the ISUP audit. For more information on table TRKSGRP, refer to the data schema section of the *Translations Guide*.

To access table OFCENG, type

>TABLE OFCENG

and press Enter.

Example of a MAP response:

TABLE: OFCENG

Note: Access to table OFCENG is restricted. If access is denied, contact your next level of support.

2 To position on office parameter CIRCUIT_QUERY_AUDIT_START_TIME, type

>POSITION CIRCUIT_QUERY_AUDIT_START_TIME

and press Enter.

Example of a MAP response:

CIRCUIT_QUERY_AUDIT_START_TIME 2 0

Scheduling ISUP trunk audits

(continued)

- 3 To display the tuple with headers, type

>LIST

and press Enter.

Example of a MAP response:

```
PARMNAME                PARMVAL  
CIRCUIT_QUERY_AUDIT_START_TIME  2 0
```

Note: In the MAP example, 2 0 is the current ISUP trunk audit start time in hours (0 to 23) and minutes (0 to 59).

Scheduling ISUP trunk audits (continued)

- 4 Decide if you want to change the ISUP trunk audit start time.

If the ISUP trunk audit start time	Do
does not require change	step 8
requires change	step 5

- 5



CAUTION

Possible loss of service or system degradation

Ensure the new ISUP trunk audit start time is set during off-peak hours. The audit can generate many CCS7 messages that can result in degraded service.



CAUTION

Possible loss of service or system degradation

Ensure the new ISUP trunk audit start time is set during off-peak hours. The audit can generate many CCS7 messages that can result in degraded service.

To enter a new ISUP trunk audit start time, type

>CHANGE 2 new_value

and press Enter.

where

new_value is the time you want the ISUP trunk audit to start. Use the format hh mm (hours and minutes), where hh is a number from 0 to 23 and mm is a number from 0 to 59.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
  CIRCUIT_QUERY_AUDIT_START_TIME    2 15
  ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

Scheduling ISUP trunk audits

(end)

- 6 To confirm the change, type
>Y
and press Enter.

Example of a MAP response:

```
TUPLE CHANGED
```

Note: The value will apply when the audit that uses the old value runs one time. In other words, the next audit will run at the old time; the new time is for the audit of the next day.

- 7 To quit from the table, type
>QUIT
and press Enter.
- 8 The procedure is complete.

Setting up an ISUP per-call continuity test

Application

Use this procedure to install an ISDN user part (ISUP) per-call continuity test.

Definition

A per-call continuity test validates the speech part of a trunk that has CCS7 signaling.

Note: The change to table TRKSGRP does not occur until the trunk busies and returns to service.

Common procedures

There are no common procedures.

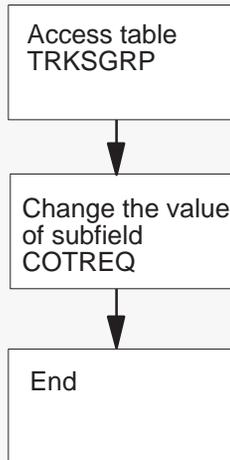
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Setting up an ISUP per-call continuity test

(continued)

Summary of Setting up an ISUP per-call continuity test



This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

Setting up an ISUP per-call continuity test (continued)

Setting up an ISUP per-call continuity test



CAUTION

Possible loss of service

Ensure that table TRKSGRP is datafilled to include the ISUP trunks needed to perform the audit. Run the ISUP audit. For more information on table TRKSGRP, refer to the data schema section of the *Translations Guide*.



CAUTION

Possible loss of service

Ensure that table TRKSGRP is datafilled to include the ISUP trunks needed to perform the audit. Run the ISUP audit. For more information on table TRKSGRP, refer to the data schema section of the *Translations Guide*.

At the MAP terminal

- 1 To access table TRKSGRP, type
>TABLE TRKSGRP
 and press Enter.
- 2 To position on the trunk subgroup that you want to install the ISUP per-call continuity test, type

>POSITION subgroup_name subgroup_no
 and press Enter.

where

subgroup_name is the common-language location identifier (CLLI) name of the subgroup

subgroup_no is the number of the subgroup (0 or 1)

Example of a MAP response:

```
BRABRAEOIS 0 DS1SIG
C7UP OG N N UNEQ NONE Q764 THRH 100 DMSNODE NIL $
```

Setting up an ISUP per-call continuity test (continued)

- 3 To indicate that you want to change the tuple, type

>CHANGE

and press Enter.

Example of a MAP response:

CARDCODE: DS1SIG

- 4 Press Enter until the MAP response is COTREQ.

Example of a MAP response:

COTREQ: 0

- 5 To specify the percentage of calls that you want performed for the per-call continuity test, type

>new_value

and press Enter.

where

`new_value` is the percentage of calls on this trunk that the ISUP per-call continuity test will perform (0 to 100)

- 6 Press Enter until the MAP response is OPTION.

MAP response:

OPTION:

Setting up an ISUP per-call continuity test (end)

- 7 To indicate that you changed the tuple, type

>\$

and press Enter.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
  BRABRAEOIS 0          DS1SIG
  C7UP OG N N UNEQ NONE Q764 THRL 50 DMSNODE NIL $
  ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

- 8 To confirm the change, type

>Y

and press Enter.

- 9 To quit from the table, type

>QUIT

and press Enter.

- 10 The procedure is complete.

Setting up the signaling link marginal performance report

Application

The signaling link marginal performance report (SLMPR) is present in offices that have the CCS7-MTP/SCCP feature (functionality group NTX041AB).

Definition

The SLMPR identifies signaling links in which the following faults occurred in the last hour:

- signaling unit errors
- negative acknowledgements
- automatic changeovers to alternate signaling links

This report also lists links with faults that exceed the threshold set in table OFCVAR.

To produce the SLMPR, the system software obtains peg counts from registers C7SUERR, C7NACKRX, and C7AUTOCO. The peg counts are in operational measurements (OM) group C7LINK1. The software prints the peg counts in log report CCS198.

The report indicates if faults exceed one of the thresholds set in table OFCVAR. If office parameter C7_SLMPR_ALARM_ON of table OFCVAR is ON, a linkset small alarm raises for the link. The location of the link is the CCS level of the MAP display.

Note: If the report will include a signaling link, the link must assign option SLMPR through datafill in table C7LINK, field LINKOPT. Refer to the *Translations Guide* for more information.

Example data from the SLMPR appears below. In the example, the numbers under the SU header are the signaling unit errors. The numbers under NACK are the negative acknowledgements. The numbers under AUTOCOV are the changeovers to alternate signaling links. The numbers with an asterisk (*) exceeded the threshold set in table OFCVAR.

```

CCS198 Apr 10 19:00:00 2636 INFO
Signaling Link Marginal Performance Report
Link          SU  NACK  AUTOCOV
C7LKSET1 1    120 403*2
C7LKSET1 3    570*169 1
C7LKSET2 2    168 65 1

```

Setting up the signaling link marginal performance report (continued)

Common procedures

There are no common procedures.

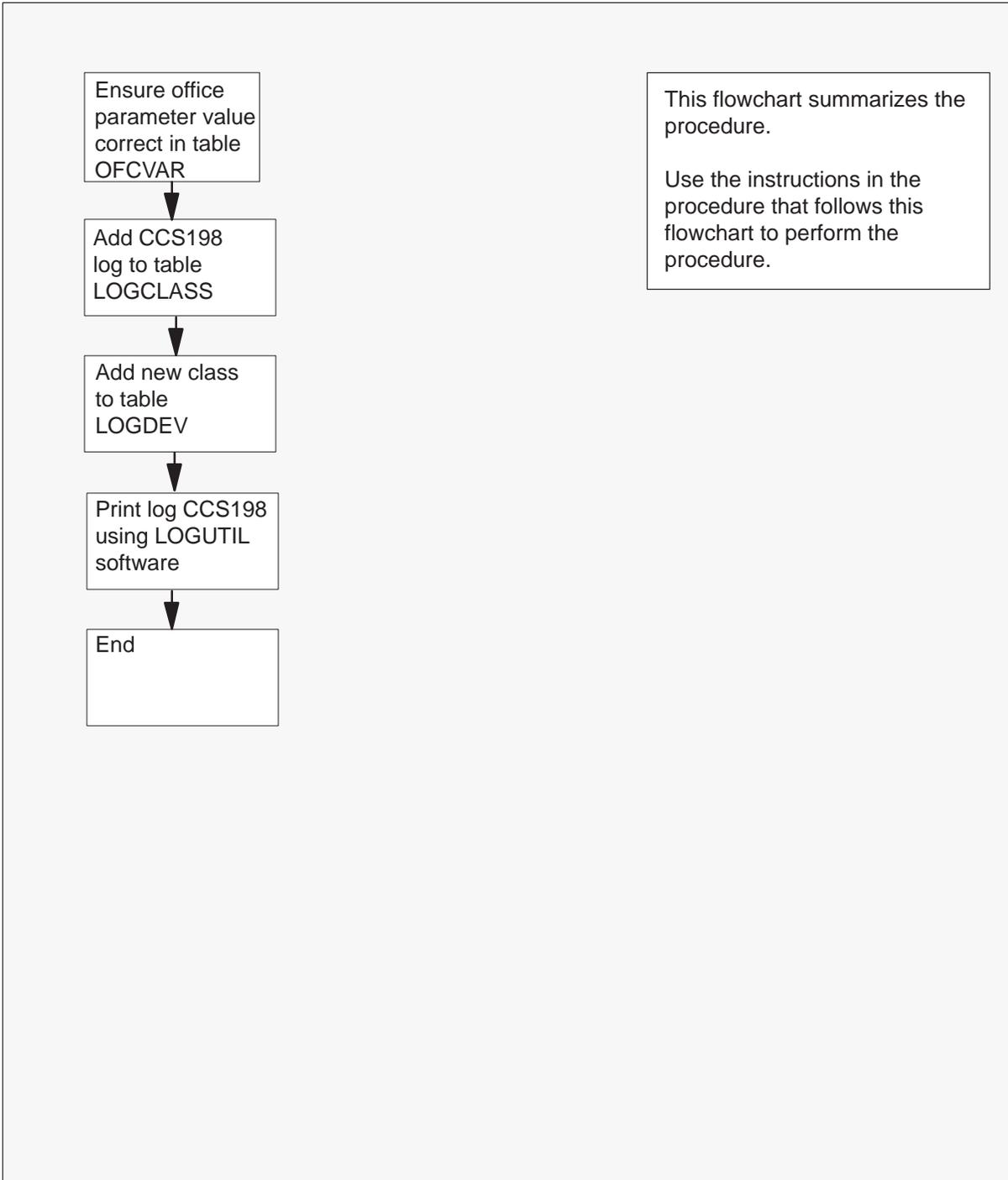
Action

This procedure contains a flowchart and a list of steps required to perform the procedure.

Setting up the signaling link marginal performance report

(continued)

Summary of Setting up the signaling link marginal performance report



Setting up the signaling link marginal performance report (continued)

Setting up the signaling link marginal performance report

At the MAP terminal

- 1 To access the CM level of the MAP display, type
>MAPCI;MTC;CM
and press Enter.
- 2 Determine if the computing modules (CM) have a synchronized status.
- 3 To quit from the CM level of the MAP, type
>QUIT ALL
and press Enter.
- 4 To access table OFCVAR, type
>TABLE OFCVAR
and press Enter.
- 5 To position on the office parameter C7_SLMPR_ALARM_ON, type
>POSITION C7_SLMPR_ALARM_ON
and press Enter.

Example of a MAP response:

```
C7_SLMPR_ALARM_ON      N
```

- 6 Determine the value of the office parameter.

If the value	Do
is Y	step 9
is N	step 7

- 7 To change the value of the field to Y, type
>CHANGE 2 Y
and press Enter.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
C7_SLMPR_ALARM_ON      Y
ENTER Y TO CONFIRM, N TO REJECT or E TO EDIT.
```

Setting up the signaling link marginal performance report (continued)

- 8 To confirm the command, type
>Y
and press Enter.
Example of a MAP response:
TUPLE CHANGED

- 9 To quit from table OFCVAR, type
>QUIT
and press Enter.

- 10 To create OM class C7SLMPR, type
>OMCLASS C7SLMPR SINGLE
and press Enter.

- 11 To add group C7LINK1 to class C7SLMPR, type
>OMACCGRP C7SLMPR ADD GROUP C7LINK1
and press Enter.

- 12 To delete all registers from group C7LINK1, type
>OMACCFLD C7SLMPR C7LINK1 DELETE ALL
and press Enter.

- 13 To add field C7SUERR, type
>OMACCFLD C7SLMPR C7LINK1 ADD FIELD C7SUERR
and press Enter.

- 14 To add field C7NACKRX, type
>OMACCFLD C7SLMPR C7LINK1 ADD FIELD C7NACKRX
and press Enter.

- 15 To add field C7AUTOCO, type
>OMACCFLD C7SLMPR C7LINK1 ADD FIELD C7AUTOCO
and press Enter.

- 16 To access table OMACC, type
>TABLE OMACC
and press Enter.

Setting up the signaling link marginal performance report (continued)

17 To position on tuple C7SLMPR to read the class schedule, type
>POSITION C7SLMPR
 and press Enter.

18 To display the tuple with headers, type
>LIST
 and press Enter.

Example of a MAP response:

```

CLASS          ENABLED      WHEN
-----
C7SLMPR        N            AUTO
    
```

19 Determine the value of field ENABLED.

If the value of field ENABLED	Do
is Y	step 20
is N	step 21

20 If each hour CCS198 log reports are necessary, then the WHEN field needs to change. Change the REP subfield from AUTO to HOURLY. The STARTUP subfield will be C00.

Example of a MAP response:

```

CLASS          ENABLED      WHEN
-----
C7SLMPR        Y            HOURLY C00
    
```

To confirm the editing of the tuple, type

>Y
 and press Enter.

Example of a MAP response:

TUPLE CHANGED :

Go to step 24.

Setting up the signaling link marginal performance report (continued)

- 21 To change the value to Y, type

>CHANGE 2 Y

and press Enter.

Example of a MAP response:

```
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

- 22 To confirm the command, type

>Y

and press Enter.

Example of a MAP response:

```
TUPLE CHANGED:
```

- 23 To quit from table OMACC, type

>QUIT

and press Enter.

- 24 To access table LOGCLASS, type

>TABLE LOGCLASS

and press Enter.

- 25 To go to the end of the table LOGCLASS, type

>BOTTOM

and press Enter.

Example of a MAP response:

```
DPAC      102 0    0    N    -1  Y
```

- 26 To determine the number of the last class in the table, type

>LIST

and press Enter.

Example of a MAP response:

```
REPNAME CLASS  THRESHLD      SUPPRESS      TUNITS  SYSLOG
-----
DPAC 102    0          0          N          -1      Y
```

Note: In the MAP response, the number of the last class is the last number in the CLASS column.

Setting up the signaling link marginal performance report (continued)

- 27** To add the CCS198 log to a new class in the table, type

>ADD

and press Enter.

Example of a MAP response:

REPNAME :

- 28** To enter the log name and report number, type

>CCS198 0

and press Enter.

Example of a MAP response:

CLASS :

- 29** To enter the new class number (1 greater than the last class listed in the table, as noted in step 26), type

>new_class_number

and press Enter.

where

new_class_number is the number of a new class

Example of a MAP response:

THRESHLD :

- 30** To enter the threshold number for the messages that will print, type

>0

and press Enter.

Example of a MAP response:

SUPPRESS :

- 31** To specify that the log or report output is free from suppression, type

>N

and press Enter.

Example of a MAP response:

TUNITS :

Setting up the signaling link marginal performance report (continued)

- 32 To enter the time units for a threshold report, type

>0

and press Enter.

Example of a MAP response:

```
SYSLOG:
```

- 33 To respond to the MAP prompt, type

>N

and press Enter.

Example of a MAP response:

```
TUPLE TO BE ADDED:
  CCS   198       1       0       N       0       N
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

- 34 To confirm the changes, type

>Y

and press Enter.

- 35 To quit from the table, type

>QUIT

and press Enter.

- 36 To access table LOGDEV, type

>TABLE LOGDEV

and press Enter.

Example of a MAP response:

```
TABLE: LOGDEV
```

- 37 To specify that you want to add a new class to a printer, type

>ADD

and press Enter.

Example of a MAP display:

```
DEV:
```

Setting up the signaling link marginal performance report (continued)

- 38 To specify the printer that the log will travel to, type

>printer
and press Enter.

where

printer is the name of the printer that will print the log.

Note: The name assigned in table TERMDEV must identify the printer.

Example of a MAP response:

ALT :

- 39 To specify an alternate printer in case the printer specified in step 38 fails, type

>printer2
and press Enter.

where

printer2 is the name of an alternate printer that will print the log

Note: If an alternate printer is not available, enter NIL.

Example of a MAP response:

CLASSES :

- 40 To specify a new class (1 greater than the last class listed in the table as noted in step 26), type

>(new_class_number)
and press Enter.

where

new_class_number is the number of a new class

Example input:

'(1)'

Example of a MAP display:

FORMAT :

Setting up the signaling link marginal performance report (continued)

- 41 To specify standard log format, type

>STD

and press Enter.

Example of a MAP response:

```
PRIORITY:
```

- 42 To specify that message priority is not important, type

>N

and press Enter.

Example of a MAP response:

```
GUAR:
```

- 43 To specify that a guaranteed device is not necessary, type

>N

and press Enter.

Example of a MAP response:

```
TUPLE TO BE ADDED:
```

```
STD N N RP061 NIL (1)
```

```
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

- 44 To confirm the changes, type

>Y

and press Enter.

- 45 To quit from table LOGDEV, type

>QUIT

and press Enter.

- 46 To access the LOGUTIL software, type

>LOGUTIL

and press Enter.

Setting up the signaling link marginal performance report (end)

- 47** To start to print log CCS198 on the printer, type
>STARTDEV printer_name
and press Enter.
where
printer_name is the printer you specified in table LOGDEV in step 38
or step 39
- 48** To quit from the LOGUTIL software, type
>QUIT
and press Enter.
Go to step 49.
- 49** The procedure is complete.

Softkey information does not download to the ADSI set

Application

Use this procedure to determine why softkey information does not download to the subscriber set.

Definition

A complaint indicates that the Analog Display Services Interface (ADSI) set of the subscriber does not contain downloaded softkey definitions. As a result, the softkeys on the set do not function correctly.

Common procedures

There are no common procedures.

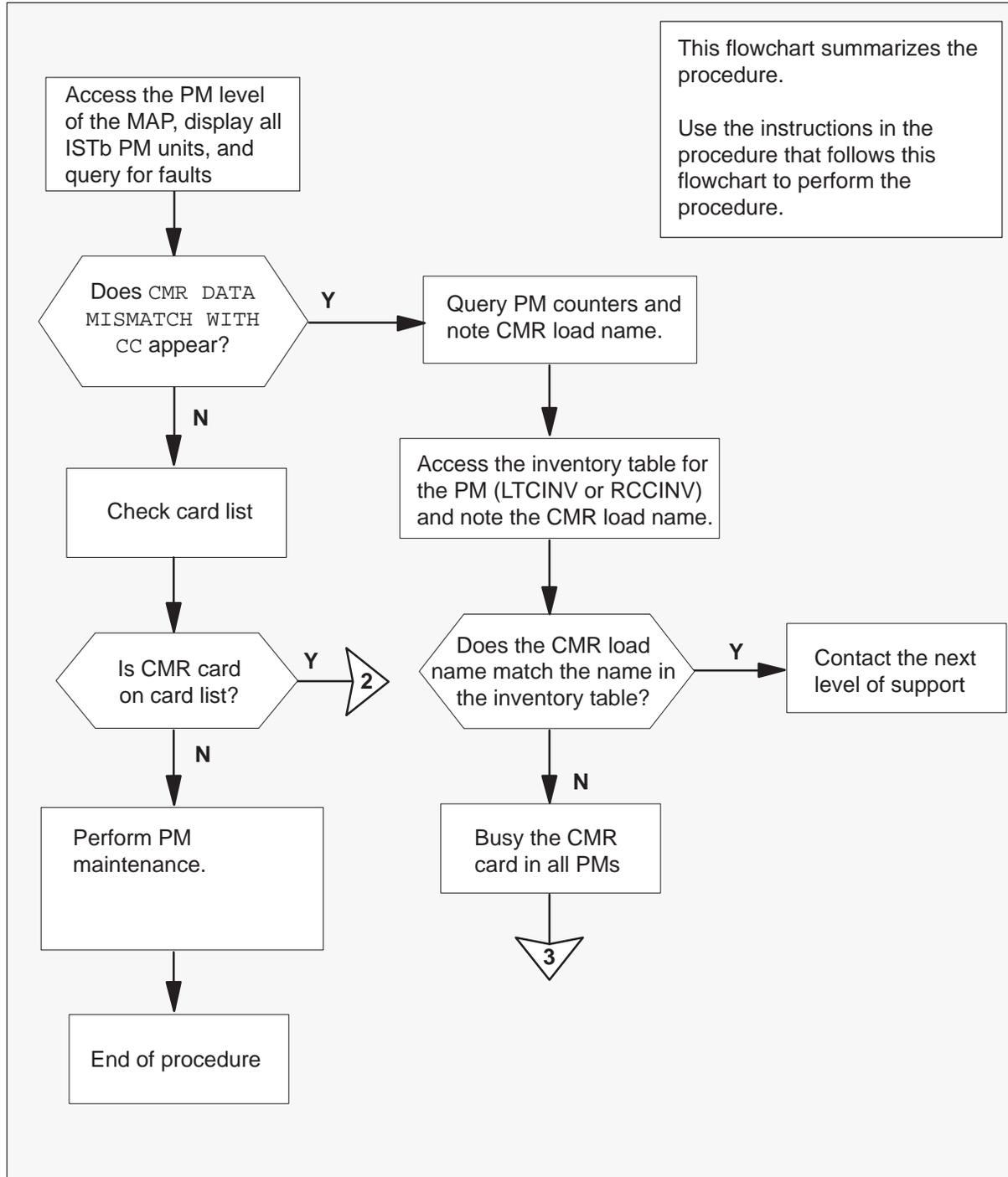
Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Note: The CLASS modem resource (CMR) card NT6X78 can go out of service in the active unit. If the card goes out of service, the operating company personnel can busy, replace, load, and return the card to service. The operating company personnel do not need to execute these operations on the whole unit.

Softkey information does not download to the ADSI set (continued)

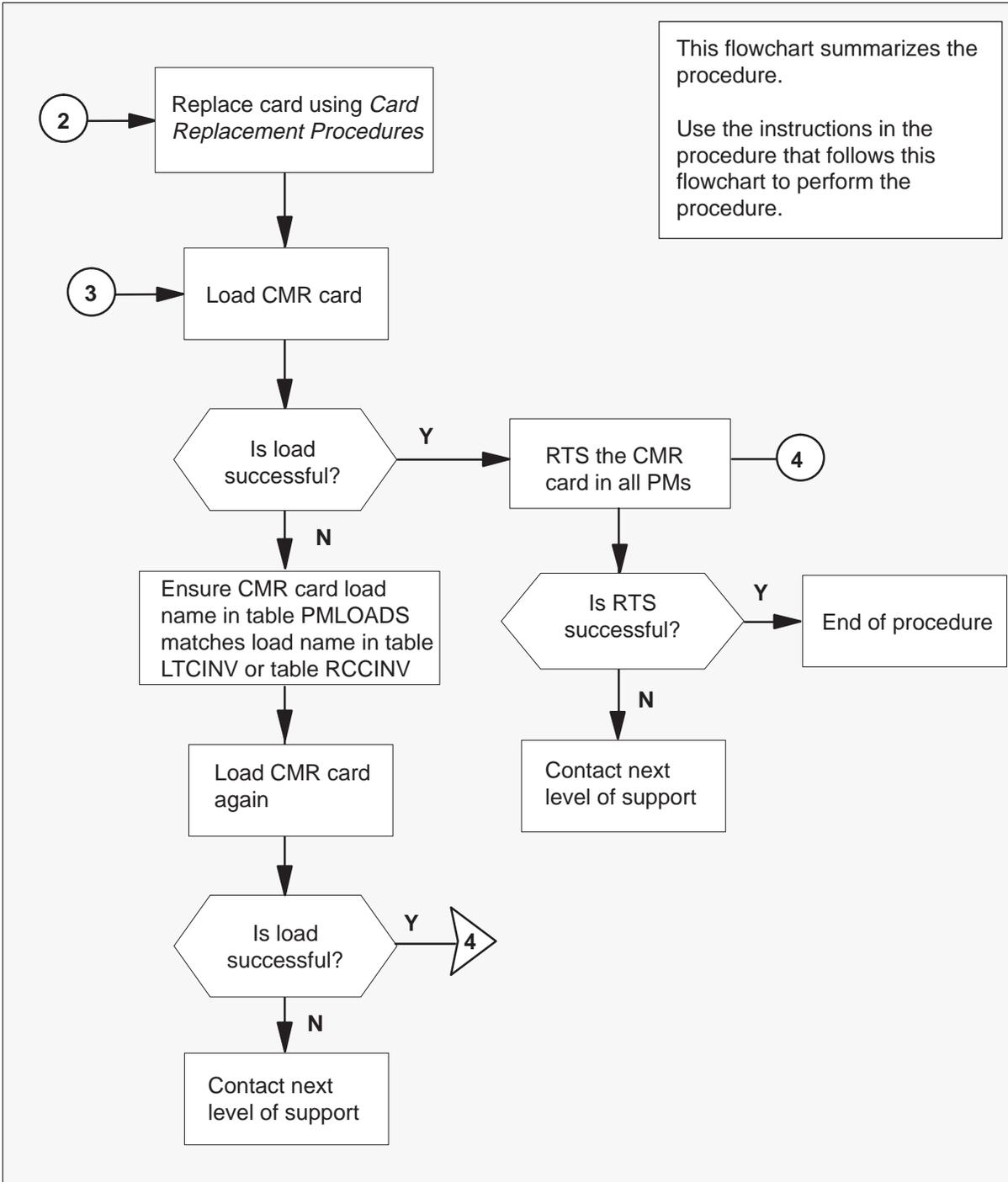
Summary of how Softkey information does not download to the ADSI set



Softkey information does not download to the ADSI set

(continued)

Summary of Softkey information does not download to the ADSI set (continued)



Softkey information does not download to the ADSI set (continued)

Softkey information does not download to the ADSI set

At the MAP terminal:

- 1 To access the PM level of the MAP display, type
>MAPCI;MTC;PM
 and press Enter.
- 2 To display all the ISTb PMs, type
>POST ISTB
 and press Enter.
- 3 To check for fault indicators, type
>QUERYPM FLT
 and press Enter.

If response	Do
is CLASS MODEM RESOURCE CARD NT6X78 OUT OF SERVICE	step 4
is CMR DATA MISMATCH WITH CC	step 8
is CMR LOAD MISMATCH WITH INVENTORY TABLE	step 11
is other than listed here	step 18

- 4 Check the card list for the CMR card.

The following card list is a standard message that refers to a CMR card that is out of service.

```

QUERYPM FLT
CLASS MODEM RESOURCE CARD NT6X78
OUT OF SERVICE
Replace the Cards in the Card List
and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 D02 LGE 00 18 LGC : 000 13 6X78
    
```

Softkey information does not download to the ADSI set

(continued)

- 5 Check the card list for the CMR card.

If CMR card	Do
is on card list	step 6
is not on card list	step 7

- 6 Use the *Card Replacement Procedures* manual to replace the CMR card.
- 7 Perform PM maintenance.
- 8 Use the QUERYPM CNTRS command to determine the CMR load name.

>QUERYPM CNTRS

and press Enter.

Example of a MAP response:

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.  
Unit 0:  
RAM Load: ECL05AY  
EEPROM Version: AC01  
EEPROM Load: Loadable: MX77NF02, Executable: MX77NF02  
CMR LOAD: CMR03A  
UP: MX77AA  
Unit 1:  
RAM Load: ECL05AY  
EEPROM Version: AC01  
EEPROM Load: Loadable: MX77nf02, Executable: MX77NF02  
CMR LOAD: CMR03A  
UP: MX77AA
```

Note: In this example, the CMR load name is CMR03A.

- 9 To access the inventory table for the PM (LTCINV or RCCINV), type

>TABLE LTCINV

and press Enter.

Softkey information does not download to the ADSI set
(continued)

- 10 Compare the CMR load name in the PM and the CMR load name in the inventory table.

If CMR load name in PM	Do
matches the CMR load name in the inventory table	step 18
does not match the CMR load name in the inventory table	step 11

Softkey information does not download to the ADSI set
(continued)

11



CAUTION

Loss of Service

A BSY of the CMR card on the active unit of the PM affects CLASS services. CLASS services that use the card cannot function.



CAUTION

Loss of Service

A BSY of the CMR card on the active unit of the PM affects CLASS services. CLASS services that use the card cannot function.

To busy the CMR card, type

>BSY UNIT unit_no CMR

and press the Enter key.

where

unit_no is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to busy only the CMR card

12 To load the CMR card, type

>LOADPM UNIT unit_no CC CMR

and press Enter.

where

unit_no is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to load only the CMR card.

Follow the directions in the table.

If	Do
the loading completes correctly	step 13
CMR FAILED TO LOAD. TASK ABORTED WHILE LOADING CMR	step13
—continued—	

Softkey information does not download to the ADSI set (continued)

If	Do
CMR FILE CMRXXX NOT FOUND ON DEVICE INDICATED IN TABLE PMLOADS Note: CMRXXX is the CMR load name.	step 13
FAILED TO OPEN CORRECTLY	step 13
—end—	

- 13** Verify that the CMR card can load. To use the QUERYPM CNTRS command to determine the CMR load name, type

>QUERYPM CNTRS

and press Enter.

Example of a MAP response:

```

Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.
Unit 0:
RAM Load: ECL05AY
EEPROM Version: AC01
EEPROM Load: Loadable: MX77NF02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
Unit 1:
RAM Load: ECL05AY
EEPROM Version: AC01
EEPROM Load: Loadable: MX77nf02, Executable: MX77NF02
CMR LOAD: CMR03A
UP: MX77AA
    
```

Note: In this example, the CMR load name is CMR03A.

- 14** Ensure that the CMR card load name in table PMLOADS matches the load name in table LTCINV or table RCCINV.

Softkey information does not download to the ADSI set (continued)

- 15 To load the CMR card again, type
>LOADPM UNIT unit_no CC CMR
 and press Enter.

where

unit_no is the number of the PM unit (0 or 1)

If load	Do
passes	step 16
fails	step 18

Note: CMR is an optional parameter that means to load only the CMR card.

- 16 To return the CMR card to service, type
>RTS UNIT unit_no CMR
 and press Enter.

where

unit_no is the number of the PM (0 or 1)

CMR is an optional parameter that means to return to service only the CMR card

The following card list is a standard message for a CMR card failure.

```

RTS Failed, TESTALL
Diagnostic TESTALL failed.
Fail message received from PM
Replace the Cards in the Card List
and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 D02 LGE 00 18 LGC : 000 13 6X78
    
```

If RTS	Do
passes	step 16
fails and the CMR card is on the card list	step 17

Softkey information does not download to the ADSI set
(end)

17 Use the following information to determine the next step in this procedure.

If	Do
a first-time replacement of the CMR card	step 6
replaced CMR card already	step 18

18 For additional help, contact the person responsible for the next level of support.

19 The procedure is complete.

Test the DS-1 carrier states

Application

Use this procedure to test the DS-1 carrier states during the Common Channel Signaling 7 (CCS7) bit error rate test (C7BERT) for high-speed links (HSL).

Perform this procedure when you run C7BERT.

Definition

Test the DS-1 carrier transmit and receive ports on the HSL DS-1 paddle board (NTEX78AA) to check the carrier states at the local and remote office.

The DS-1 carrier can be in one of the following states:

- InSv (in service), which indicates that the carrier is not broken, the framing of the signal is correct, and the DS-1 cards receive idle asynchronous transfer mode (ATM) cells
- LOS (loss of signal), which indicates that the cards do not receive the DS-1 carrier signal
- LOF (loss of framing), which indicates that the cards receive the DS-1 carrier signal, but the framing of the signal is corrupted
- LCD (loss of cell delineation), which indicates that the DS-1 cards do not receive any ATM cells
- AIS (alarm indication signal), which indicates that a DS-1 carrier failure occurred
- RAI (remote alarm indication), which indicates that a DS-1 carrier failure occurred
- OOS (out of service), which indicates that a DS-1 carrier is not in service because of peripheral module (PM) failure or because the PM is not configured to bring the carrier into service

Common procedures

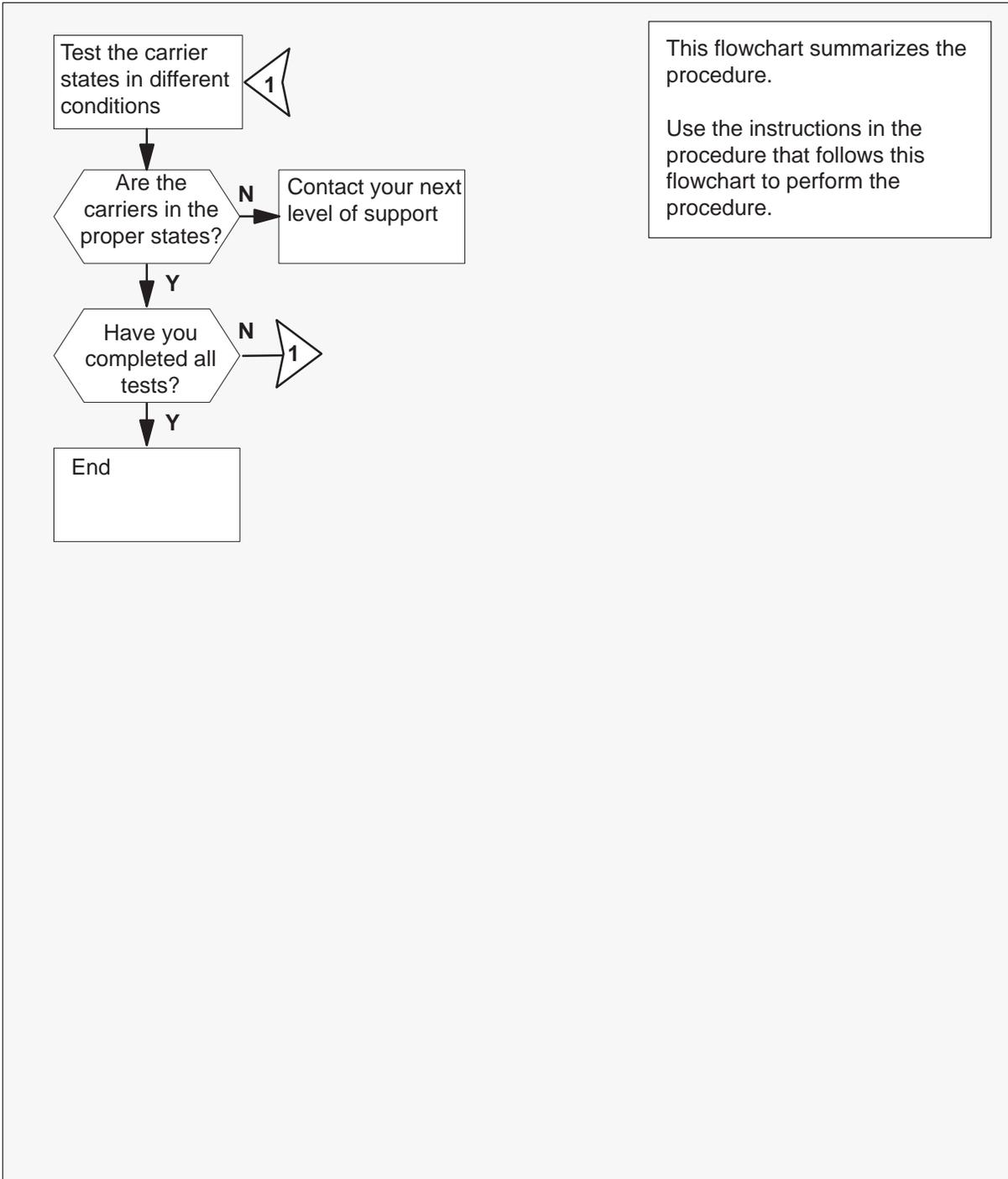
None

Action

This procedure contains a summary flowchart and a list of specific steps. Use the flowchart as an overview of the procedure. Follow the specific steps to perform the procedure.

Test the DS-1 carrier states (continued)

Summary of Test the DS-1 carrier states



Test the DS-1 carrier states

(continued)

Test the DS-1 carrier states

At the MAP display

- 1 Monitor the DS-1 carrier states at the C7BERT level. If the transmit (Tx) and receive (Rx) cables connect correctly to the DS-1 paddle board at the local and remote end, the carrier state for both cards should be InSv.

If the carrier states are	Do
InSv at the local end and InSv at the remote end	step 2
anything else	step 7

- 2 Pull the Tx cable at the local end and check the carrier states.

If the carrier states are	Do
RAI at the local end and LOS at the remote end	step 3
anything else	step 7

- 3 Pull the Rx cable at the local end and check the carrier states.

If the carrier states are	Do
LOS at the local end and LOS at the remote end	step 4
anything else	step 7

Test the DS-1 carrier states (end)

- 4 Plug in the Rx and Tx cables and pull out the Tx cable at the outgoing channel bank at the local end. Check the carrier states.

If the carrier states are	Do
RAI or any other alarm indicator for the local end and LCD at the remote end	step 5
anything else	step 7

- 5 Pull out the Rx cable at the incoming channel bank at the local end. Check the carrier states.

If the carrier states are	Do
LCD at the local end and LCD at the remote end	step 6
anything else	step 7

- 6 Plug in the cables and check the carrier states.

If the carrier states are	Do
InSv at the local end and InSv at the remote end	step 8
anything else	step 7

- 7 For help, contact your next level of support.
- 8 You have completed this procedure. Return to the "Running a C7BERT for high-speed links" procedure.

Troubleshooting a customer-reported failure

No FRIU alarms

Application

Use this procedure to clear faults when the following two conditions occur.

- The customer reports a service interruption.
- Frame relay interface unit (FRIU) alarms are not under the alarm banner on the MAP display.

Definition

FRIU alarms are not on the MAP banner. Post the FRIU and clear any alarms. Query traffic and perform loopback tests when no alarm exists for the posted FRIU.

Common procedures

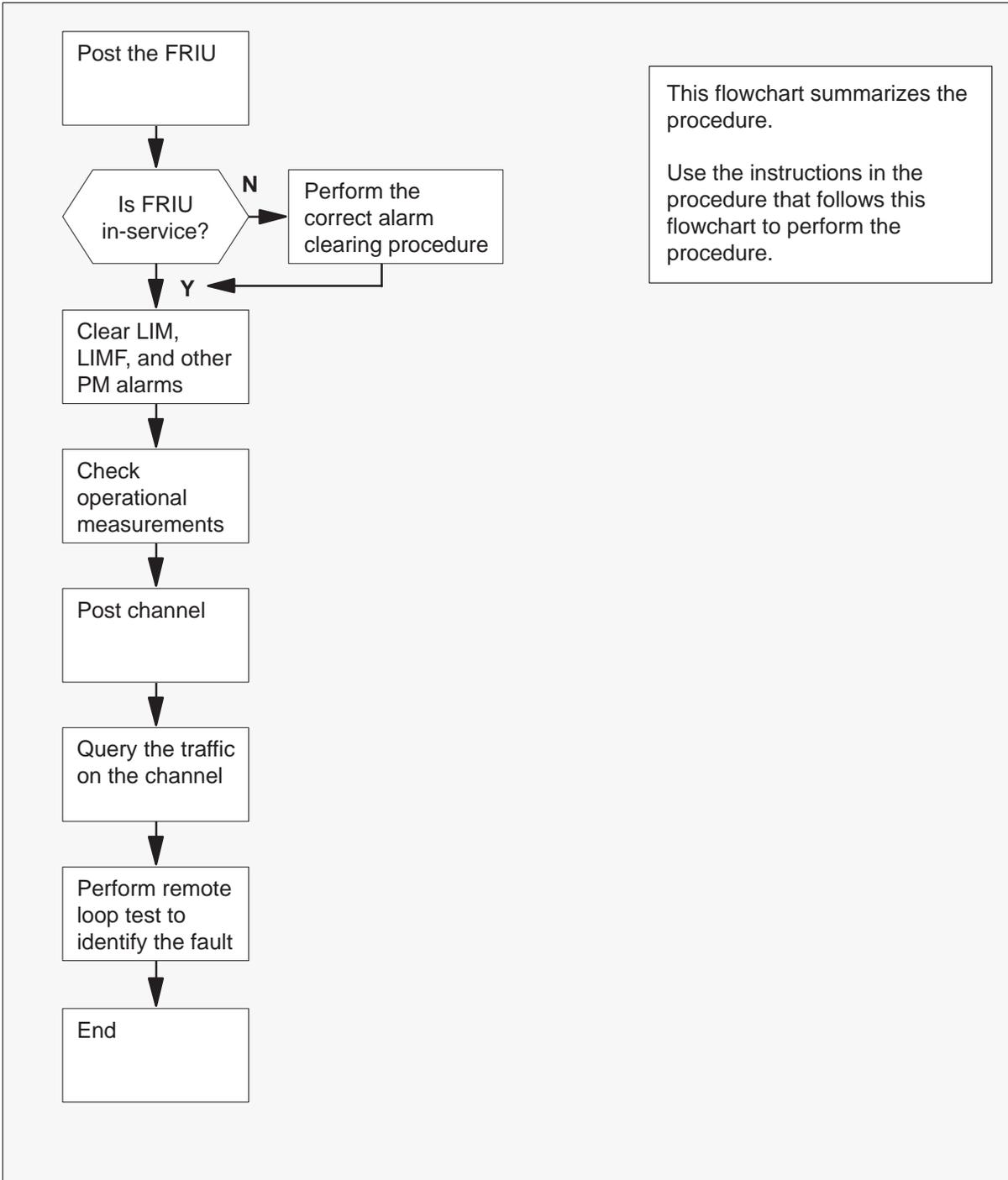
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Troubleshooting a customer-reported failure No FRIU alarms (continued)

Summary of Troubleshooting a customer reported failure - no FRIU alarms



Troubleshooting a customer-reported failure No FRIU alarms (continued)

Troubleshooting a customer-reported failure– no FRIU alarms

At the MAP terminal

- 1 Obtain the directory number (DN) from the fault report.
- 2 To access the PVDNCI level of the MAP display, type

>PVDNCI

and press Enter.

Example of a MAP response

PVDNCI :

- 3 To identify the agent ID for the DN obtained from the fault report, type

>FRSDISP DN NO dir_no

and press Enter.

where

dir_no is the DN obtained from the fault report

Example of a MAP response

PVDNCI :

DN 6132263770 belongs to FRS Agent 1

Note: The agent ID appears at the end of the response. In the example, the agent ID is 1.

- 4 To locate the FRIU and channel for the agent ID, type

>FRSDISP AGENT ID agent_no

and press Enter.

where

agent_no is the agent ID obtained in step 3

Example of a MAP response

```
AGENT DN      NP   SPEED CONDEV AB  CUSTOMER  CONNECT TO
1 6132263770 NATL LS_1536KBS NIL N1          FRIU 5 7
```

Note: The FRIU number and channel assigned to this agent appear under the CONNECT TO header in the MAP response. In the example, the FRIU is 5 and the channel number is 7.

- 5 To return to the CI level of the MAP display, type

>QUIT

and press Enter.

Troubleshooting a customer-reported failure No FRIU alarms (continued)

- 6 To access the PM level of the MAP display, type
>MAPCI; MTC; PM
and press Enter.

- 7 To post the FRIU identified in step 4, type
>POST FRIU friu_no
and press Enter.
where
friu_no is the FRIU number obtained in step 4

If the FRIU	Do
is SysB	step 8
is SysB (NA)	step 8
is ManB	step 9
is ManB (NA)	step 9
is ISTb	step 10
is ISTb (NA)	step 8
is InSv (NA)	step 11
is InSv	step 13

- 8 Perform the procedure *Clearing a PM FRIU critical alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

- 9 Perform the procedure *Clearing a PM FRIU major alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

- 10 Perform the procedure *Clearing a PM FRIU minor alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.

- 11 Determine from the MAP banner if any alarms are present under the PM header.

If alarms	Do
are present	step 12
are not present	step 13

Troubleshooting a customer-reported failure

No FRIU alarms (continued)

- 12 Perform the correct alarm clearing procedures. Refer to *Alarm and Performance Monitoring Procedures*.
- 13 Check the operational measurements (OM) that apply to DataSPAN. Look for high counts of cyclic redundancy test (CRC) errors in:
 - OM group FRSAGENT, register PTERR for each involved agent
 - OM group FRSPM, register PORTERR for each involved device
 - OM group FRT1, register FRT1CRC for the involved carrier

For example, to check register FRT1CRC for OM group FRT1, type

>OMSHOW FRT1 ACTIVE 3

and press Enter.

Example of a MAP response

```
CLASS: ACTIVE
START:1997/08/21 21:15:00 THU; STOP:1997/08/21 21:16:10 THU;
SLOWSAMPLES: 1; FASTSAMPLES 7;
```

```
INFO (FRT1OMINF)
FRT1LCGA FRT1RCGA FRT1LOF FRT1SBU
FRT1MBU FRT1CBU FRT1BER FRT1ES
FRT1SES FRT1UAS FRT1AIS FRT1CRC
```

```
3 FRIU 29
      0      0      0      0
      0      0      0      0
      0      0      0      0
```

For more information on OMs, refer to *Operational Measurements Reference Manual*.

Troubleshooting a customer-reported failure No FRIU alarms (end)

- 14 To post the access channel, type

>CARR;CHAN;POST chan_no
and press Enter.

where

chan_no is the channel number that appeared in response to the PVDNCI command

Example of a MAP display

```

CARRIER                      Alarm  BER    ES   SES   UAS
InSv                          <-9.  0     0    0    211

CHANNEL 1
      N

CHANNEL 1      ( 24 x DS0)
InSv /NoLMI
    
```

- 15 To check the traffic level on the access channel, type

>QTRAFFIC
and press Enter.

Example of a MAP response

```

CHANNEL 1      (24 x DS0)
InSv /NoLMI
qtraffic
Traffic from 15:30:00 to 15:36:32
Frames Tx:      30 Frames Rx:      0 Abort Rx:      0
Port errors:    0 Invalid msg length: 0 Invalid DLCI: 0
    
```

- 16 Perform remote loop tests to identify the fault. Refer to *Routine Maintenance Procedures* to install and remove loops required for carrier and channel remote loopback tests.
- 17 The procedure is complete.

Troubleshooting a customer-reported failure No PM alarms

Application

- The customer reports service disruption.
- Peripheral module (PM) alarms are not under the alarm banner on the MAP display.

Definition

PM alarms are not on the MAP banner. Post the FRIU and clear any alarms. Instructions can require you to return channels to service. Query traffic and perform loopback tests when no alarms exist for the posted FRIU.

Common procedures

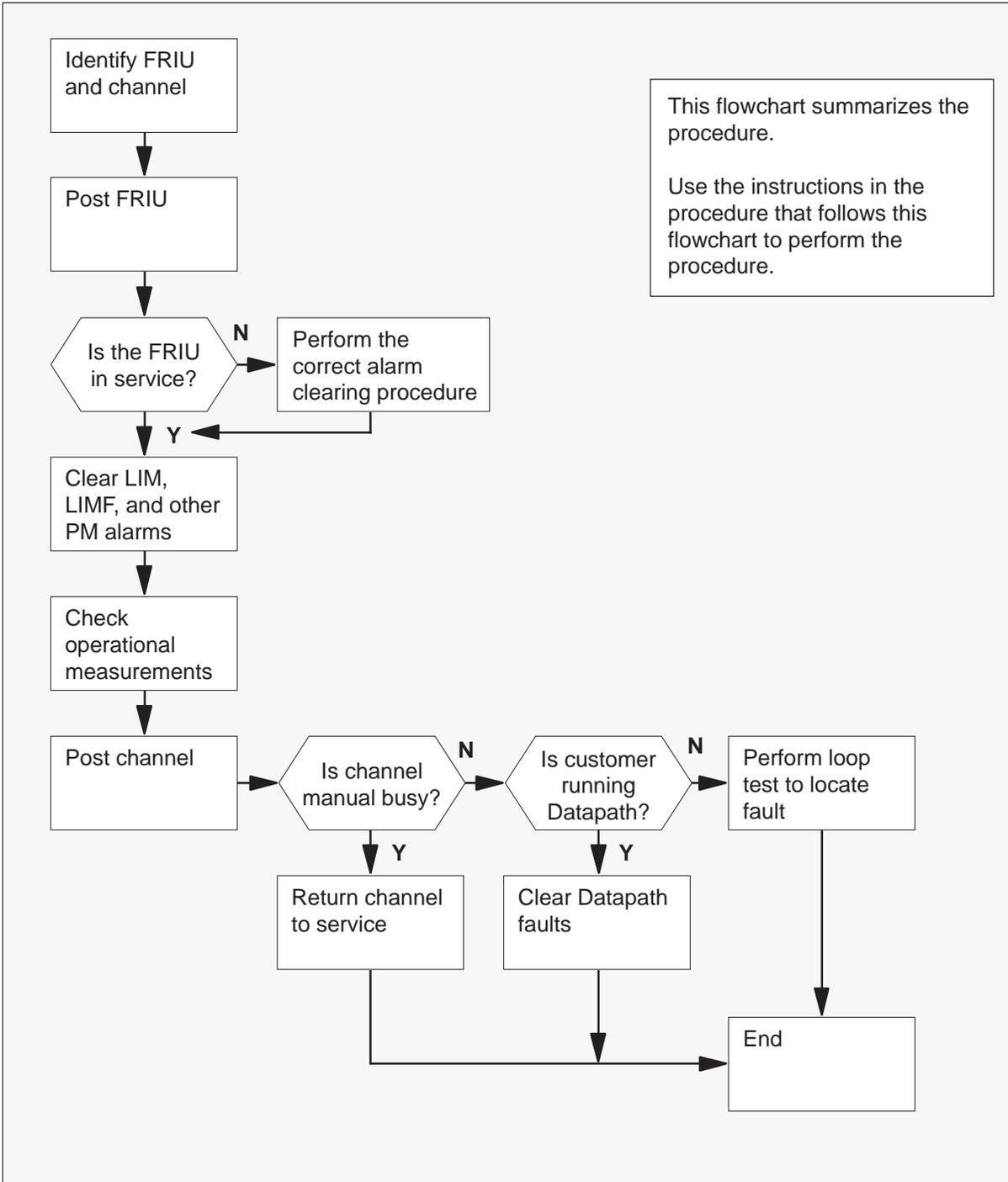
There are no common procedures.

Action

This procedure contains a summary flowchart and a list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Troubleshooting a customer-reported failure No PM alarms (continued)

Summary of Troubleshooting a customer-reported failure – no PM alarms



Troubleshooting a customer-reported failure No PM alarms (continued)

Troubleshooting a customer-reported failure—no PM alarms

At your current location

- 1 Determine the state of the channel.

If the channel state	Do
is not manual-busy	step 2
is manual-busy	step 22

At the MAP terminal

- 2 To access the PVDNCI level of the MAP display, type

>PVDNCI

and press Enter.

Example of a MAP response

PVDNCI :

- 3 To identify the agent ID for the DN obtained from the fault report, type

>FRSDISP DN NO dir_no

and press Enter.

where

dir_no is the DN obtained from the fault report

Example of a MAP response

PVDNCI :

DN 6132263770 belongs to FRS Agent 1

Note: The agent ID appears at the end of the response. In the example, the agent ID is 1.

Troubleshooting a customer-reported failure No PM alarms (continued)

- 4 To locate the FRIU and channel for the agent ID, type

>FRSDISP AGENT ID agent_no
and press Enter.

where

agent_no is the agent ID obtained in step 3

Example of a MAP response

```
AGENT DN      NP   SPEED CONDEV AB CUSTOMER CONNECT TO
1 6132263770 NATL LS_1536KBS NIL N1          FRIU 5 7
```

Note: The FRIU number and channel assigned to this agent appear under the CONNECT TO header in the MAP response. In the example, the FRIU is 5 and the channel number is 7.

- 5 To return to the CI level of the MAP display, type

>QUIT
and press Enter.

- 6 To access the PM level of the MAP display, type

>MAPCI; MTC; PM
and press Enter.

- 7 To post the FRIU identified in step 4, type

POST FRIU friu_no
and press Enter.

where

friu_no is the FRIU number obtained in step 4

If the FRIU	Do
is SysB	step 8
is SysB (NA)	step 8
is ManB	step 9
is ManB (NA)	step 9
is ISTb	step 10
is ISTb (NA)	step 8
is InSv (NA)	step 11
is InSv	step 11

Troubleshooting a customer-reported failure

No PM alarms (continued)

- 8 Perform the procedure *Clearing a PM FRIU critical alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.
- 9 Perform the procedure *Clearing a PM FRIU major alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.
- 10 Perform the procedure *Clearing a PM FRIU minor alarm (on an LPP)* in *Alarm and Performance Monitoring Procedures*. Do not return to this procedure.
- 11 Determine from the MAP banner if any alarms are present under the PM header.

If alarms	Do
are present	step12
are not present	step13

- 12 Perform the correct procedures to clear the alarm. Refer to *Alarm and Performance Monitoring Procedures*.
- 13 Check the operational measurements (OM) that apply to DataSPAN. Look for high counts of cyclic redundancy check (CRC) errors in:
 - OM group FRSAGENT, register PTERR for each involved agent
 - OM group FRSPM, register PORTERR for each involved device
 - OM group FRT1, register FRT1CRC for the involved carrier

For example, to check register FRT1CRC for OM group FRT1, type
>OMSHOW FRT1 ACTIVE 3
 and press Enter.

Example of a MAP response

```
CLASS: ACTIVE
START:1997/08/21 21:15:00 THU; STOP:1997/08/21 21:16:10 THU;
SLOWSAMPLES: 1; FASTSAMPLES 7;
```

```
INFO (FRT1OMINF)
FRT1LCGA FRT1RCGA FRT1LOF FRT1SBU
FRT1MBU FRT1CBU FRT1BER FRT1ES
FRT1SES FRT1UAS FRT1AIS FRT1CRC
```

```
3 FRIU 29
      0      0      0      0
      0      0      0      0
      0      0      0      0
```

Troubleshooting a customer-reported failure No PM alarms (continued)

For more information on OMs, refer to *Operational Measurements Reference Manual*.

- 14 To post the access channel, type

>CARR;CHAN;POST chan_no
and press Enter.

where

chan_no is the channel number that appears in response to the PVDNCI command

Example of a MAP display:

```
CARRIER                Alarm  BER    ES    SES    UAS
  InSv                  <-9.    0     0     211
```

```
CHANNEL  1
          N
```

```
CHANNEL  1      ( 24 x DS0 )
  InSv /NoLMI
```

- 15 Determine the state of each channel.

If the channel state	Do
is ManB	step 16
is any other item, and the customer uses Datapath	step 22
is any other item, and the customer uses DDS	step 23

- 16 Select a manual-busy channel to return to service.

- 17 To post the channel, type

>POST chan_no
and press Enter.

where

chan_no is the number of the channel that will return to service

Troubleshooting a customer-reported failure No PM alarms (end)

- 18 To return the channel to service, type
>RTS
and press Enter.
- 19 Repeat steps 17 to 18 for each manual-busy channel.
Go to step 20.
- 20 Determine if the channels are in service.

If one or more channels	Do
are dot (.) (in service)	step 24
are any other items	step 21

- 21 Perform the correct procedure to clear the alarm. *Alarm and Performance Monitoring Procedures* describe alarm clearing procedures.
- 22 Perform Datapath procedures to clear faults. Refer to *DMS-100 DATAPATH Maintenance and Installation Guide*, 297-2121-223. Do not return to this procedure.
- 23 Perform remote loop tests to identify the fault. Refer to *Routine Maintenance Procedures* for procedures to install and remove loops required for carrier and channel remote loopback tests.
- 24 The procedure is complete.

VSLE session defaults to audio SLE

Application

Use this procedure to determine why the Visual Screen List Editing (VSLE) session defaults to audio Screening List Editing (SLE).

Definition

A subscriber complaint indicates that during a VSLE session, the subscriber receives audio announcements of feature status information. The subscriber receives the announcements rather than the visual display on the Analog Display Services Interface (ADSI) set.

Common procedures

There are no common procedures.

Action

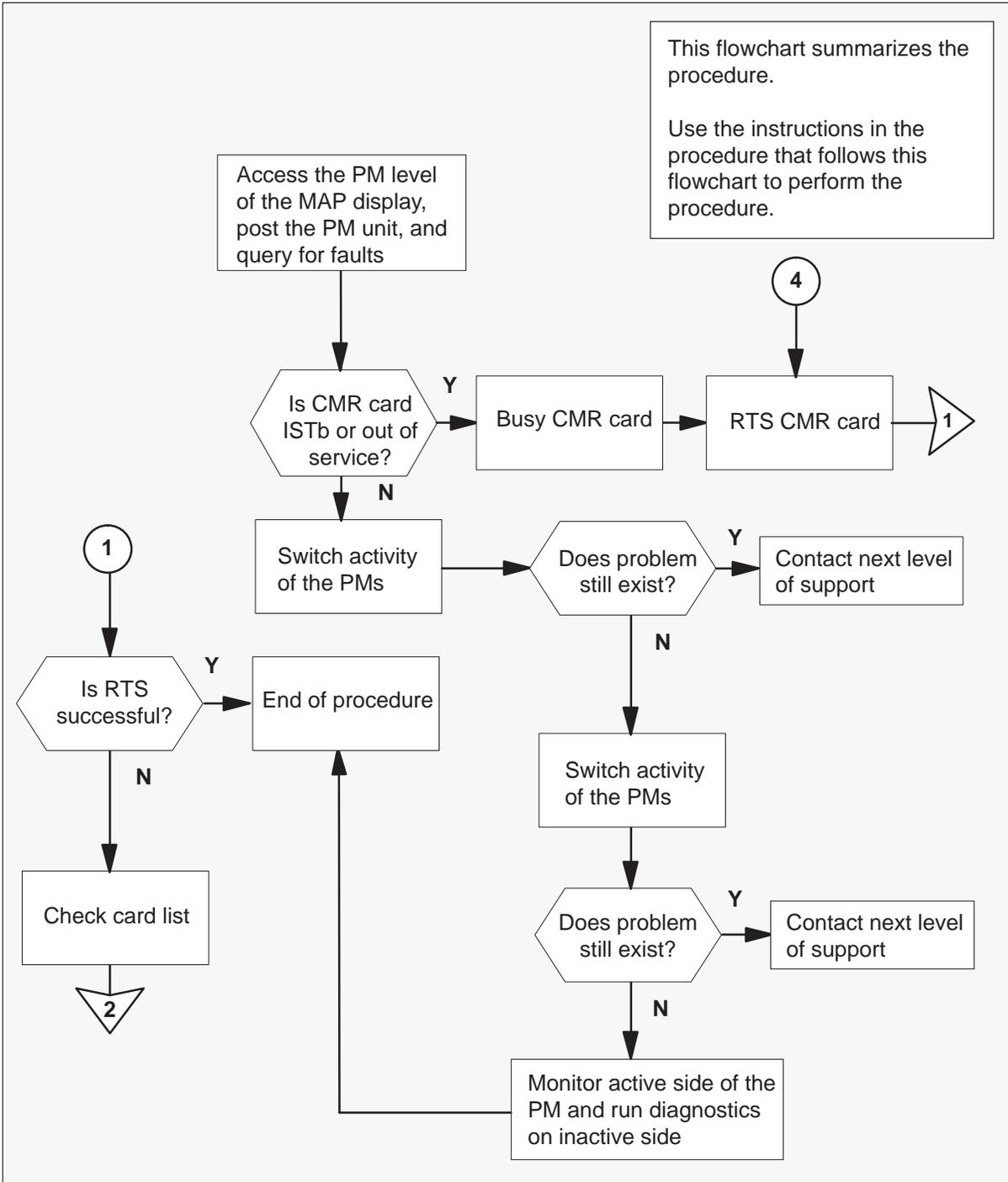
This procedure contains a summary flowchart and list of steps. Use the flowchart as a summary of the procedure. Follow the steps to perform the procedure.

Note: The CLASS modem resource (CMR) card NT6X78 can go out of service in the active unit. If the card goes out of service, the operating company personnel can busy, replace, load, and return the card to service. The operating company personnel do not need to execute these operations on the whole unit.

VSLE session defaults to audio SLE

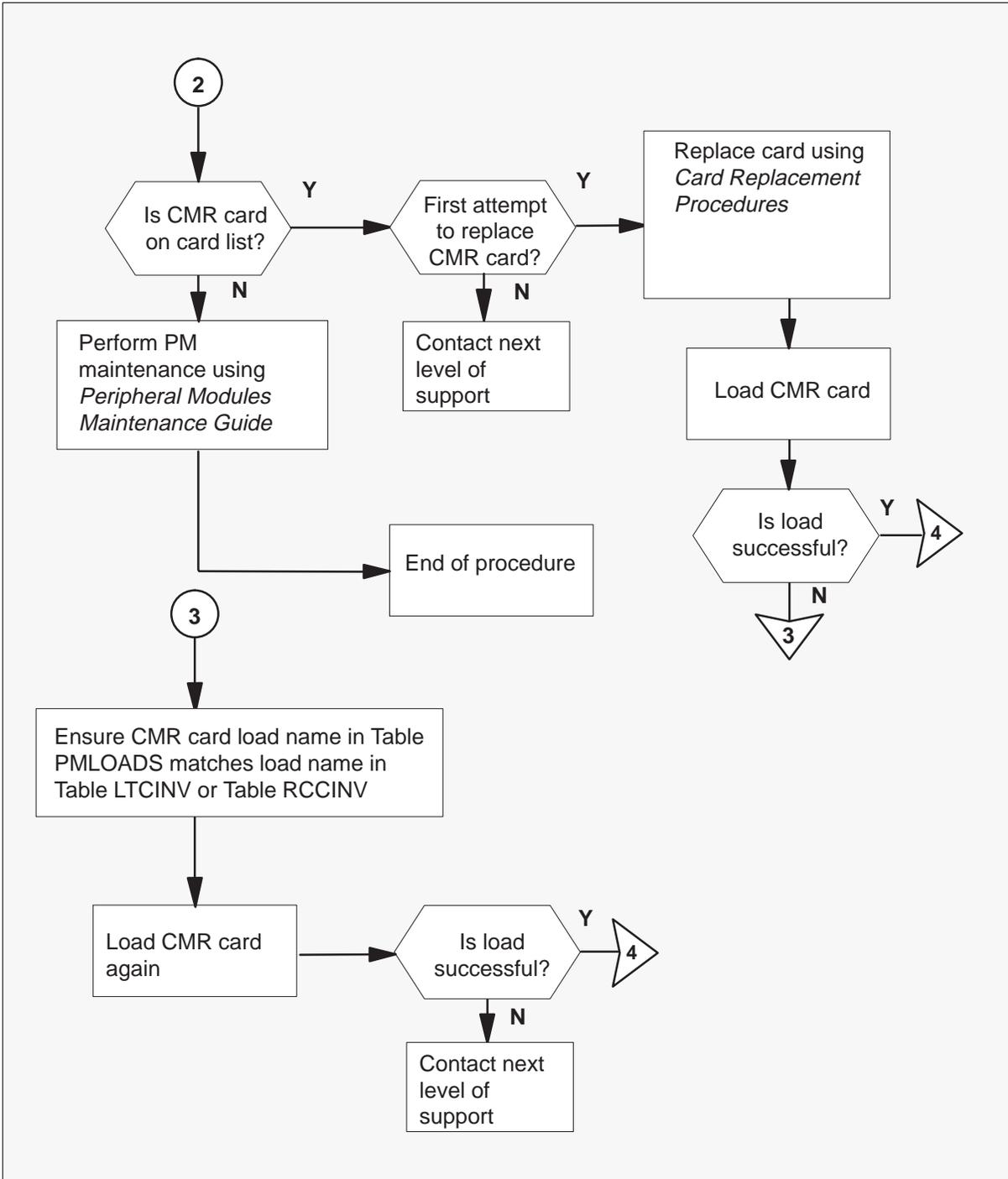
(continued)

Summary of VSLE session defaults to audio SLE



VSLE session defaults to audio SLE (continued)

Summary of VSLE session defaults to audio SLE (continued)



VSLE session defaults to audio SLE

(continued)

VSLE session defaults to audio SLE

At the MAP terminal:

- 1 To access the PM level of the MAP display, type

>MAPCI;MTC;PM

and press Enter.

- 2 To post the peripheral module (PM) unit, type

>POST pm_type pm_number

and press Enter.

where

pm_type is the PM type (LGC, LTC, RCC, SMS, or SMU)

pm_number is the number of the PM (0 through 127)

- 3 To check for fault indicators in the CLASS modem resource (CMR) card, type

>QUERYPM FLT

and press Enter.

If CMR card	Do
is in-service trouble (ISTb) or out of service	step 6
is not ISTb or out of service	step 4

- 4 To switch activity of the unit in order to restore service quickly, type

>SWACT

and press Enter.

If SWACT passes and problem	Do
is present	step 22
is nt present	step 5

VSLE session defaults to audio SLE (continued)

- 5 To switch activity back to the original unit, type
>SWACT
 and press Enter.

If SWACT passes and problem	Do
is present	step 22
is not present	step 20

6



CAUTION
Loss of Service
 A BSY of the CMR card on the active unit of the PM affects CLASS services. CLASS services that use the card can not function.



CAUTION
Loss of Service
 A BSY of the CMR card on the active unit of the PM affects CLASS services. CLASS services that use the card can not function.

To busy the CMR card, type

>BSY UNIT unit_no CMR
 and press Enter.

where

unit_no is the number of the PM (0 or 1)

Note: CMR is an optional parameter that means to busy only the CMR card.

VSLE session defaults to audio SLE

(continued)

- 7 To return the CMR card to service, type

>RTS UNIT unit_no CMR

and press Enter.

where

unit_no is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to return the CMR card to service.

If RTS	Do
passes	step 23
fails	step 8

- 8 Examine the generated card list. The performance of one of the following steps depends on the card list.

The following card list is a standard message of a CMR card failure.

```

RTS Failed, TESTALL
Diagnostic TESTALL failed.
Fail message received from PM
Replace the Cards in the Card List
and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 D02 LGE 00 18 LGC : 000 13 6X78
    
```

If CMR card	Do
is on the card list	step 11
is not on the card list	step 9

- 9 Perform PM maintenance on the PM currently posted and return to this point.

- 10 Go to step 23.

VSLE session defaults to audio SLE (continued)

- 11 Use the following information to determine the next step in this procedure.

If	Do
a first-time replacement of the CMR card	step 12
replaced CMR card already	step 22

- 12 See *Card Replacement Procedures* and return to this point.

- 13 To load the CMR card in the PM, type

>LOADPM UNIT unit_no CC CMR
and press Enter.

where

unit_no is the number of the PM (0 or 1)

Note: Use the LOADPM command to load the CMR card separate from the PM.

If response	Do
is the loading completes correctly	step 17
is CMR FAILED TO LOAD. TASK ABORTED WHILE LOADING CMR	step 14
is CMR FILE CMR33A15 NOT FOUND ON DEVICE INDICATED IN TABLE PMLOADS	step 14
Note: CMR33A15 is the CMR load name	
is FAILED TO OPEN CORRECTLY	step 14

VSLE session defaults to audio SLE

(continued)

- 14 Verify that the CMR card can load. To use the QUERYPM command to determine the CMR load name, type

>QUERYPM CNTRS

and press Enter.

Example of a MAP response:

```
Unsolicited MSG limit = 250, Unit 0 = 0, Unit 1 = 0.
Unit 0:
RAM Load: NLG32BU
ROM Load: XPMRKA02
CMR LOAD: CMR33AI5
CMR DEFINERS: 12
MP: 6X45BA/BB
SP: 6X45BA/BB
Unit 1:
RAM Load: NLG32BU
ROM Load: XPMRKA02
CMR LOAD: CMR33AI5
CMR DEFINERS: 12
MP: 6X45BA/BB
SP: 6X45BA/BB
```

Note: In this example, the CMR load name is CMR33AI5.

- 15 Ensure that the CMR card load name in Table PMLOADS matches the load name in Table LTCINV or Table RCCINV.

- 16 To load the CMR card again, type

>LOADPM UNIT unit_no CC CMR

and press Enter.

where

unit_no is the number of the PM unit (0 or 1)

Note: CMR is an optional parameter that means to load only the CMR card.

If load	Do
passes	step 17
fails	step 22

VSLE session defaults to audio SLE (continued)

17 To return the CMR card to service, type

>RTS UNIT unit_no CMR

and press Enter.

where

unit_no is the number of the PM (0 or 1)

Note: CMR is an optional parameter that means to return only the CMR card to service.

The following card list is a standard message that refers to a CMR card failure.

```

RTS Failed, TESTALL
Diagnostic TESTALL failed.
Fail message received from PM
Replace the Cards in the Card List
and applicable Paddleboards (i.e. 6X12) :
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 D02 LGE 00 18 LGC : 000 13 6X78
    
```

If RTS	Do
passes	step 23
fails but the CMR card is not on the card list	step 18
fails and the CMR card is on the card list	step 19

18 Perform PM maintenance on the PM currently posted. Go to step 23.

19 Go to step 23.

20 Use the following information to determine the next step in this procedure.

If	Do
a first-time replacement of the CMR card	step 12
replaced CMR card already	step 22

21 Monitor the active side of the PM and run diagnostics on the inactive side.

VSLE session defaults to audio SLE

(end)

- 22 Go to step 23.
- 23 For additional help, contact the person responsible for the next level of support.
- 24 The procedure is complete.

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Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of FCC Rules, Docket No. 89-114, 55FR46066.

The MSL-100 system is certified by the Canadian Standards Association (CSA) with the Nationally Recognized Testing Laboratory (NRTL).

This equipment is capable of providing users with access to interstate providers of operator services through the use of equal access codes. Modifications by aggregators to alter these capabilities is a violation of the Telephone Operator Consumer Service Improvement Act of 1990 and Part 68 of the FCC Rules.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

YEAR 2000 READINESS DISCLOSURE

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Publication number: 555-4031-544

Product release: MSL10

Document release: Standard 08.01

Date: April 1999

Printed in the United States of America

NORTEL
NORTHERN TELECOM