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Meridian SuperNode

Commercial Systems

Card Replacement Procedures

MSL15 Standard 12.01 May 2001

NORTEL NETWORKS™

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Card Replacement Procedures

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Publication history

To comply with Nortel Networks Technical Documentation Standards, the Publication history contains updates for the current release and two prior releases.

May 2001

Version 12.01, MSL15 Standard. This version represents an up issue of this document and includes revisions to the Optivity Telephony Manager product..

November 2000

Version11.01, MSL14 Standard. This version represents an up issue of the standard release of this document.

May 2000

Version 10.01, MSL12 Standard. This version updates the replacement procedures for the enhanced controller card, NT7D07BA.

The MSL12 software delivery is part of an on-going evolution. This book is one of serveral transitional documents that must be used with the *NA DMS-100 Card Replacement Procedures, 297-8001-547.*

Disregard the signaling point (SP), Traffic Operator Position System (TOPS), and SuperNode Data Manager (SDM) information as it does not apply to the MSL-100 switch

Contents

About this document

When to use this document

This book provides information about replacing cards in Nortel Networks equipment. It is intended for personnel involved in the maintenance of the Meridian SuperNode SL-100 (MSL-100) switch.

Note: The MSL15 software delivery is part of an on-going evolution. This book is one of several transitional documents that must be used with the following DMS-100 counterparts for the full complement of documentation:

- *NA DMS-100 Card Replacement Procedures, 297-8001-547*

Disregard the signaling point (SP), Traffic Operator Position System (TOPS), and SuperNode Data Manager (SDM) information as it does not apply to the MSL-100 switch.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the next software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the same software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in *Master Index of Publications*.

References in this document

The following documents are referred to in this document:

- *Alarm Clearing Procedures*
- *Digital Recording Announcement Machine DRAM and EDRAM Guide, 297-1001-527.*
- *DMS-100 Family Commands Reference Manual, 297-1001-822*
- *Routine Maintenance Procedures*

Extended peripheral module (XPM)-specific information has been removed from this document. Refer to the appropriate XPM-specific maintenance manual for these procedures. These manuals are numbered in the 297-8yyy-550 series.

Some procedures in this book may also refer to the *Alarm and Performance Monitoring Procedures.* MSL-100 customers should refer instead to NTP *Alarm Clearing Procedures.*

What precautionary messages mean

The types of precautionary messages used in Nortel Networks documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

ATTENTION - Information needed to perform a task

ATTENTION

If the unused DS-3 ports are not deprovisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER - Possibility of personal injury

DANGER
Risk of electrocution
Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage lines. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING - Possibility of equipment damage

WARNING
Damage to the backplane connector pins
Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION - Possibility of service interruption or degradation

CAUTION
Possible loss of service
Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a command:

```
>BSY
```

Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP terminal are shown in uppercase letters:

```
>BSY CTRL
```

Variables

Variables are shown in lowercase letters:

```
>BSY  CTRL  ctrl_no
```

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.

FP 3 Busy CTRL 0: Command passed.
```

1 XPM card replacement procedures

This chapter contains procedures for replacing the NTAX78AA card in an ISDN digital trunk controller (DTCI) shelf.

For each card replacement task, you will find a procedure containing the following details:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

Recording card replacement activities

When a card is replaced, the following information should be noted in office records:

- the serial number of the replaced card
- the date of replacement
- the reason for the replacement

Explanatory and context-setting information

In each procedure, the section titled “Application” identifies the card PECs (including suffixes) and the shelves or frames to which this procedure applies. Read this section before you perform the step-action instructions. If the “Application” section does not identify the card and shelf you are looking for, go to the “Index” where all card and shelf combinations included in this book are listed.

The “Common procedures” section lists common procedures that you may be asked to perform as you follow the step-action instructions. Go to these common procedures only when directed to do so.

Summary flowchart

The flowchart is a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare. For

example, if you see that the instructions will involve another office, you will know to advise that office before you begin the step-action instructions.

Step-action instructions

The step-action instructions tell you how to change a card. Normally, you perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step in a sequence may depend on previous steps; therefore always perform the steps in the order specified.

While following the step-action instructions, you may be sent to the "Common card replacement procedures" chapter of this book or to another Nortel Networks technical publication (NTP) to perform a set of instructions. If this happens, you will be told when to return to the original instructions, and to which point in those instructions you should go.

The step-action instructions provide the command syntax and machine output you use or see while performing this procedure. For help on DMS commands or output, see *Commands Reference Manual*, 297-1001-822.

NTAX78AA in a DTCI shelf

Application

Use this procedure to replace the NTAX78AA card in an ISDN digital trunk controller (DTCI) shelf.

PEC	Suffixes	Name
NTAX78	AA	Enhanced time switch

Common procedures

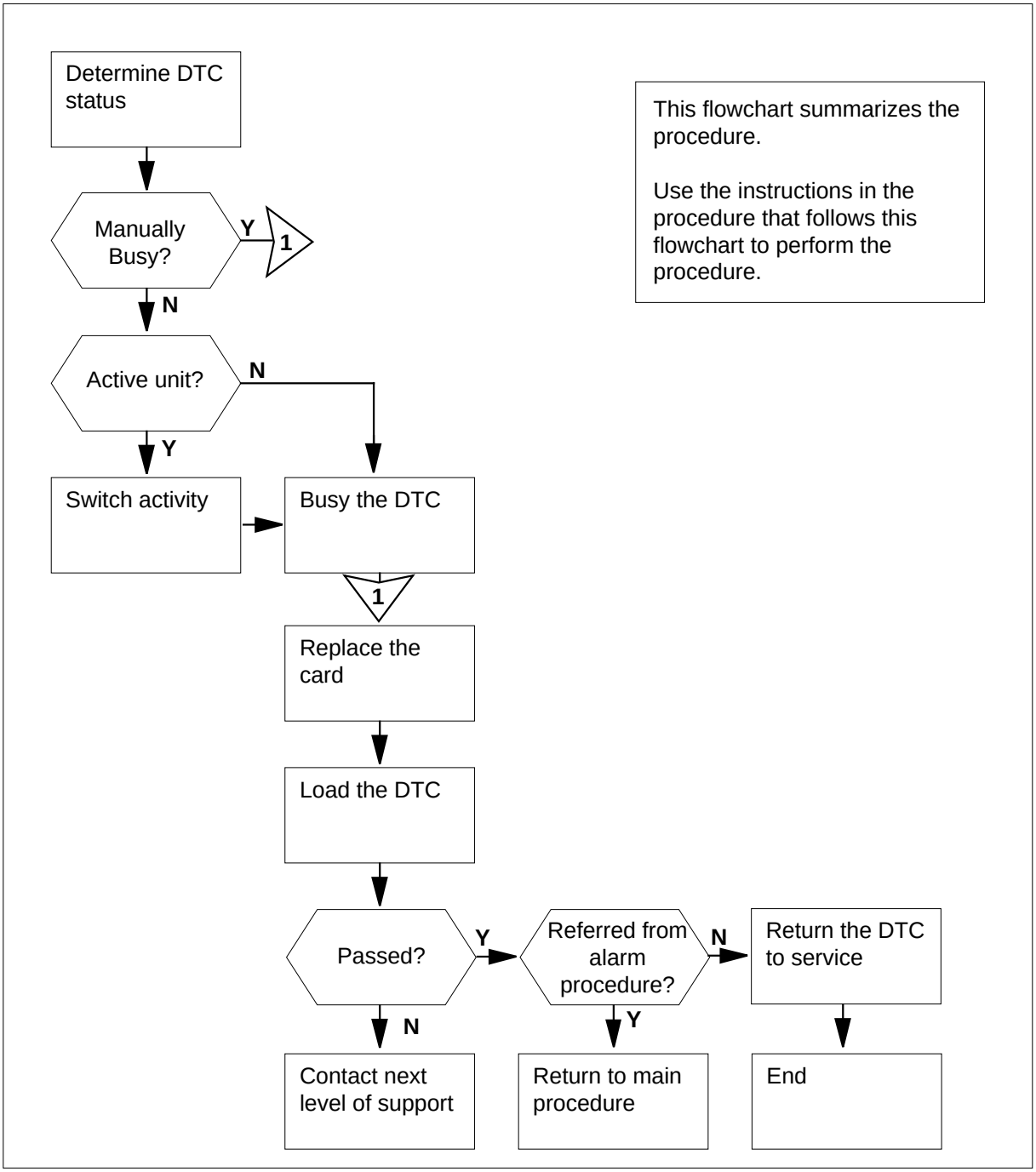
None

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTAX78AA
in a DTCI shelf (continued)

Summary of card replacement procedure for NTAX78AA card in a DTCI shelf



NTAX78AA
in a DTCI shelf (continued)

Replacing an NTAX78AA in a DTCI shelf

At the MAP terminal

1 Access the PM level of the MAP terminal and post the PM that contains the card to be replaced by typing

`>MAPCI;MTC;PM;POST  pm_type  pm_no`

and pressing the Enter key.

where

pm_type
is the PM type (DTCI, DTC7)

pm_no
is the PM identification number (0 to 999)

Example of a MAP terminal display input:

`MAPCI;MTC;PM;POST DTCI 0`

Example of a MAP terminal response:

```
          SysB    ManB    OffL    CBsy    ISTb    InSv
PM          1       0       7       0       7       4
DTCI        1       0       0       0       2       0

DTCI   0 ISTb  Links_OOS: CSide  0,  Pside 1
Unit 0:  Act  Insv
Unit 1:  Inact SysB
```

2 Check the status of the PM.

If PM status is	Do
SysB, OffL, CBsy, ISTb, or InSv	step 3
ManB	step 7

3 Determine whether the card you are replacing is in the active or inactive unit of the PM.

If card is in the	Do
active unit	step 4
inactive unit	step 6

NTAX78AA
in a DTCI shelf (continued)

4

CAUTION
Loss of service
Service is lost if you remove the circuit card from the active unit of the peripheral module (PM).

Perform a switch of activity so the unit that contains the faulty card becomes the inactive unit by typing

>SWACT

and pressing the Enter key.

Example of a MAP terminal response:

```
DTCI 0      A Warm SwAct will be performed after
            data sync of active terminals
Please confirm (“YES”, “Y”, “NO”, or “N”):
```

5 Confirm the switch of activity by typing

>YES

and pressing the Enter key.

Example of a MAP terminal response:

```
DTCI 0     SwAct Passed
```

6 Busy the inactive unit of the PM that contains the card by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no
is 0 or 1

Example of a MAP terminal response:

```
DTCI 0 Unit 0 Bsy passed
```

7 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.

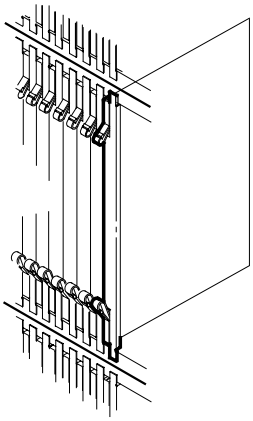
NTAX78AA
in a DTCI shelf (continued)

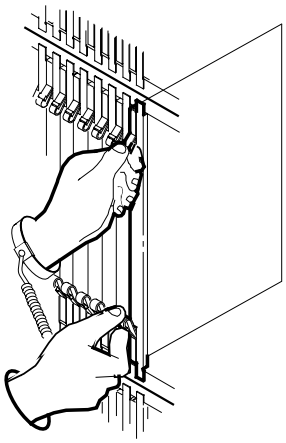
At the DTCI

8

DANGER
Static electricity damage
Wear a wrist strap connected to the wrist strap grounding point of the frame supervisory panel (FSP) while handling cards. This strap protects the cards against damage caused by static electricity.

Locate the NTAX78AA card in slot 14 on the appropriate shelf.



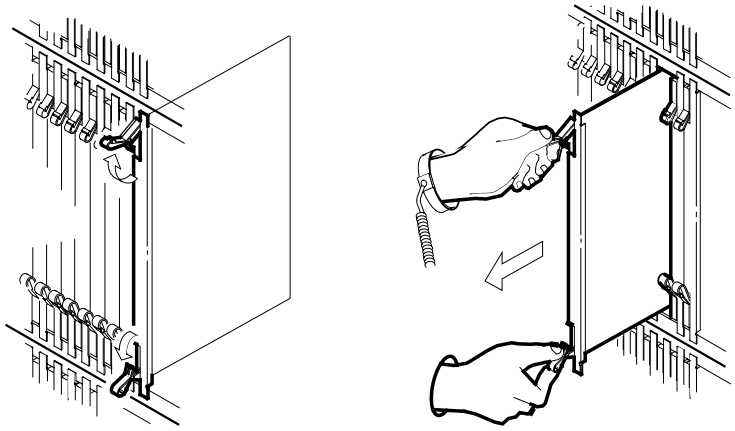


9

DANGER
Do not hold card by levers only
Holding a card by the levers only may result in lever breakage. Once the card has been pulled half way out of the shelf, carefully grasp the card underneath for more secure support and continue to remove the card from the shelf. Avoid touching any wires or internal parts on the card.

Open the locking levers on the face of the card. While grasping the locking levers, gently pull the card towards you until it clears the shelf.

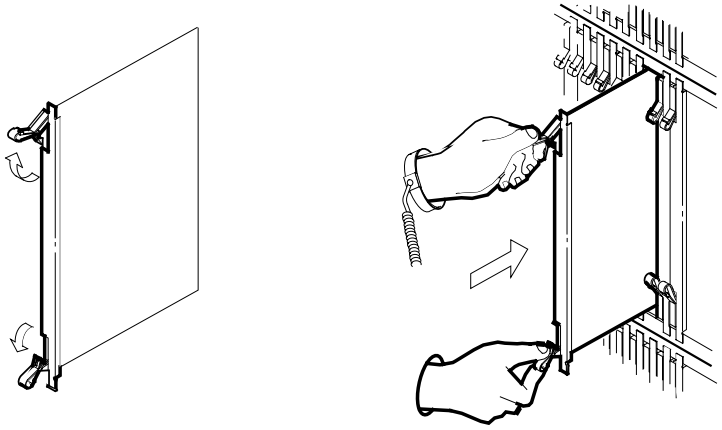
NTAX78AA
in a DTCI shelf (continued)



10 Place the card you removed in an electrostatic discharge (ESD) protective container.

11 Ensure that the replacement card has the same PEC, including suffix, as the card just removed.

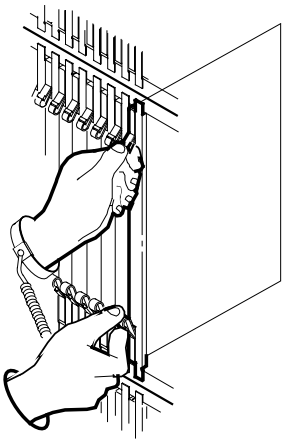
12 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.



13 Seat and lock the card:

- **a** Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.
- **b** Close the locking levers.

c



At the MAP terminal

14 Perform a firmware reset by typing

`>PMRESET UNIT unit_no NORUN`

and pressing the Enter key.

Example of a MAP terminal response:

```
DTCI 0 Unit 1 PMReset Passed
```

If the PMRESET	Do
passed	step 15
failed	step 37

15 Load the inactive unit by typing

`>LOADPM UNIT unit_no`

and pressing the Enter key.

where

unit number
is the number of the unit (0 or 1) to be loaded

Example of a MAP terminal response:

```
DTCI 0 Unit 1 LoadPM Passed
```

If the LOADPM	Do
passed	step 34
failed	step 16

NTAX78AA
in a DTCI shelf (continued)

16 Determine why the load failed.

If the load failed and	Do
the MAP terminal response is PM Failed to Initialize	step 32
a card list is generated	step 17
the MAP terminal response is Load File not in directory	step 19

17 Record the locations and PECs, including suffixes, of the cards on the card list.

18 Perform the appropriate procedure in *Card Replacement Procedures* then return to step 32 in this procedure.

19 Access the disk utility level by typing

`>DISKUT`

and pressing the Enter key.

20 List and record the volumes on the SLM disks by typing

`>LISTVOLS  CM`

and pressing the Enter key.

Example of a MAP terminal response:

```
Volumes found on the node CM:
-----------------------------
NAME TYPE TOTAL      USED      FREE     TOTAL     OPEN      ITOC LARGEST
          BLOCKS     BLOCKS    BLOCKS   FILES     FILES     FILES FREE
                                                                SEGMENT
-------------------------------------------------------------------
S00DIMAGE1     STD  614389    471835    142554     28   0     0  81715
S00DPMLOADS    STD  614389    476915    137474     83   0     0  82386
S00DDLOG       STD    8185      3190      4995     49   0     0    586
S01DIMAGE1     STD  614389    584953     29436     39   0     0   7320
S00DPMLOADS    STD   51189     50944       245    116   0     0     78
S01DDLOG       STD    8185      7588       597     15   0     0    134
Total number of volumes found on node CM : 6
```

Note: In the above example, there are two volumes which contain PM load files. These are S00DPMLOADS and S01DPMLOADS.

21 Determine from office records which volumes contain the PM load files.

22 List the files on the PMLOADS volume and look for the DTCI load file by typing

`>LISTFL disk_volume_name`

and pressing the Enter key.

where

disk
is the name of the SLM disk (S00D or S01D)

volume_name
is the volume that contains the PM load files

Example of a MAP terminal response:

```
File                          File        File    In
Name                          Org.        Code    ITOC
---------------------------   ----        ---    -----
NRS35CH                       0           IMG
XRX35CH                       0           IMG
LPX35CH                       0           IMG
NTD35CH                       0           IMG
```

Note: In the above example, NTD35CH is the load file name for a DTCI.

23 Determine if the DTCI load file is present on the SLM disk.

If the load file is	Do
present	step 30
not present	step 24

24 Obtain the latest backup tape.

At the SLM

25 Mount the backup tape onto the appropriate SLM tape drive unit.

At the MAP terminal

26 Insert the tape by typing

>INSERTTAPE device_name

and pressing the Enter key.

where

device_name
is S00T if you are working on SLM 0, or S01T if you are working on SLM 1

27 List the files on the backup tape by typing

>LISTFL device_name

and pressing the Enter key.

where

device_name
is S00T or S01T

28 Copy the file from the tape to the disk by typing

>RESTORE FILE disk_volume_name file_name

NTAX78AA
in a DTCI shelf (continued)

and pressing the Enter key.

where

disk
is the name of the SLM disk (S00D or S01D)

volume_name
is the volume that contains the PM load files

file_name
is the DTCI load file name

29 Confirm that the file copied to the disk by typing

```
>LISTFL  disk_volume_name
```

and pressing the Enter key.

where

disk
is the name of the SLM disk (S00D or S01D)

volume_name
is the volume that contains the PM load files

30 Exit the disk utility level by typing

```
>QUIT
```

and pressing the Enter key.

31 Load the PM unit by typing

```
>LOADPM  UNIT   unit_no loadname
```

and pressing the Enter key.

where

unit_no
is the number of the unit (0 or 1) to be loaded

loadname
is the load file that is present on the SLM disk

If the LOADPM command	Do
passed	step 34
failed, and the reason is different from the first time LOADPM failed	step 16
failed, and the reason is the same as the first time LOADPM failed	step 37
failed, and you have not replaced all the cards listed in step 17	step 33

If the LOADPM command	Do
failed, and you have replaced all the cards listed in step 17	step 37

32 Load the PM unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the unit (0 or 1) to be loaded

If the LOADPM command	Do
passed	step 34
failed, and the reason is different from the first time LOADPM failed	step 16
failed, and the reason is the same as the first time LOADPM failed	step 37
failed, and you have not replaced all the cards listed in step 17	step 33
failed, and you have replaced all the cards listed in step 17	step 37

33 Replace the next card on the card list.

a Perform the appropriate procedure in *Card Replacement Procedures*.

b Return to step 32 in this procedure.

34 Your next action depends on your reason for performing this procedure.

If you were	Do
directed here from an alarm clearing procedure	step 36
not directed here from an alarm clearing procedure	step 35

35 Return the unit to service by typing

>RTS UNIT unit_no

NTAX78AA
in a DTCI shelf (end)

and pressing the Enter key.

If the RTS	Do
passed	step 38
failed	step 37

36 Return to the maintenance procedure that sent you to this procedure and continue as directed.

37 For further assistance, contact the personnel responsible for the next level of support.

38 You have completed this procedure.

2 FSP card replacement procedures

This chapter contains procedures for replacing the NT0X91 alarm and control card in the frame supervisory panel (FSP).

For each card replacement task, you will find a procedure containing the following details:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

Recording card replacement activities

When a card is replaced, the following information should be noted in office records:

- the serial number of the replaced card
- the date of replacement
- the reason for the replacement

Explanatory and context-setting information

In each procedure, the section titled “Application” identifies the card PECs (including suffixes) and the shelves or frames to which this procedure applies. Read this section before you perform the step-action instructions. If the “Application” section does not identify the card and shelf you are looking for, go to the “Index” where all card and shelf combinations included in this book are listed.

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Summary flowchart

The flowchart is a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare. For

example, if you see that the instructions will involve another office, you will know to advise that office before you begin the step-action instructions.

Step-action instructions

The step-action instructions tell you how to change a card. Normally, you perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step in a sequence may depend on previous steps; therefore always perform the steps in the order specified.

While following the step-action instructions, you may be sent to the "Common card replacement procedures" chapter of this book or to another Nortel Networks technical publication (NTP) to perform a set of instructions. If this happens, you will be told when to return to the original instructions, and to which point in those instructions you should go.

The step-action instructions provide the command syntax and machine output you use or see while performing this procedure. For help on DMS commands or output, see *Commands Reference Manual*, 297-1001-822.

NT0X91 in a Meridian Cabinet Line Module

Application

Use this procedure to replace an NT0X91 in the frame supervisory panel (FSP) in the Meridian Cabinet Line Module (MCLM), as listed in the following table.

PEC	Suffixes	Card name	Shelf or cabinet name
NT0X91	AA, AE	Alarm and control card	FSP (NX26BA) in an MCLM equipped with enhanced line modules (ELM)

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the Index for a list of cards, shelves, and frames documented in this card replacement NTP.

Common procedures

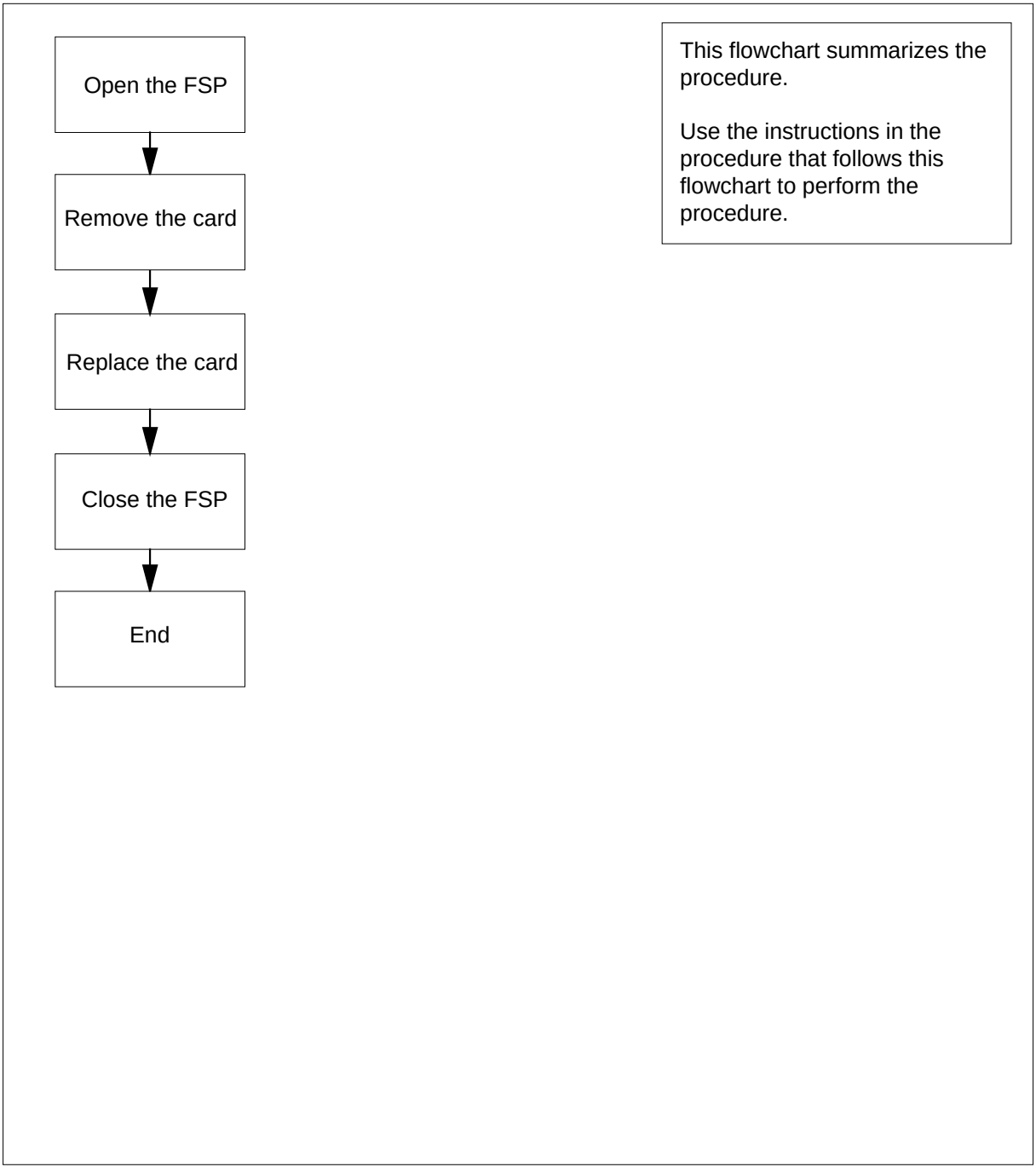
None.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT0X91 in a Meridian Cabinet Line Module (continued)

Summary of replacing an NT0X91 in a Meridian Cabinet Line Module



NT0X91
in a Meridian Cabinet Line Module (continued)

Replacing an NT0X91 in a Meridian Cabinet Line Module

At your current location:

1 Obtain a replacement card. Ensure that the replacement card has the same PEC, including suffix, as the card being removed.

At the frame:

2

DANGER
Risk of electrocution
Some of the terminals inside the frame supervisory panel have an electrical potential of -48V dc. Remove all jewelry before replacing a card in the FSP.Do not touch any terminal in the FSP.

Use the following table to identify the slot containing the alarm and control card to be replaced:

If Alarm and control card	Do Slot
NT0X91AA/AE	CD2

Note: There are two alarm cards in the FSP. One is the NT0X91 in slot CD2 and the other is the NT6X36 in slot CD1.

3

DANGER
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of an FSP while handling circuit cards. This protects the cards against damage caused by static electricity.

Unscrew the slotted nut on the right hand side of the FSP.

4 Open the FSP.

NT0X91
in a Meridian Cabinet Line Module (end)

5

CAUTION
Loss of service
Ensure that the alarm and control card that you are about to remove is the NT0X91 card located in slot CD2 (located on your left). Removing the wrong card causes a loss of service.

Remove the NT0X91 card from slot CD2.

6 Insert the replacement card.

7 Close the FSP.

8 Tighten the slotted nut on the FSP.

9 For further assistance, contact the personnel responsible for the next level of support.

10 You have completed this procedure.

NT0X91 in Meridian Cabinet Trunk Module—ISDN

Application

Use this procedure to replace an NT0X91 in the frame supervisory panel (FSP) in the Meridian Cabinet Trunk Module-ISDN (MTCM-I), as listed in the following table.

PEC	Suffixes	Card name	Shelf or cabinet name
NT0X91	AA, AE	Alarm and control card	FSP (NX26NA) in an MCTM-I equipped with digital trunk controller-ISDN (DTC-I) or line trunk controller-ISDN (LTC-I) cards

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the Index for a list of cards, shelves, and frames documented in this card replacement NTP.

Common procedures

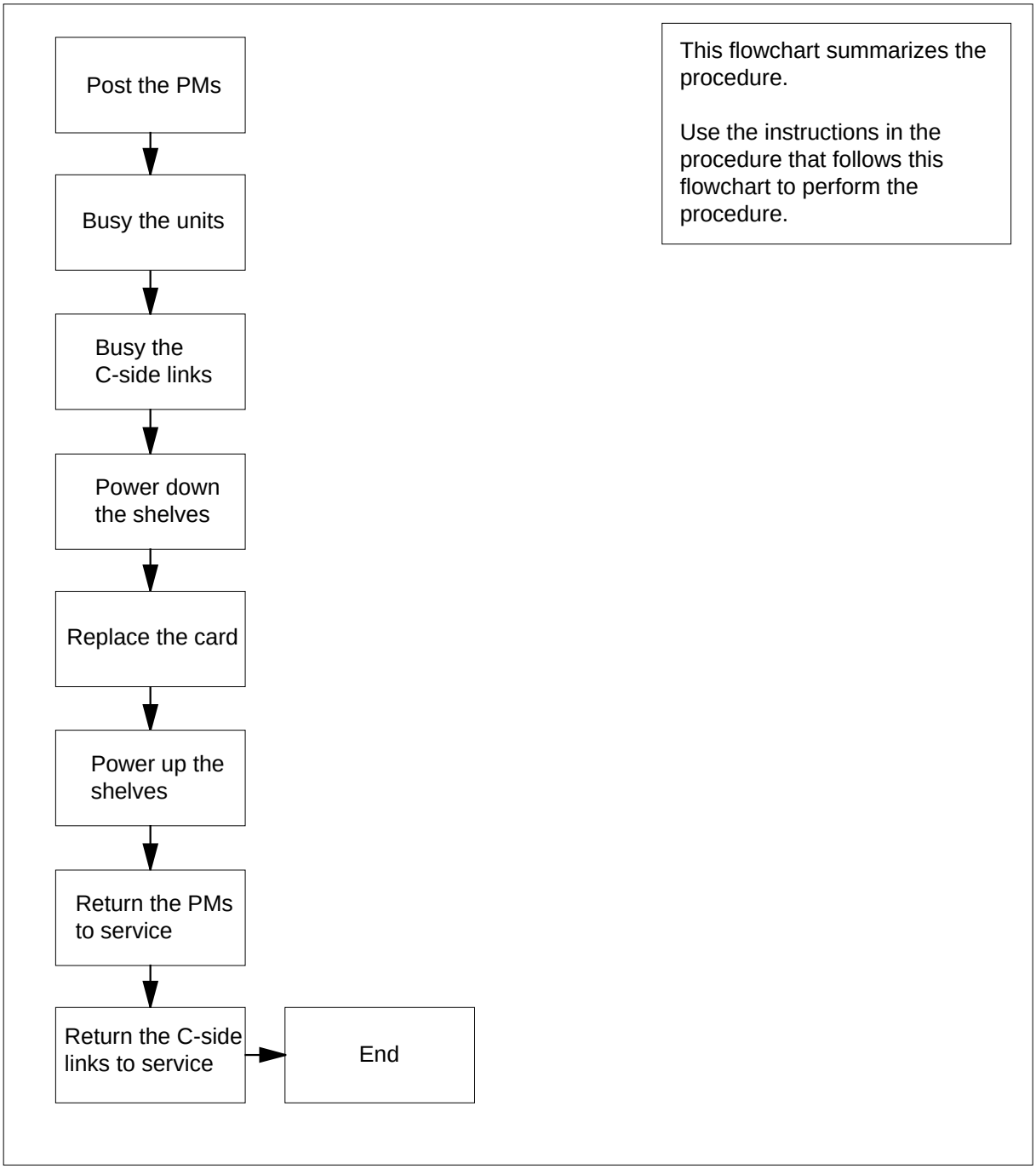
Manually busying Series II PM and CPM C-side links is referenced in this procedure.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT0X91
in Meridian Cabinet Trunk Module—ISDN (continued)

Summary of replacing an NT0X91 in Meridian Cabinet Trunk Module—ISDN



NT0X91
in Meridian Cabinet Trunk Module—ISDN (continued)

Replacing an NT0X91 in Meridian Cabinet Trunk Module—ISDN

At your current location:

1 Obtain a replacement card. Ensure that the replacement card has the same PEC, including suffix, as the card being removed.

At the cabinet:

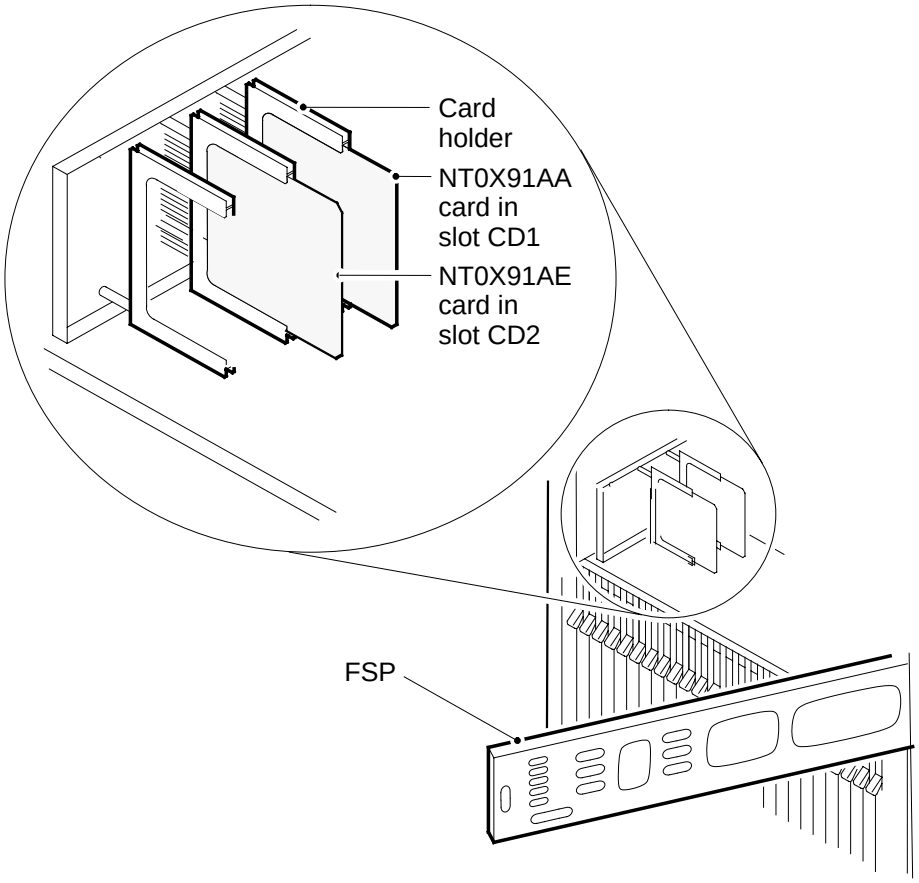
2

DANGER
Risk of electrocution
Some of the terminals inside the frame supervisory panel have an electrical potential of -48 V dc. Remove all jewelry before replacing a card in the FSP.Do not touch any terminal in the FSP.

CAUTION
Loss of service
This procedure includes directions to remove an LTC-I or a DTC-I from service, which can cause service degradation. Perform this procedure only if necessary to restore out-of-service components. Otherwise, carry out this procedure during periods of low traffic. Do not perform this procedure if essential services are using PM resources.

Use the following table to identify the slot containing the alarm and control card to be replaced:

NT0X91
in Meridian Cabinet Trunk Module—ISDN (continued)



If Alarm and control card	Do Slot
NT0X91AA	CD1
NT0X91AE	CD2

NT0X91
in Meridian Cabinet Trunk Module—ISDN (continued)

3 Record information on FSP circuit breakers and network shelf positions associated with the card you are replacing. Use the following table to get this information.

FSP card	FSP card position	FSP circuit breakers	Shelf position
NT0X91AA	CD1	CB3, CB4	05, 33 - unit 0
NT0X91AE	CD2	CB3, CB7, CB8	19, 47 - unit 1
Note: A minimum of one shelf can be unequipped.			

4 Select the shelf associated with the FSP card you are replacing.

At the MAP terminal:

5 Access the PM level of the MAP display by typing

```
>MAPCI;MTC;PM
```

and press the Enter key.

6 Post the PM by typing

```
>POST pm_type pm_no
```

and press the Enter key.

where

pm_type
is the type of PM (LTC-I, DTC-I)

pm_no
is the number of the PM

7 Determine the state of the PM (active or inactive). Refer to step 3 to determine the correct units that correlate to the NT0X91AA or NT0X91AE.

8 Manually busy the PM by typing

```
>BSY UNIT unit_no
```

and press the Enter key.

where

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

9 Busy the C-side links for the PM unit you just busied using the procedure *Manually busying Series II PM and CPM C-side links* in this document. Complete the procedure and return to this point.

10 Post the PM by typing

```
>POST pm_type pm_no
```

and press the Enter key.

NT0X91
in Meridian Cabinet Trunk Module—ISDN (continued)

where

pm_type
is the type of PM (LTC-I, DTC-I)

pm_no
is the number of the PM

11 Determine the state of the PM (active or inactive). Refer to step 3 to determine the correct units that correlate to the NT0X91AA or NT0X91AE.

12 Manually busy the PM by typing

```
>BSY UNIT unit_no
```

and press the Enter key.

where

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

At the shelf:

13

DANGER
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel while handling circuit cards. This protects the cards against damage caused by static electricity.

CAUTION
SYSB state occurs
The ENET message links will go to the system busy (SYSB) state.

Power down the power converters (NT2X70) associated with the card you are replacing. Power converters are in slot 25. Lift up the handles on the power converter card and slide the card towards you (about one inch). The circuit breakers associated with the shelf and unit will go to the OFF position.

14 Unscrew the slotted nut on the left hand side of the FSP.

15 Open the FSP.

16 Remove the card.

17 Insert the replacement alarm and control card.

18 Close the FSP.

19 Tighten the slotted nut on the FSP.

20 Slide power converter back into position. Push down on the handles to lock into place.

21 The next action depends on the type of power converter in the cabinet.

If the power converter is an	Do
NT2X70AD	step 23
NT2X70AE/AF	step 24

22 Press the power reset button on the power converter card and simultaneously flip the circuit breaker associated with the shelf to the ON position (up). The Converter Fail lights go off.

23 Pull the power converter Power Reset switch and then flip the circuit breaker associated with the shelf to the ON position (up). The Converter Fail lights go off.

At the MAP terminal:

24 RTS the C-side links for the PM unit you just busied using the procedure *Manually busying Series II PM and CPM C-side links* in this document. Complete the procedure and return to this point.

25 Post the PM by typing

```
>PM;POST pm_type pm_no
```

and press the Enter key.

where

pm_type
is the type of PM (LTC-I or DTC-I)

pm_no
is the number of the PM

26 Load the PM by typing

```
>LOADPM UNIT unit_no CC
```

and press the Enter key.

where

unit_no
is the unit of PM (0 or 1)

27 Return the PM to service by typing

```
>RTS UNIT unit_no
```

and press the Enter key.

where

unit_no
is the unit of PM (0 or 1)

28 Return to the maintenance procedure that sent you to this procedure and continue as directed.

NT0X91
in Meridian Cabinet Trunk Module—ISDN (end)

29 For further assistance, contact the personnel responsible for the next level of support.

30 You have completed this procedure.

NT0X91
in Meridian Cabinet Remote Unit

Application

Use this procedure to replace an NT0X91AE in the frame supervisory panel (FSP) in the Meridian Cabinet Remote Unit (MCRU), as listed in the following table.

PEC	Suffixes	Card name	Shelf or cabinet name
NT0X91	AA, AE	Alarm and control card	FSP (NX26AA) in an MCRU equipped with RMM, HIU, and LCA cards

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the Index for a list of cards, shelves, and frames documented in this card replacement NTP.

Common procedures

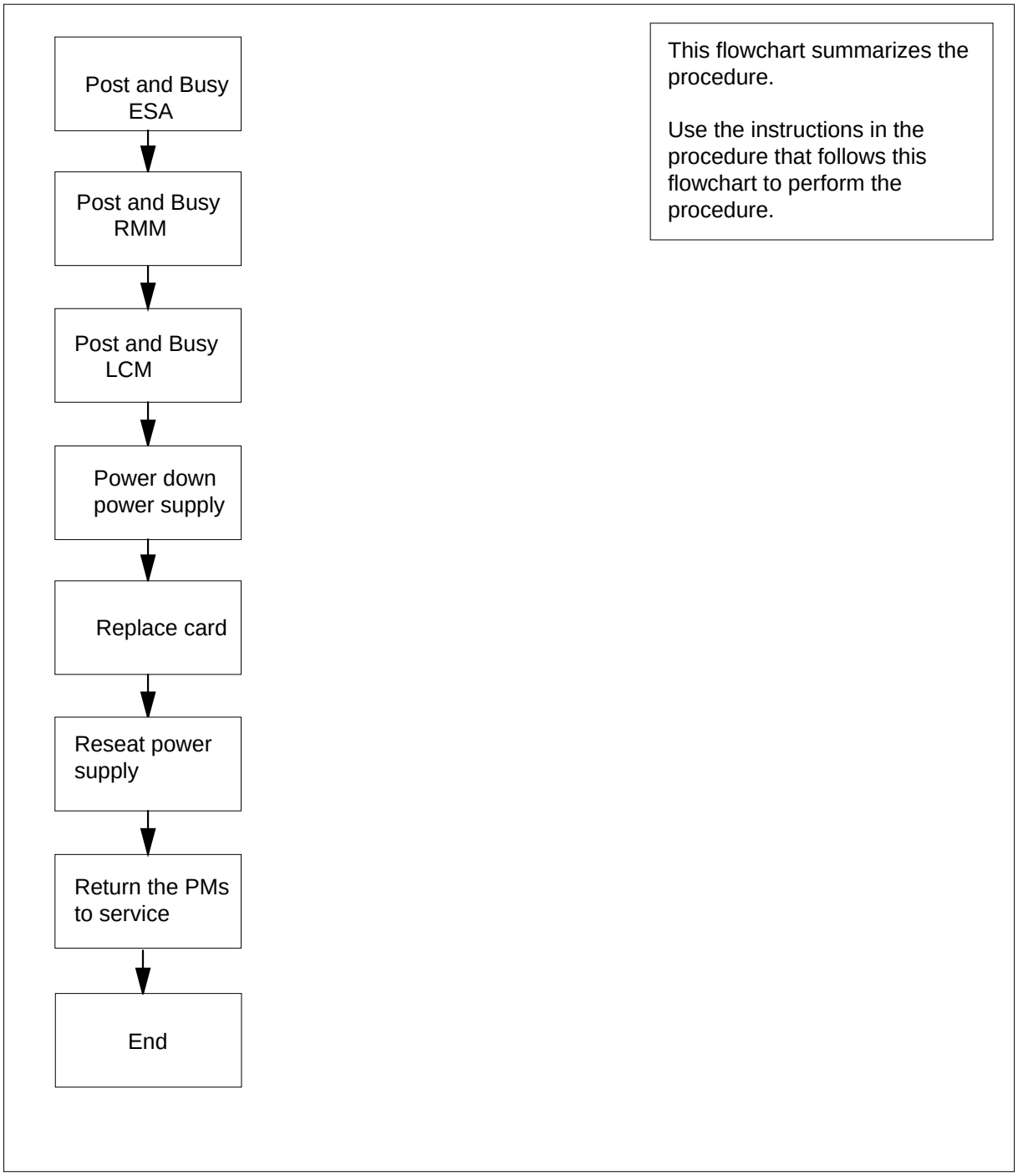
There are no common procedures referenced in this procedure.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT0X91
in Meridian Cabinet Remote Unit (continued)

Summary of replacing an NT0X91 in Meridian Cabinet Remote Unit



NT0X91
in Meridian Cabinet Remote Unit (continued)

Replacing an NT0X91 in Meridian Cabinet Remote Unit

At your current location:

1 Obtain a replacement card. Ensure that the replacement card has the same PEC, including suffix, as the card being removed.

At the cabinet:

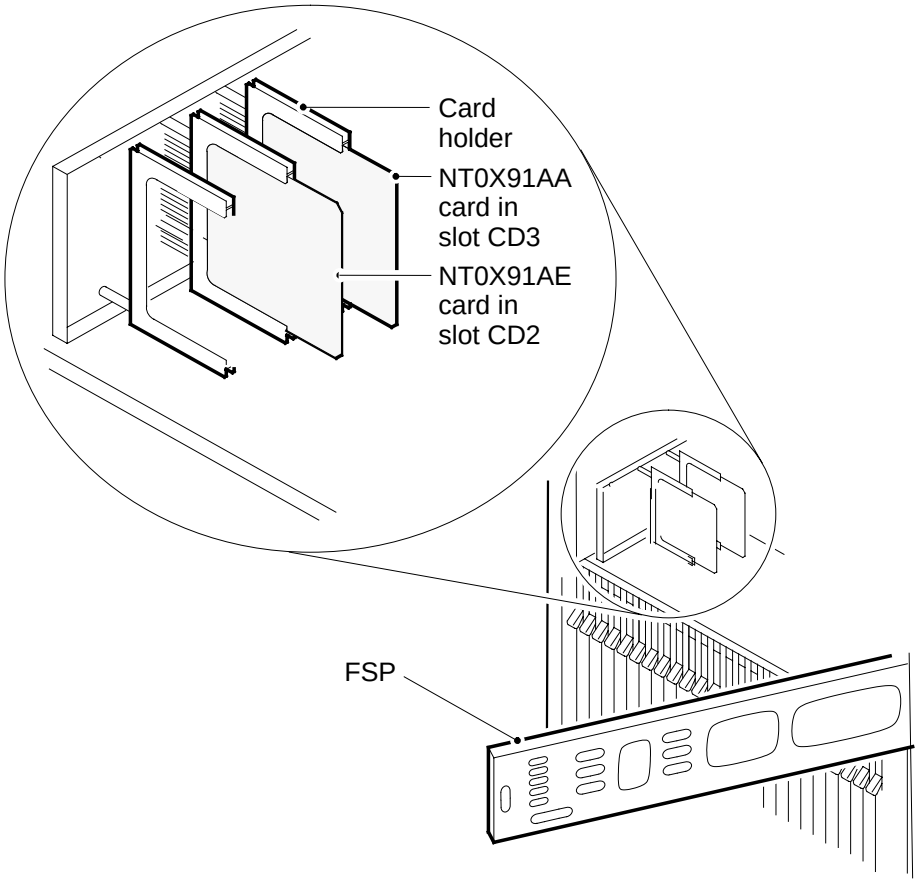
2

DANGER
Risk of electrocution
Some of the terminals inside the frame supervisory panel have an electrical potential of -48 V dc. Remove all jewelry before replacing a card in the FSP.Do not touch any terminal in the FSP.

CAUTION
Loss of service
This procedure includes directions to remove an RMM or an LCM from service, which can cause service degradation. Perform this procedure only if necessary to restore out-of-service components. Otherwise, carry out this procedure during periods of low traffic. Do not perform this procedure if essential services are using PM resources.

Use the following table to identify the slot containing the alarm and control card to be replaced:

NT0X91
in Meridian Cabinet Remote Unit (continued)



If Alarm and control card	Do Slot
NT0X91AA	CD3
NT0X91AE	CD2

NT0X91
in Meridian Cabinet Remote Unit (continued)

3 Record information on FSP circuit breakers and network shelf positions associated with the card you are replacing. Use the following table to get this information.

FSP card	FSP card position	FSP circuit breakers	Shelf position
NT0X91AA	CD3	CB3, CB4	33
NT0X91AE	CD2	CB3, CB7, CB8	47
Note: A minimum of one shelf can be unequipped.			

4 Select the shelf associated with the FSP card you are replacing.

At the MAP terminal:

5 Access the PM level of the MAP display by typing

```
>MAPCI;MTC;PM
```

and press the Enter key.

6 Post the PM by typing

```
>POST pm_type pm_no
```

and press the Enter key.

where

pm_type
is ESA

pm_no
is the number of the ESA associated with the RLCM

7 Manually busy the PM by typing

```
>BSY
```

and press the Enter key.

8 Post the PM by typing

```
>POST pm_type pm_no
```

and press the Enter key.

where

pm_type
is RMM

pm_no
is the number of the RMM associated with the RLCM

9 Manually busy the PM by typing

```
>BSY
```

NT0X91
in Meridian Cabinet Remote Unit (continued)

and press the Enter key.

10 Post the PM by typing

`>POST pm_type pm_key`

and press the Enter key.

where

pm_type
is LCM

pm_key
is the site name, frame number, and unit number for the LCM

11 Manually busy the PM by typing

`>BSY PM`

and press the Enter key.

At the shelf:

12

DANGER
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel while handling circuit cards. This protects the cards against damage caused by static electricity.

Power down the power converters for the RMM in shelf 47. Lift up the handles on the power converter card and slide the card towards you (about one inch). The circuit breakers associated with the shelf and unit will trip to the OFF position.

13 Power down the power converters for the HIE in shelf 33. Lift up the handles on the power converter card and slide the card towards you (about one inch). The circuit breakers associated with the shelf and unit will trip to the OFF position.

14 Unscrew the slotted nut on the right hand side of the FSP.

15 Open the FSP.

16 Remove the card.

17 Insert the replacement alarm and control card.

18 Close the FSP.

19 Tighten the slotted nut on the FSP.

20 Slide power converter back into position. Push down on the handles to lock into place.

NT0X91
in Meridian Cabinet Remote Unit (continued)

21 The next action depends on the type of power converter in the cabinet.

If the power converter is an	Do
NT2X06AB	step 23
NT2X70AD	step 23
NT2X70AE/AF	step 24

22 Press the power reset button on the power converter card and simultaneously flip the circuit breaker associated with the shelf to the ON position (up). The Converter Fail lights go off.

23 Pull the power converter Power Reset switch and then flip the circuit breaker associated with the shelf to the ON position (up). The Converter Fail lights go off.

At the MAP terminal:

24 Post the PM by typing

`>PM;POST pm_type pm_key`

and press the Enter key.

where

pm_type
is the LCM

pm_key
is the site name, frame number, and unit number for the LCM

25 Return the PM to service by typing

`>RTS PM`

and press the Enter key.

where

unit_no
is the unit of PM (0 or 1)

26 Post the PM by typing

`>PM;POST pm_type pm_no`

and press the Enter key.

where

pm_type
is the RMM

pm_no
is the number of the RMM associated with the RLCM

27 Load the PM by typing

`>LOADPM`

and press the Enter key.

NT0X91
in Meridian Cabinet Remote Unit (end)

28 Return the PM to service by typing

>RTS

and press the Enter key.

29 Post the PM by typing

>PM;POST pm_type pm_no

and press the Enter key.

where

pm_type
is the ESA

pm_no
is the number of the ESA associated with the RLCM

30 Load the PM by typing

>LOADPM

and press the Enter key.

31 Return the PM to service by typing

>RTS

and press the Enter key.

32 Return to the maintenance procedure that sent you to this procedure and continue as directed.

33 For further assistance, contact the personnel responsible for the next level of support.

34 You have completed this procedure.

NT0X91AA
in Meridian Cabinet Remote Unit

Application

Use this procedure to replace an NT0X91AA in the frame supervisory panel (FSP) in the Meridian Cabinet Remote Unit (MCRU), as listed in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT0X91	AA	Alarm and control card	FSP (NX26AA) in an MCRU equipped with RMM, HIU, and LCA cards

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the Index for a list of cards, shelves, and frames documented in this card replacement NTP.

Common procedures

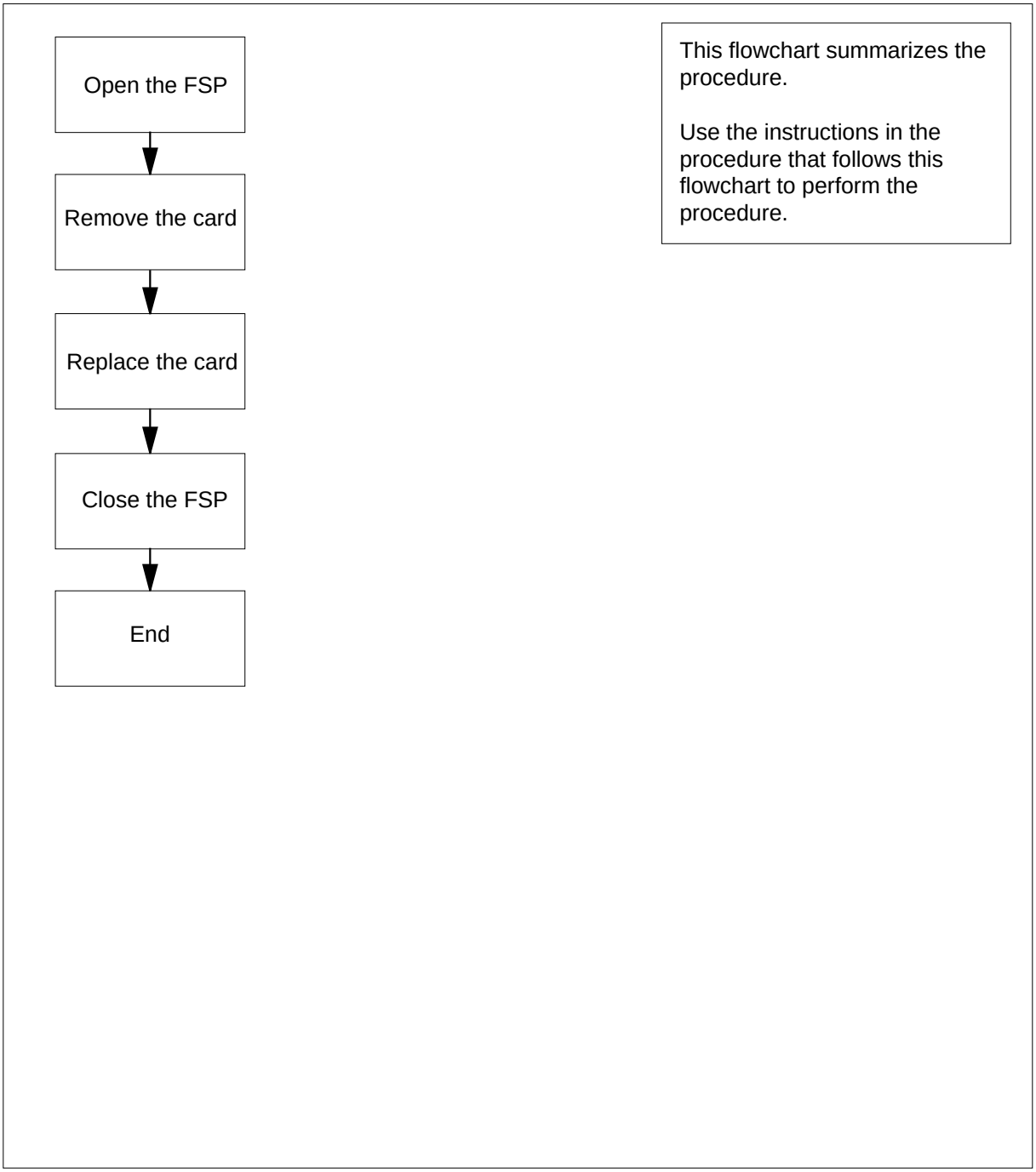
There are no common procedures referenced in this procedure.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT0X91AA
in Meridian Cabinet Remote Unit (continued)

Summary of replacing an NT0X91AA in Meridian Cabinet Remote Unit



NT0X91AA
in Meridian Cabinet Remote Unit (continued)

Replacing an NT0X91AA in Meridian Cabinet Remote Unit

At your current location:

1 Obtain a replacement card. Ensure that the replacement card has the same PEC, including suffix, as the card being removed.

At the frame:

2

DANGER
Risk of electrocution
Some of the terminals inside the frame supervisory panel have an electrical potential of -48V dc. Remove all jewelry before replacing a card in the FSP.Do not touch any terminal in the FSP.

Use the following table to identify the slot containing the alarm and control card to be replaced:

If Alarm and control card	Do Slot
NT0X91AA	CD3

3

DANGER
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of an FSP while handling circuit cards. This protects the cards against damage caused by static electricity.

Unscrew the slotted nut on the right hand side of the FSP.

4 Open the FSP.

5

CAUTION
Loss of service
Ensure that the alarm and control card that you are about to remove is the NT0X91 card located in slot CD3. Removing the wrong card causes a loss of service.

Remove the NT0X91 card from its slot.

NT0X91AA
in Meridian Cabinet Remote Unit (end)

6 Insert the replacement card.

7 Close the FSP.

8 Tighten the slotted nut on the FSP.

9 For further assistance, contact the personnel responsible for the next level of support.

10 You have completed this procedure.

NT0X91AA
in Meridian Cabinet Remote Module-SONET

Application

Use this procedure to replace an NT0X91AA in the frame supervisory panel (FSP) in the Meridian Cabinet Remote Module-SONET (MCRMS), as listed in the following table.

PEC	Suffixes	Card name	Shelf or cabinet name
NT0X91	AA	Alarm and control card	FSP (NX26HA) in an MCRMS equipped with RMM, RCC2, and extension shelf

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the Index for a list of cards, shelves, and frames documented in this card replacement NTP.

Common procedures

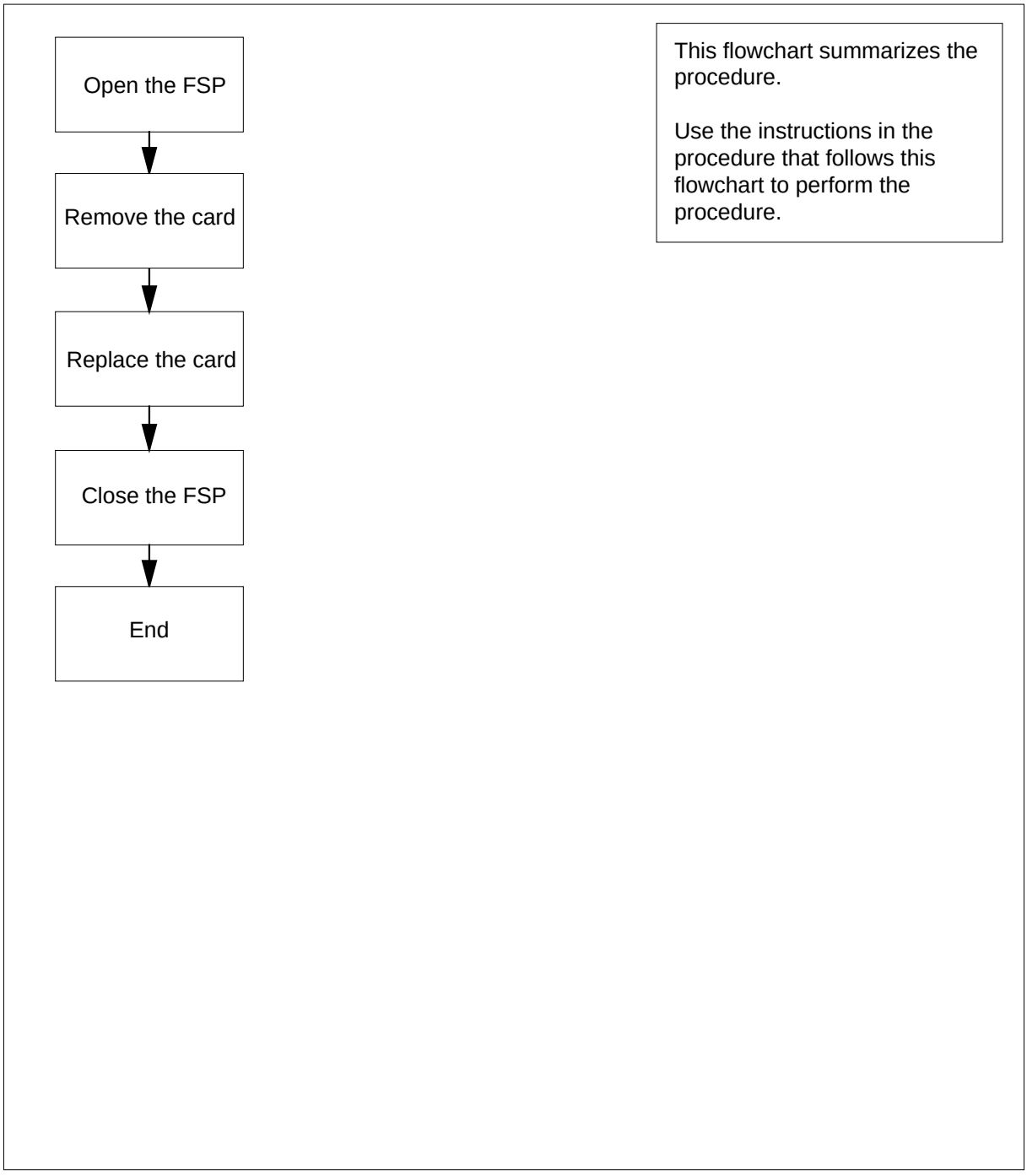
There are no common procedures referenced in this procedure.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT0X91AA
in Meridian Cabinet Remote Module-SONET (continued)

Summary of replacing an NT0X91AA in Meridian Cabinet Remote Module-SONET



NT0X91AA
in Meridian Cabinet Remote Module-SONET (continued)

Replacing an NT0X91AA in Meridian Cabinet Remote Module-SONET

At your current location:

1 Obtain a replacement card. Ensure that the replacement card has the same PEC, including suffix, as the card being removed.

At the frame:

2

DANGER
Risk of electrocution
Some of the terminals inside the frame supervisory panel have an electrical potential of -48V dc. Remove all jewelry before replacing a card in the FSP.Do not touch any terminal in the FSP.

Use the following table to identify the slot containing the alarm and control card to be replaced:

If Alarm and control card	Do Slot
NT0X91AA	CD1 and CD3

3

DANGER
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of an FSP while handling circuit cards. This protects the cards against damage caused by static electricity.

Unscrew the slotted nut on the left hand side of the FSP.

4 Open the FSP.

5

CAUTION
Loss of service
Ensure that the alarm and control card that you are about to remove is the NT0X91 card located in either slot CD1 or CD3. Removing the wrong card causes a loss of service.

Remove the NT0X91 card from its slot.

NT0X91AA
in Meridian Cabinet Remote Module-SONET (end)

6 Insert the replacement card.

7 Close the FSP.

8 Tighten the slotted nut on the FSP.

9 For further assistance, contact the personnel responsible for the next level of support.

10 You have completed this procedure.

NT0X91AE
in Meridian Cabinet Remote Module-SONET

Application

Use this procedure to replace an NT0X91AE in the frame supervisory panel (FSP) in the Meridian Cabinet Remote Module-SONET (MCRMS) as listed in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT0X91	AE	Alarm and control card	FSP (NX26HA) in an MCRMS equipped with RMM, RCC2, and extension shelf

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the Index for a list of cards, shelves, and frames documented in this card replacement NTP.

Common procedures

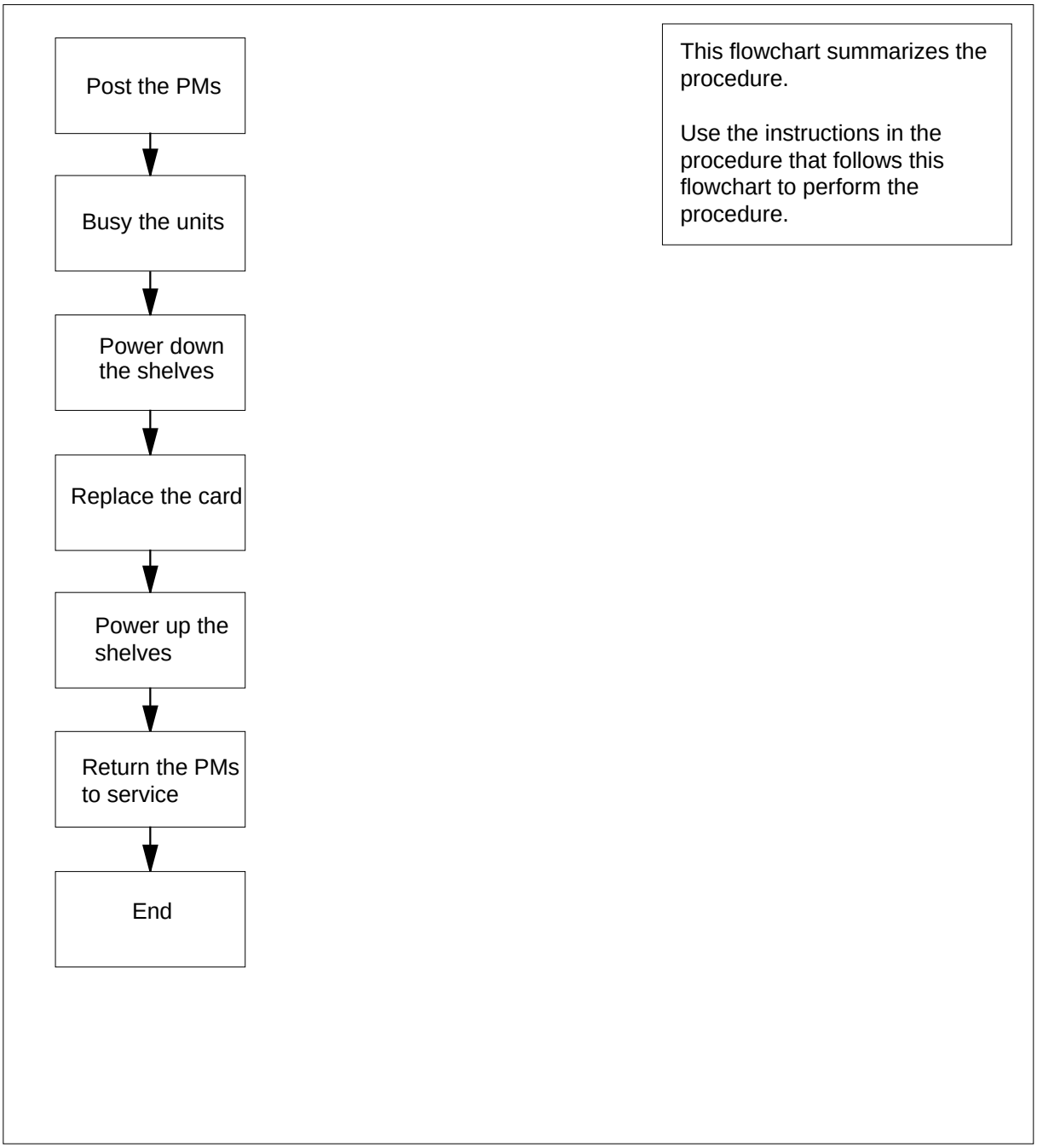
There are no common procedures referenced in this procedure.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT0X91AE
in Meridian Cabinet Remote Module-SONET (continued)

Summary of replacing an NT0X91AE in Meridian Cabinet Remote Module-SONET



NT0X91AE in Meridian Cabinet Remote Module-SONET (continued)

Replacing an NT0X91AE in Meridian Cabinet Remote Module-SONET

At your current location:

1 Obtain a replacement card. Ensure that the replacement card has the same PEC, including suffix, as the card being removed.

At the cabinet:

2

DANGER
Risk of electrocution
Some of the terminals inside the frame supervisory panel have an electrical potential of -48 V dc. Remove all jewelry before replacing a card in the FSP.Do not touch any terminal in the FSP.

CAUTION
Loss of service
This procedure includes directions to remove an RMM or a RCC2 from service, which can cause service degradation. Perform this procedure only if necessary to restore out-of-service components. Otherwise, carry out this procedure during periods of low traffic. Do not perform this procedure if essential services are using PM resources.

Use the following table to identify the slot containing the alarm and control card to be replaced:

If Alarm and control card	Do Slot
NT0X91AE	CD2 and CD4

NT0X91AE
in Meridian Cabinet Remote Module-SONET (continued)

3 Record information on FSP circuit breakers and network shelf positions associated with the card you are replacing. Use the following table to get this information.

FSP card	FSP card position	FSP circuit breakers	Shelf position
NT0X91AE	CD2	CB3, CB7, CB8	extension shelf, position 21, slots 1 to 12 - unit 0RCC2 shelf, position 35, slot 1RMM shelf, position 49, slot 18
NT0X91AE	CD4	CB3, CB7, CB8	extension shelf, position 21, slots 13 to 26 - unit1RCC2 shelf, position 35, slot 26

4 Select the shelf associated with the FSP card you are replacing.

At the MAP terminal:

5 Access the PM level of the MAP display by typing

```
>MAPCI;MTC;PM
```

and press the Enter key.

6 Post the PM by typing

```
>POST pm_type pm_no
```

and press the Enter key.

where

pm_type
is the type of PM (RCC2)

pm_no
is the number of the PM (number of RCC in table RCCINV)

7 Determine the state of the PM (active or inactive).

8 Manually busy the PM by typing

```
>BSY UNIT unit_no
```

and press the Enter key.

where

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

9 Post the PM by typing

>POST pm_type

and press the Enter key.

where

pm_type
is the type of PM (RMM)

10 Manually busy the PM by typing

>BSY pm_type

and press the Enter key.

where

pm_type
is the RMM

At the shelf:

11

DANGER
Static electricity damage
Wear a wrist strap connected to the wrist-strap grounding point of a frame supervisory panel while handling circuit cards. This protects the cards against damage caused by static electricity.

Power down the power converters associated with the card you are replacing. The power converter for this cabinet is NTMX72AB, usually found in slot 1 or 26. Lift up the handles on the power converter card and slide the card towards you (about one inch). The circuit breakers associated with the shelf and unit will go to the OFF position.

12 Unscrew the slotted nut on the left hand side of the FSP.

13 Open the FSP.

14 Remove the card.

15 Insert the replacement alarm and control card.

16 Close the FSP.

17 Tighten the slotted nut on the FSP.

18 Slide power converter back into position. Push down on the handles to lock into place.

19 If your power converter has the power reset button, press the power reset button on the power converter card and simultaneously flip the circuit breaker associated with the shelf to the ON position (up). The Converter Fail lights go off. If your power converter has the power reset switch, pull the power converter Power Reset switch and then flip the circuit breaker associated with the shelf to the ON position (up). The Converter Fail lights go off.

NT0X91AE
in Meridian Cabinet Remote Module-SONET (end)

At the MAP terminal:

20 Post the PM by typing

`>PM;POST pm_type`

and press the Enter key.

where

pm_type
is the type of PM (RMM)

21 Load the PM by typing

`>LOADPM`

and press the Enter key.

22 Return the PM to service by typing

`>RTS`

and press the Enter key.

23 Post the PM by typing

`>PM;POST pm_type`

and press the Enter key.

where

pm_type
is the type of PM (RCC2)

24 Load the PM by typing

`>LOADPM UNIT unit_number`

and press the Enter key.

where

unit_number
is the unit that was busied out

25 Return the PM to service by typing

`>RTS UNIT unit_number`

and press the Enter key.

where

unit_number
is the unit that was busied out

26 Return to the maintenance procedure that sent you to this procedure and continue as directed.

27 For further assistance, contact the personnel responsible for the next level of support.

28 You have completed this procedure.

3 IPE card replacement procedures

This chapter contains procedures for replacing the following cards in Intelligent Peripheral Equipment (IPE).

- NT5D11 line side T-1 interface card
- NT6D40 peripheral equipment power supply (PEPS)
- NT6D42 dc ringing generator
- NT7D07 controller card
- NT8D02 digital line card
- NT8D03 analog line card
- NT8D09 analog message waiting line card
- NT8D22 extended system monitor (XSM)
- NT8D37 IPE card cage

For each card replacement task, you will find a procedure containing the following details:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

Recording card replacement activities

When a card is replaced, the following information should be noted in office records:

- the serial number of the replaced card
- the date of replacement
- the reason for the replacement

Explanatory and context-setting information

In each procedure, the section titled “Application” identifies the card PECs (including suffixes) and the shelves or frames to which this procedure applies.

Read this section before you perform the step-action instructions. If the "Application" section does not identify the card and shelf you are looking for, go to the "Index" where all card and shelf combinations included in this book are listed.

The "Common procedures" section lists common procedures that you may be asked to perform as you follow the step-action instructions. Go to these common procedures only when directed to do so.

Summary flowchart

The flowchart is a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare. For example, if you see that the instructions will involve another office, you will know to advise that office before you begin the step-action instructions.

Step-action instructions

The step-action instructions tell you how to change a card. Normally, you perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step in a sequence may depend on previous steps; therefore always perform the steps in the order specified.

While following the step-action instructions, you may be sent to the "Common card replacement procedures" chapter of this book or to another Nortel Networks technical publication (NTP) to perform a set of instructions. If this happens, you will be told when to return to the original instructions, and to which point in those instructions you should go.

The step-action instructions provide the command syntax and machine output you use or see while performing this procedure. For help on DMS commands or output, see *Commands Reference Manual*, 297-1001-822.

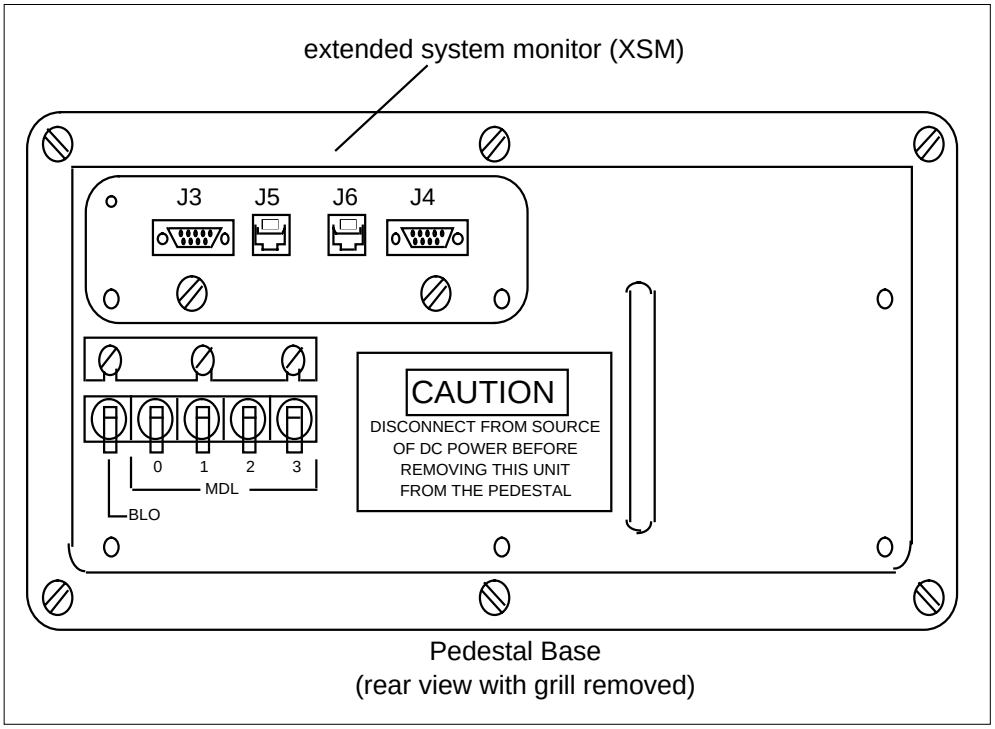
NT8D22 in an IPE module

Application

Use this procedure to replace the following card in an intelligent peripheral equipment (IPE).

PEC	Suffixes	Name
NT8D22	AC	extended system monitor (XSM)

The following figure shows the location of the XSM at the rear of the pedestal.

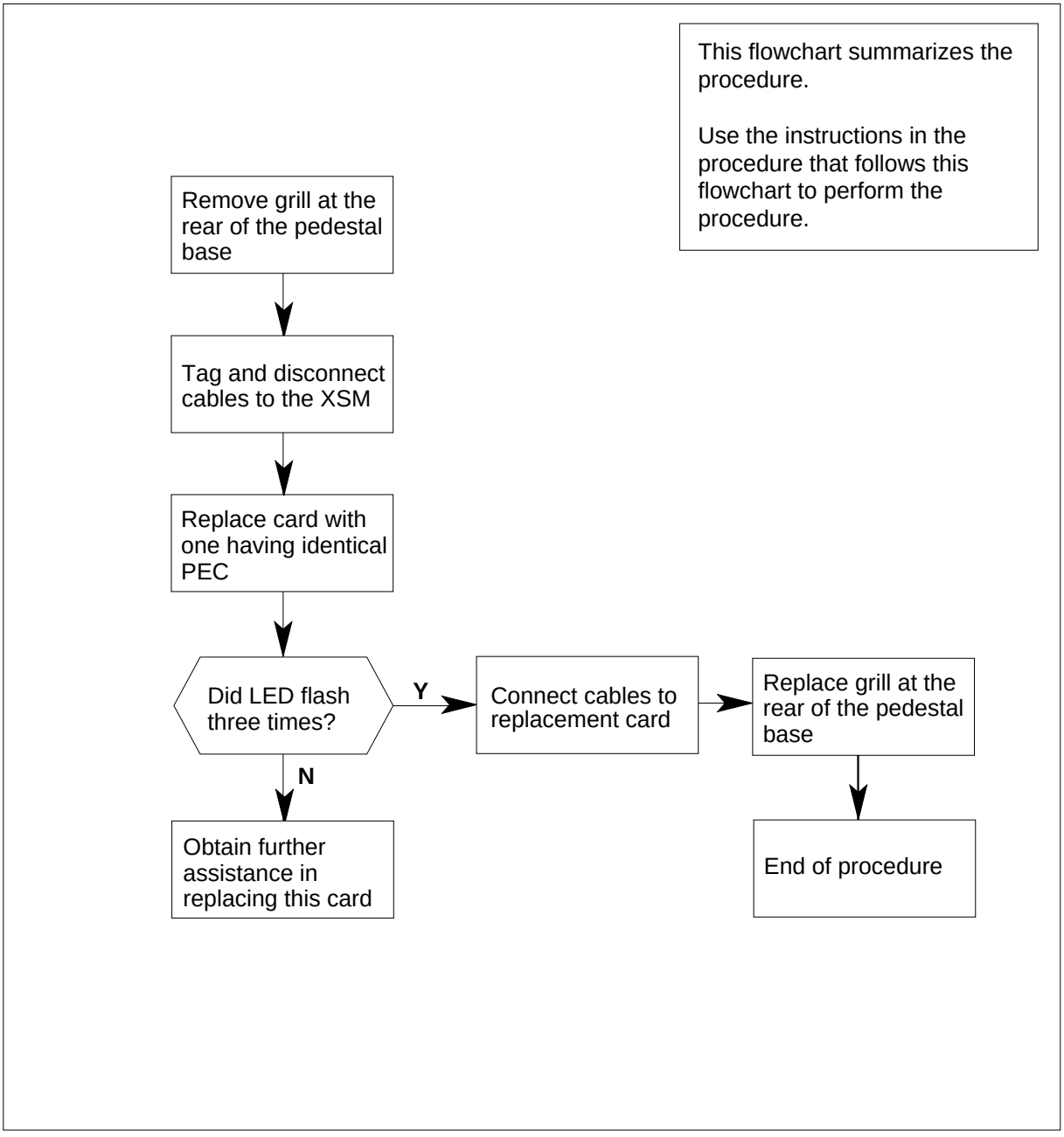


Pedestal Base
(rear view with grill removed)

The following flowchart is a summary of this procedure. Use the instructions in the step-action table that follows the flowchart to perform the procedure.

NT8D22
in an IPE module (continued)

Summary of card replacement procedure for NT8D22 card in an IPE shelf



NT8D22
in an IPE module (continued)

Replacing an NT8D22 in an IPE module

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.

At the IPE pedestal base

3

CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap, and connect it to the frame of the IPE before removing any cards. This action protects the IPE against service degradation caused by static electricity.

CAUTION
Equipment damage
Do not apply pressure to the components or force cards into the slots.

Put on a wrist strap.

4 Remove the grill on the rear of the pedestal base.

5 Tag and disconnect cables to the extended system monitor (XSM).

6

CAUTION
Removal of slave XSM
If a slave XSM card is removed, the master XSM considers that slave and all slaves with a higher address as disabled. For example, if the slave designated as XSM2 is disabled, the master also reports Slaves 3 and above as disabled.

Loosen the two screws on the NT8D22 XSM card, and pull the card out of the slot.

NT8D22
in an IPE module (end)

7 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

8 Set the option switch settings on the card to match those of the card you are replacing.

9 Insert the replacement card into the vacated slot, and tighten the two screws on the front of the card.

10 Ensure that the LED in the top cap flashes three times. (The XSM runs internal power-up diagnostics.)

If LED in the top cap	Do
flashes three times	Step 11
does not flash	Step 15

11 Connect cables to the replacement card.

12 Replace the grill on the rear of the pedestal base.

13 Send any faulty cards for repair according to local procedure.

14 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 16.

15 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

16 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT8D37 in an IPE module

Application

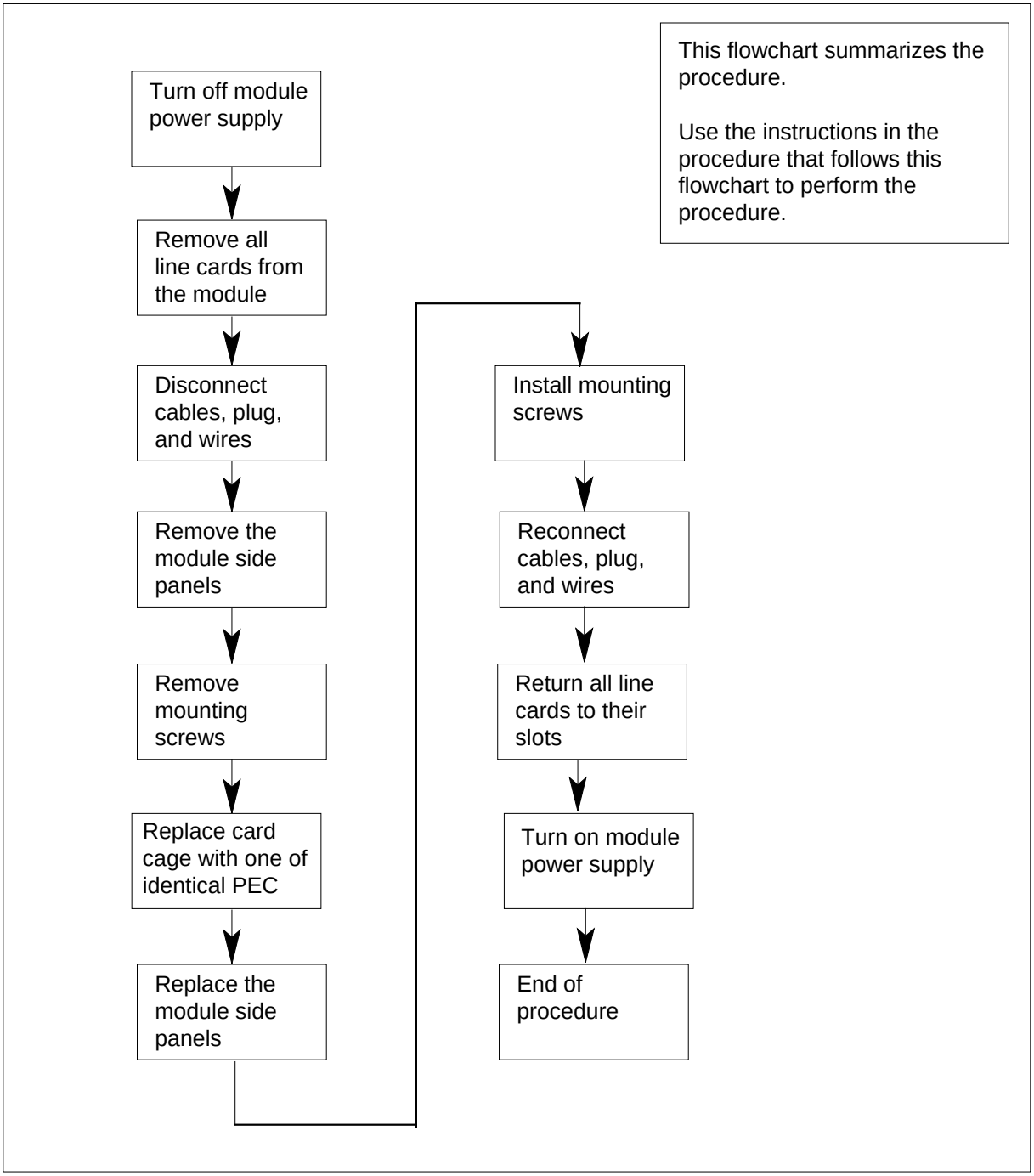
Use this procedure to replace the following card in an Intelligent Peripheral Equipment (IPE).

PEC	Suffixes	Name
NT8D37	DC	IPE card cage

The following flowchart is a summary of this procedure. Use the instructions in the step-action table that follows the flowchart to perform the procedure.

NT8D37
in an IPE module (continued)

Summary of card replacement procedure for NT8D37 card in an IPE shelf



Replacing an NT8D37 in an IPE module

At your current location

1

CAUTION
Module front and rear covers are not hinged
Module front and rear covers are *not* hinged; *do not let go of the cover*. Lift the cover away from the module, and set the cover out of the work area.

Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

At the MAP terminal

2 Set the MAP terminal to the peripheral module (PM) level by typing the following string:

```
>MAPCI;MTC;PM;POST IPE  ipec_no  shelf_no
```

and pressing the Enter key.

where

ipec_no
is the number of the IPE column (0-127)

shelf_no
is the number of the IPE shelf (0-3)

Example of a MAP display

NT8D37
in an IPE module (continued)

```
        CM     MS     IOD    Net    PM     CCS  Lns  Trks  Ext
         .   RExByp  1CkEr 16PSLK 3ESA   1 RSC   .    3 GC   .
                                           *C*         *C*
PM

 0 Quit
 2 Post_                                  SysB ManB Offl CBsyISTb InSv
 3                PM                        0    5    2    0    5   42
 4           PM:
 5
 6
 7
 8
 9
10
11 Disp
12
13 Status
14 IPML
15 PES
16
17
18
```

3 Busy the posted IPE by typing the following string:

>BSY PM

and pressing the Enter key.

At the IPE shelf

4

CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap, and connect it to the frame of the IPE before removing any cards. This action protects the IPE against service degradation caused by static electricity.

CAUTION
Equipment damage
Do not apply pressure to the components or force cards into the slots.

Put on a wrist strap.

5 Turn off power to the module power supply by setting the switch on the Peripheral Equipment Power Supply (PEPS) and the ringing generator to OFF (down).

NT8D37
in an IPE module (continued)

6 Remove cards from the module as follows:

- Tag and disconnect cables to all faceplate connectors.
- Tag cards so that they can be returned to the same slot. Remove the cards.
- Place cards in a spare card cage or a shipping box for protection.

7 Disconnect cables, plugs, and wires from the rear of the module to the backplane as follows:

- Remove the backplane cover by turning the screws on each side.
- Set the cover aside.
- Tag and disconnect all cables from the backplane to the interior of the I/O assembly.
- Remove the power plug cover by turning the screws on each side.
- Set the cover aside.
- Tag and disconnect all plugs, wires, and cables to the backplane.

8 Remove the two mounting screws that secure the rear of the card cage to the module.

9 Remove the module side panels from both sides of the cardcage.

10 Remove the three mounting screws that secure the front of the card cage to the bottom of the module.

11 Pull the card cage out of the module.

12 Obtain a replacement card cage.

13 Slide the replacement card cage into position in the module, and install the mounting screws at the front of the card cage.

14 Replace the module side panels on both sides of the card cage.

15 Install the mounting screws at the rear of the card cage.

16 Reconnect cables, plugs, and wires from the rear of the module to the backplane as follows:

- Connect all cables from the interior of the I/O assembly to the backplane.
- Position the backplane cover, and tighten the screws.
- Connect all plugs, wires, and cables to the backplane.
- Position the power plug cover, and tighten the screws.

17 Return all cards to their slots, and reconnect all cables to faceplate connectors.

18 Turn on power to the module power supply by setting the power supply switch to ON (up).

19 Return the IPE to service by typing the following string:

```
>RTS  PM
```

and pressing the Enter key.

20 Send any defective equipment for repair according to local procedure.

NT8D37
in an IPE module (end)

21 Record the following items in office records:

- date the card cage was replaced
- serial number of the card cage
- symptoms that prompted replacement of the card cage

22 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

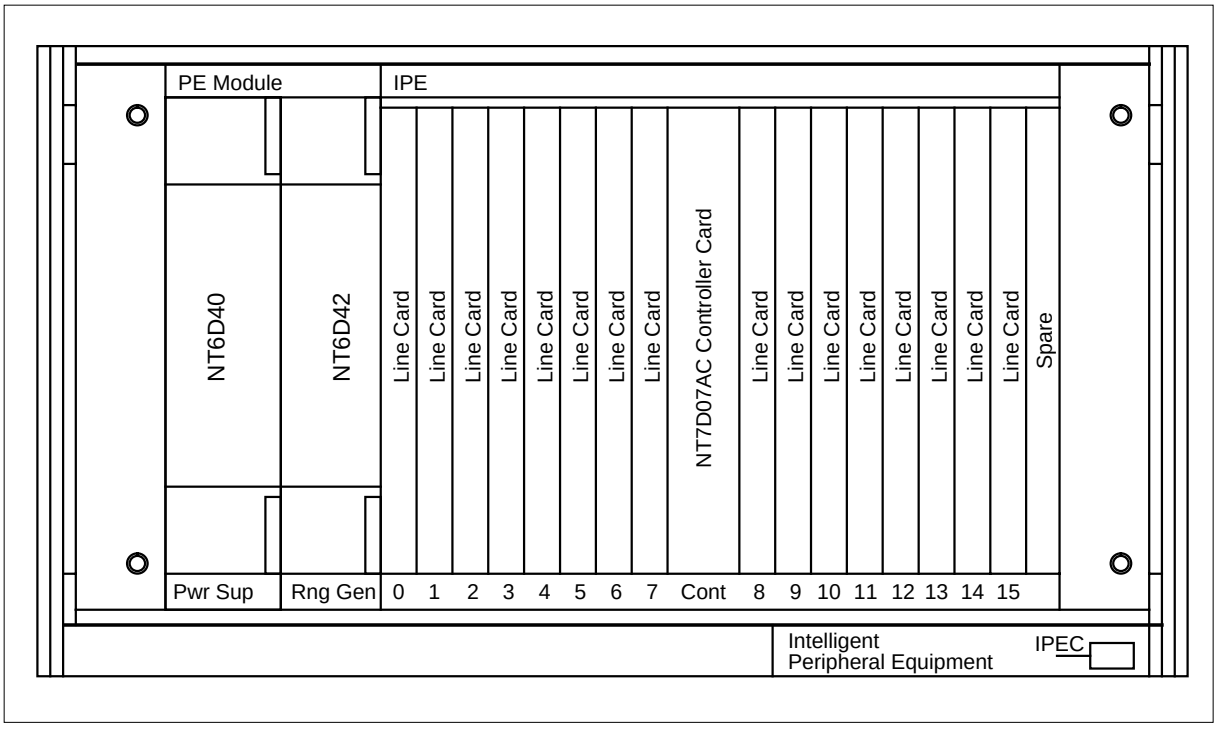
Line cards in an IPE module

Application

Use this procedure to replace the following cards in an intelligent peripheral equipment (IPE) module.

PEC	Suffixes	Name
NT8D02	AA, EB	digital line card (DLC)
NT8D03	AB	analog line card (ALC)
NT8D09	AJ, AL	analog message waiting line card (MLC)

The following figure shows a front view of the IPE card cage.

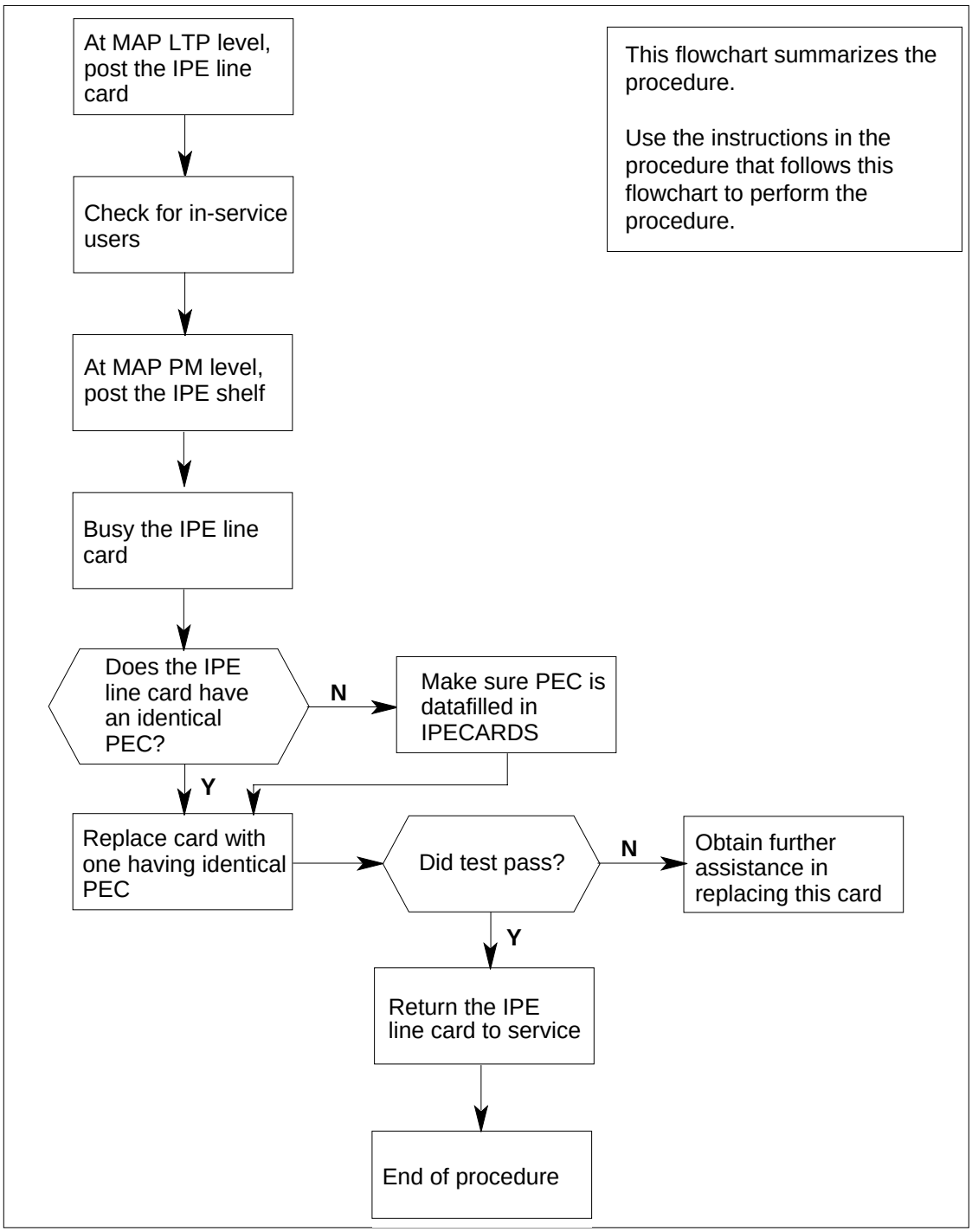


Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

Line cards in an IPE module (continued)

Summary of card replacement procedures for line cards in an IPE shelf



Line cards in an IPE module (continued)

Replacing a line card in an IPE module

DANGER
Module front and rear covers are not hinged
Module front and rear covers are *not* hinged; *do not let go of the cover*. Lift the cover away from the module, and set the cover out of the work area.

CAUTION
Removal of in-service line cards
Removing an in-service line card may cause up to 16 subscribers to be removed from service.

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.

Note: If the new IPE card does not have a PEC identical to the one replaced, make sure PEC is datafilled in the IPECARDS table before returning the card to service.

At the MAP terminal

3 Set the MAP terminal to the LTP level by typing the following string:

```
MAPCI;MTC;LNS;LTP;POST  L  len
```

and pressing the Enter key.

where

len
is the line equipment number (LEN) of the IPE line card

Example of a MAP display:

Line cards
in an IPE module (continued)

```
        CM     MS     IOD    Net    PM     CCS   Lns   Trks  Ext   APPL
         .   RExByp  1CkEr 16PSLK 3ESA   1 RSC    .    3 GC   .     .
                                          *C*         *C*
PM

 0 Quit      POST       DELQ       BUSYQ    PREFIX
 2 Post_       LCC PTY RNG  LEN          DN      STA F S LTA TE RESULT
 3             IBN M209FH  HOST 030 00 00 7224145IDL
 4
 5 Bsy
 6 RTS
 7 Diag
 8
 9 Almstat
10 Ctlock
11 Hold
12 Next
13
14
15
16 Prefix
17 LCO_
18 Level_
```

4 Use the NEXT command to step through the LENs and check for in-service users.

5 Set the MAP terminal to the peripheral module (PM) level by typing the following string:

`>MAPCI;MTC;PM;POST IPE  ipec_no  shelf_no`

where

ipec_no
is the number of the IPE column (0-127)

shelf_no
is the number of the IPE shelf (0-3)

Example of a MAP response:

Line cards
in an IPE module (continued)

```
      CM    MS     IOD    Net    PM    CCS   Lns  Trks  Ext  APPL
      .   RExByp 1CkEr 16PSLK 3ESA  1 RSC   .   3 GC   .    .
                                     *C*        *C*
PM
 0 Quit    |                    SysB ManB Offl CBsy ISTb InSv
 2 Post_   |        PM            0    5    2    0    5   42
 3         |
 4         | PM:
 5         |
 6         |
 7         |
 8         |
 9         |
10         |
11 Disp_   |
12         |
13 Status  |
14 IPML    |
15 PES     |
16         |
17         |
18         |
```

Note: If the new IPE card does not have a PEC identical to the one replaced, make sure PEC is datafilled in the IPECARDS table before returning the card to service.

6 Busy the IPE line card by typing the following string:

>BSY CARD slot_no

and pressing the Enter key.

where

slot_no
is the slot number of the IPE line card (0-15)

At the IPE shelf

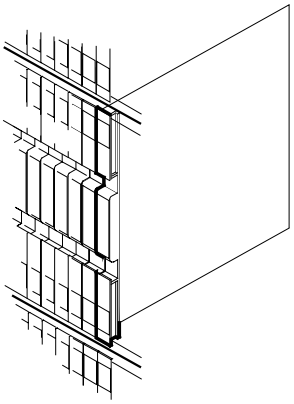
7

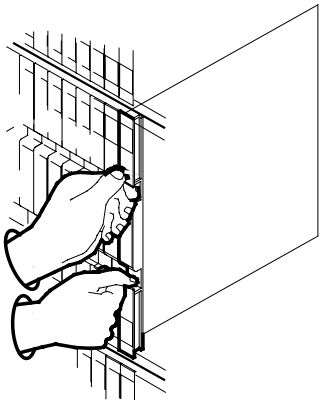
> **CAUTION**
> **Static discharge may cause damage to circuit packs**
> Put on a wrist strap, and connect it to the frame of the IPE before removing any cards. This action protects the IPE against service degradation caused by static electricity.

Put on a wrist strap.

8 Locate the card to be removed on the appropriate shelf.

Line cards
in an IPE module (continued)

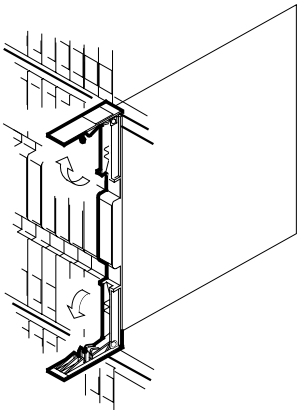


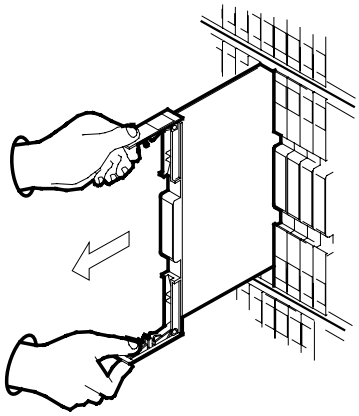


9

> **CAUTION**
> **Equipment damage**
> Do not apply pressure to the components or force cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



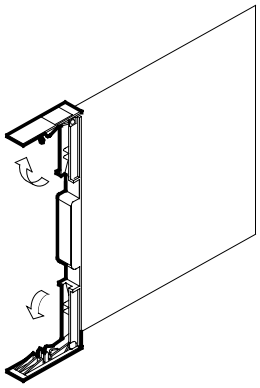


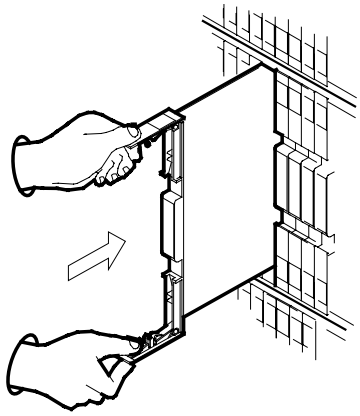
10 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

11 Set the switch settings on the card to match those of the card you are replacing.

Line cards in an IPE module (continued)

12 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf as shown in the following figures.





13 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

14 Close the locking levers.

At the MAP terminal

15 Test the new IPE line card by typing the following string:

```
>TST CARD slot_no
```

and pressing the Enter key.

where

slot_no
is the slot number of the IPE line card (0-15)

If TST passed	Do
passed	Step 16
failed	Step 19

16 Return the IPE line card to service by typing the following string:

```
>RTS  CARD  slot_no
```

where

slot_no
is the slot number of the IPE line card (0-15)

If RTS passed	Do
passed	Step 17
failed	Step 19

Line cards in an IPE module (end)

17 Send any faulty cards for repair according to local procedure.

18 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

19 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

20 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT5D11 in an IPE

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT5D11	AA, AB, AC	Line Side T-1 Interface card	IPE

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

Card settings

Tables Table , "Settings for DIP switch 1" on page -21 through Table , "CPE or CSU distance settings" on page -23 give the switch settings for the DIP switches on the line side T-1 card. These switches must be configured for your environment before you install the T-1 card, as explained in Step Section 9, "Configure the DIP switches on the replacement card as appropriate for your environment according to the settings shown in Tables through in the “Card settings” section of this chapter." on page -27 of this procedure. They are located in the upper right-hand corner of the card.

Settings for DIP switch 1

Switch position	Characteristic	Selection	Switch setting
1	HMI port speed selection	1200 baud	On
		2400 baud	Off
2	T-1 signaling	Ground start	On
		Loop start	Off
3 - 6	IPE shelf address	See Table Table , "IPE shelf addresses" on page -22	
8	Cutoff on disconnect	COD enabled	On
		COD disabled	Off

NT5D11
in an IPE (continued)

Note: Switch 7 is not used and should be left in the "off" position.

IPE shelf addresses

IPE shelf address	Switch 6 position	Switch 5 position	Switch 4 position	Switch 3 position
00	Off	Off	Off	Off
01	Off	Off	Off	On
02	Off	Off	On	Off
03	Off	Off	On	On
04	Off	On	Off	Off
05	Off	On	Off	On
06	Off	On	On	Off
07	Off	On	On	On
08	On	Off	Off	Off
09	On	Off	Off	On
10	On	Off	On	Off
11	On	Off	On	On
12	On	On	Off	Off
13	On	On	Off	On
14	On	On	On	Off
15	On	On	On	On

Settings for DIP switch 2 (Sheet 1 of 2)

Switch position	Characteristic	Selection	Switch setting
1	T-1 framing	D4	On
		ESF	Off
2	T-1 coding	B8ZS	On
		AMI	Off

Settings for DIP switch 2 (Sheet 2 of 2)

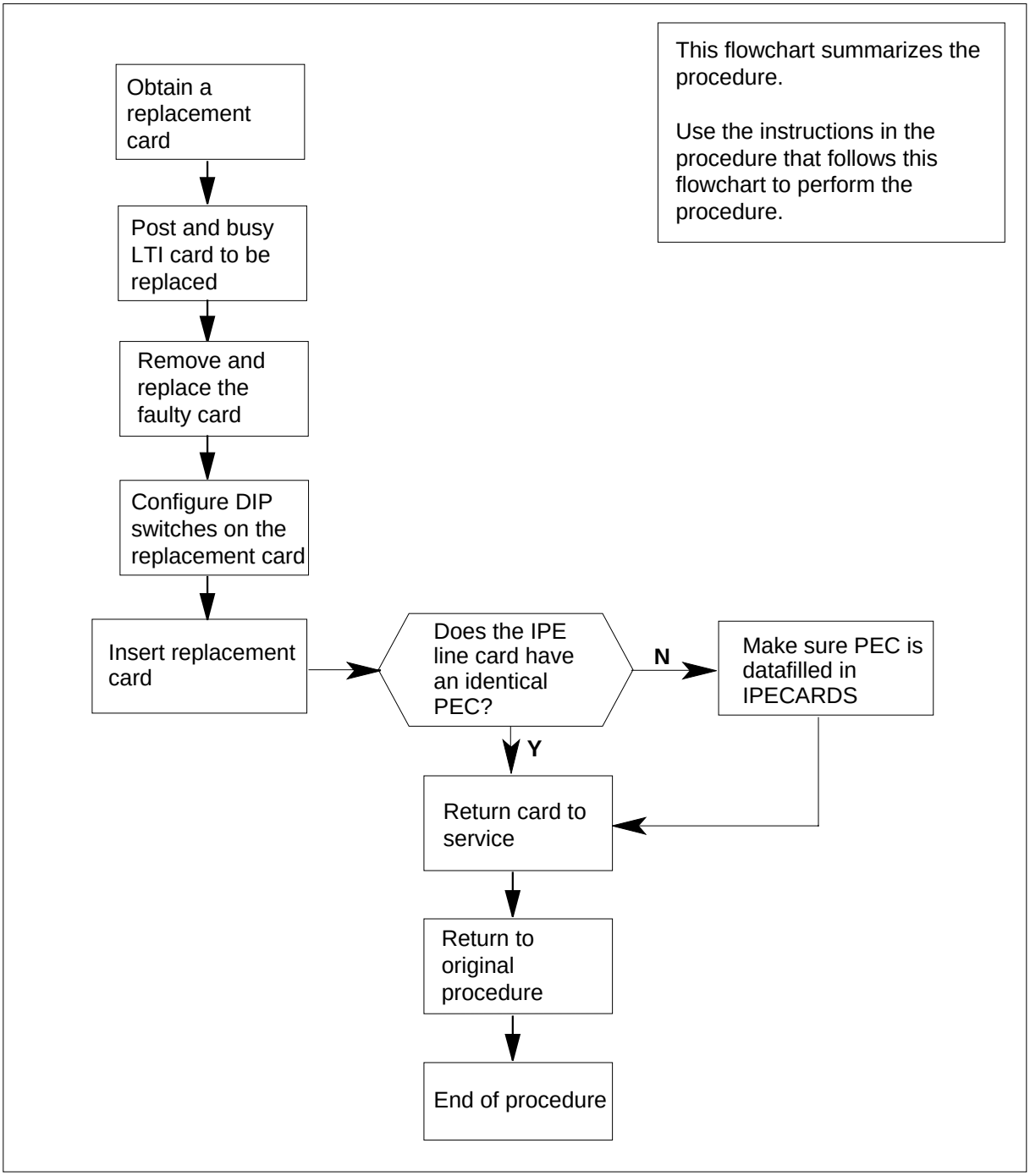
Switch position	Characteristic	Selection	Switch setting
3 - 5	CPE or CSU distance	See Table Table , "CPE or CSU distance settings" on page -23	
6	Line processing on T-1 link failure	On-hook	On
		Off-hook	Off
7	Daisy chaining to the HMI	Yes	On
		No	Off
8	HMI master	Yes (master)	On
		No (slave)	Off

CPE or CSU distance settings

Distance (feet)	Switch 3 position	Switch 4 position	Switch 5 position
0 - 133	On	Off	Off
134 - 266	Off	On	On
267 - 399	Off	On	Off
400 - 533	Off	Off	On
534 - 655	Off	Off	Off

NT5D11 in an IPE (continued)

Summary of card replacement procedure for NT5D11 card in an IPE



NT5D11 in an IPE (continued)

Replacing an NT5D11 card

DANGER

Module front and rear covers are not hinged

Module front and rear covers are *not* hinged; *do not let go of the cover.* Lift the cover away from the module, and set the cover out of the work area.

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level by typing the following string:

```
>MAPCI;MTC;PM;POST IPE  ipec_no  shelf_no
```

and pressing the Enter key.

where

ipec_no
is the number of the IPE column (0-127).

shelf_no
is the number of the IPE shelf (0-3)

Example of a MAP response:

NT5D11
in an IPE (continued)

```
       CM    MS     IOD     Net     PM      CCS    Lns   Trks    Ext  APPL
        .   RExByp  1CkEr  16PSLK  3ESA   1 RSC    .    3 GC     .    .
                                            *C*          *C*
PM
0 Quit     |                              SysB  ManB  OffL  CBsy  ISTb  InSv
2 Post_    |          PM                     0     5     2     0     5    42
3          |
4          |    PM:
5          |
6          |
7          |
8          |
9          |
10         |
11 Disp_   |
12         |
13 Status  |
14 IPML    |
15 PES     |
16         |
17         |
18         |
```

4

> **CAUTION**
> **The BSY command takes subscribers out of service**
> Removing an in-service line card takes all subscribers on that line card out of service. If the failure is severe, replace the card immediately. Otherwise, do this procedure during low traffic periods.

Busy the IPE line card by typing the following string:

`>BSY   CARD   slot_no`

where

slot_no
is the slot number of the IPE line card (0-15)

and pressing the Enter key.

At the IPE shelf

5

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the IPE frame. This protects the equipment against damage caused by static electricity.

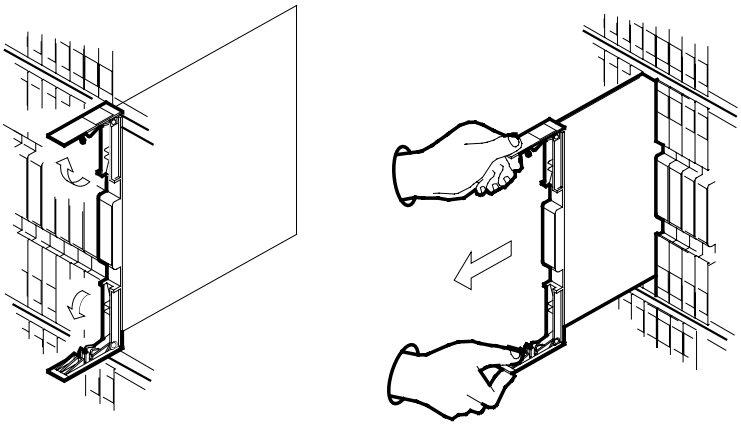
Put on a wrist strap.

6 Locate the card to be removed on the appropriate shelf.

7

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

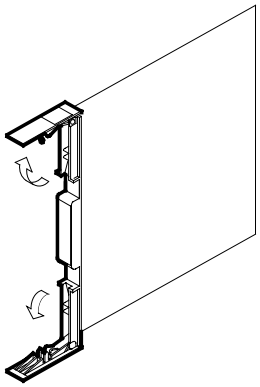


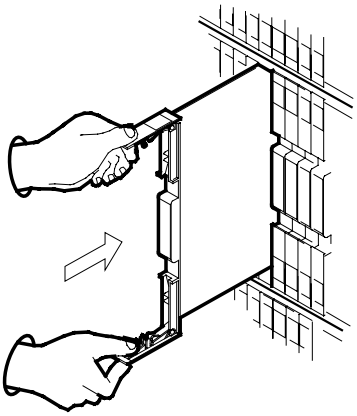
8 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

9 Configure the DIP switches on the replacement card as appropriate for your environment according to the settings shown in Tables through in the “Card settings” section of this chapter.

NT5D11
in an IPE (continued)

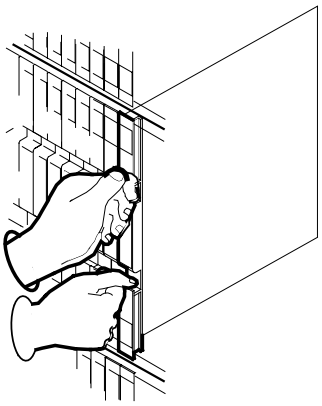
10 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.





11 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

12 Close the locking levers.



Note: If the new IPE card does not have a PEC identical to the one replaced, make sure PEC is datafilled in the IPECARDS table before returning the card to service.

At the MAP terminal

13 Return the IPE to service by typing the following string:

```
>RTS CARD  slot_no
```

where

slot_no
is the slot number of the IPE line card (0-15)

14 Send any faulty cards for repair according to local procedure.

NT5D11
in an IPE (end)

15 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

16 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

17 Continue as directed.

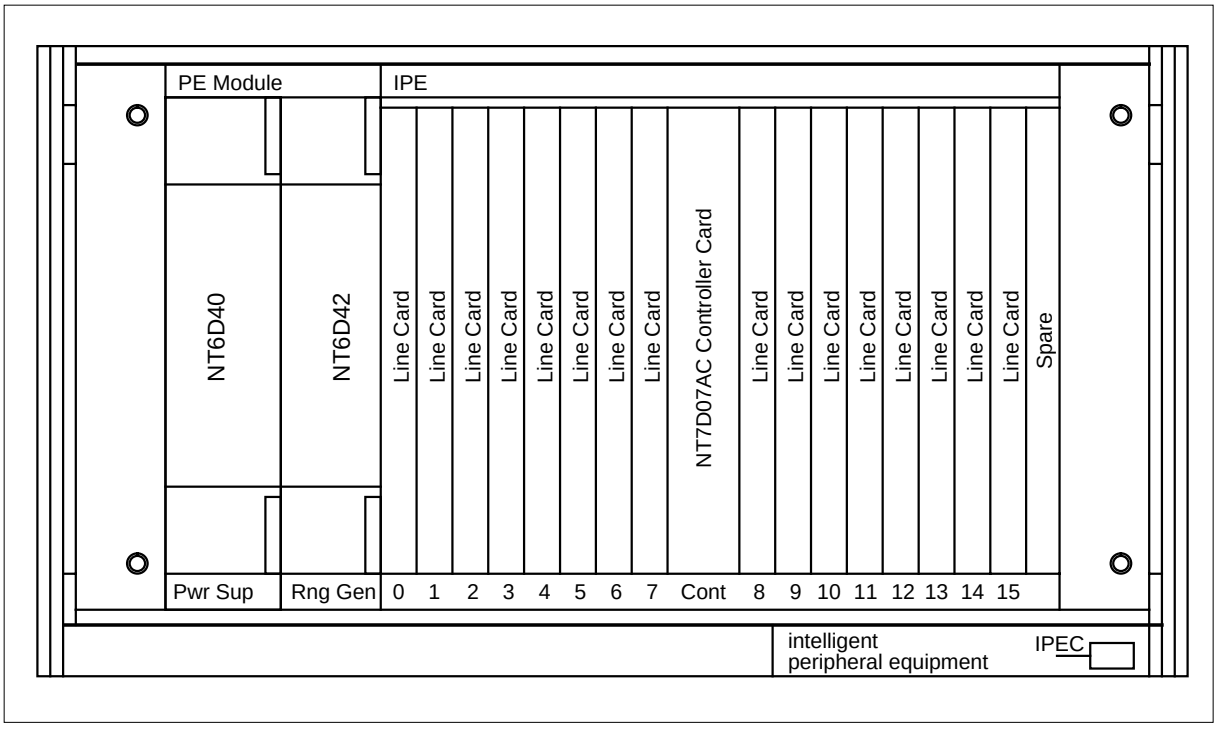
System cards in an IPE module

Application

Use this procedure to replace the following cards in an Intelligent Peripheral Equipment (IPE) module.

PEC	Suffixes	Name
NT6D40	AD, BA	peripheral equipment power supply (PEPS)
NT6D42	CB	ringing generator DC
NT7D07	AC, BA	enhanced controller card

The following figure shows a front view of the IPE card cage.

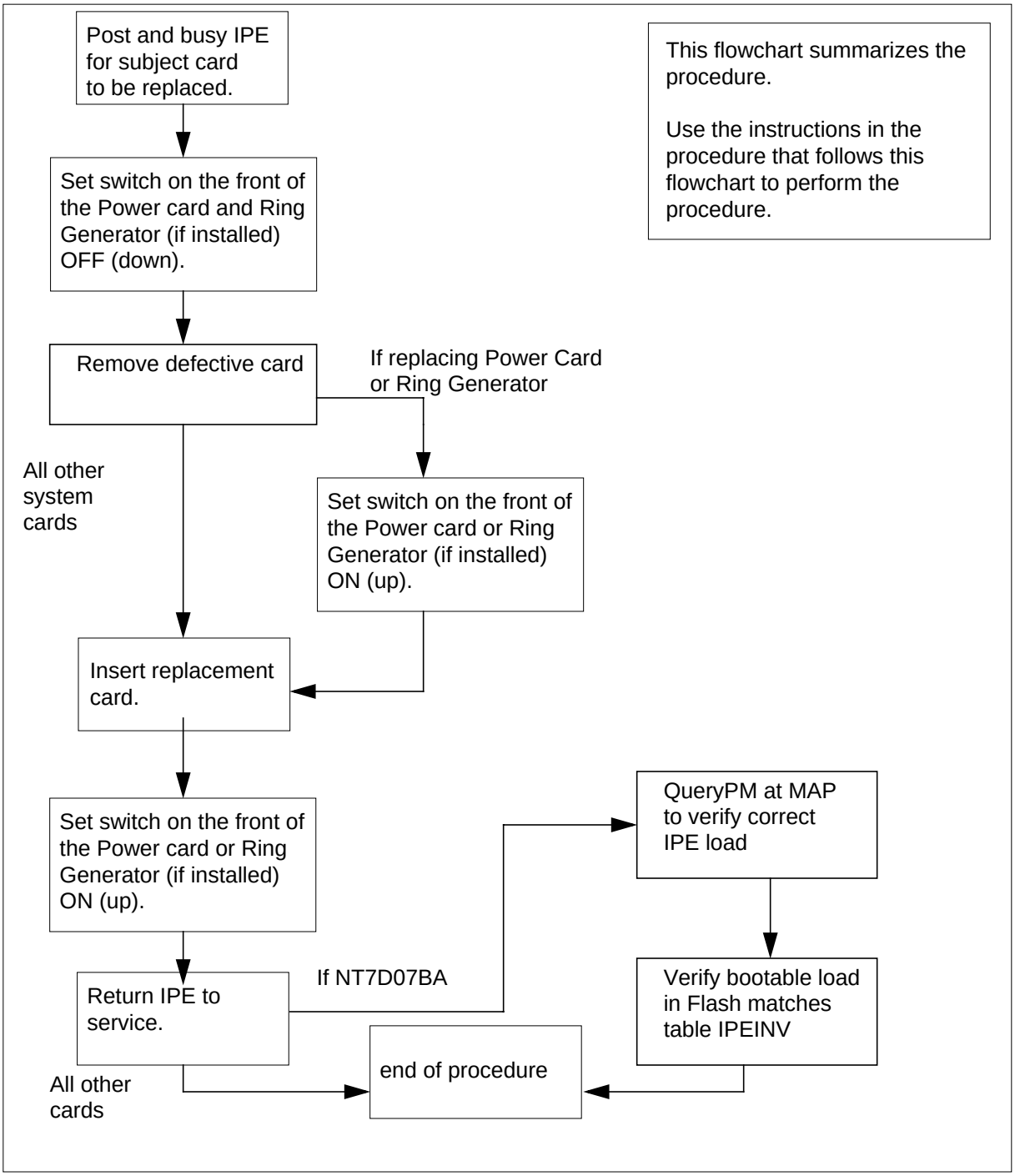


Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

System cards in an IPE module (continued)

Summary of card replacement procedure for system cards in an IPE shelf



System cards in an IPE module (continued)

Replacing a system card in an IPE module

DANGER

Module front and rear covers are not hinged

Module front and rear covers are *not* hinged; *do not let go of the cover*. Lift the cover away from the module, and set the cover out of the work area.

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group. Before downloading firmware using the Optivity Telephony manager, refer to CAB 75689 for important information.

Downloads to both the EXPEC controller cards and to a range of M3900-series telephones DNs can be scheduled for any day and any range of hours. It is not necessary to specify the end time when scheduling. Once the start day and time have been specified, the Optivity Telephony Manager for Meridian SL-100 will continue sequential downloads until all designated downloads are complete. A log report is available at any time to track download status.

2 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the affected IPE by typing the following string:

```
>MAPCI;MTC;PM;POST IPE  ipec_no  shelf_no
```

and pressing the Enter key.

where

ipec_no
is the number of the IPE column (0-127).

shelf_no
is the number of the IPE shelf (0-3)

Example of a MAP response:

System cards in an IPE module (continued)

```
      CM     MS     IOD    Net    PM     CCS    Lns   Trks   Ext  APPL
       .   RExByp  1CkEr 16PSLK 3ESA   1 RSC    .    3 GC     .
                                         *C*          *C*                .
PM

0 Quit                                SysB  ManB  OffL  CBsy  ISTb InSv
2 Post_              PM                  0     5     2     0     5   42
3
4              PM:
5
6
7
8
9
10
11 Disp_
12
13 Status
14 IPML
15 PES
16
17
18
```

4

CAUTION
The BSY command takes subscribers out of service
Busying the posted IPE takes all subscribers on that IPE out of service.

Busy the posted IPE by typing the following string:

>BSY PM

and pressing the Enter key.

System cards in an IPE module (continued)

At the IPE shelf

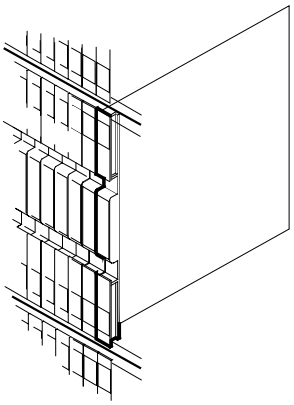
5

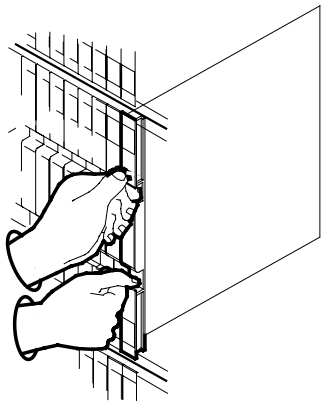
CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap, and connect it to the frame of the IPE before removing any cards. This action protects the IPE against service degradation caused by static electricity.

Put on a wrist strap.

6 Set the switch on the front of the power supply card to OFF (down).

7 Locate the card to be removed on the appropriate shelf.



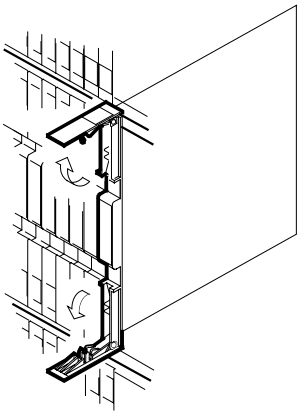


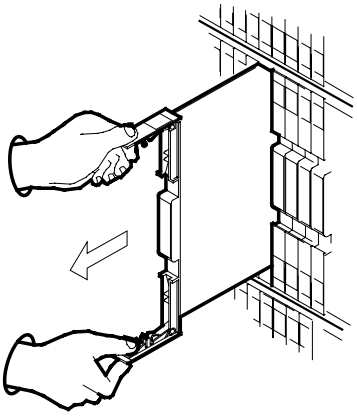
8

CAUTION
Equipment damage
Do not apply pressure to the components or force cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

System cards in an IPE module (continued)

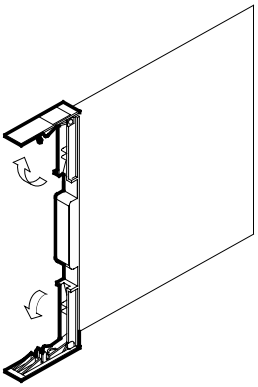


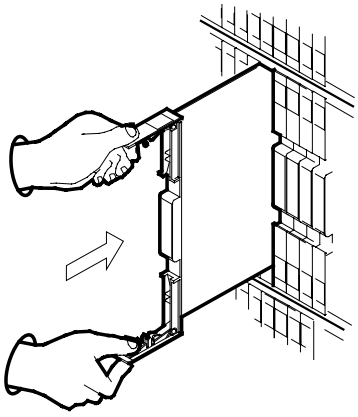


9 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

10 If replacing the Power Supply or Ring Generator, set the switch on the card to OFF (down).

11 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf as shown in the following figures.





12 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

13 Close the locking levers.

14 Set the power supply card amd Ring Generator (if installed) to ON (up). The green LED on the card should light and stay lit.

At the MAP terminal

15 Return the IPE to service by typing the following string:

```
>RTS  PM
```

and pressing the Enter key.

System cards in an IPE module (end)

16 If replacing an NT7D07BA or spare, verify current load in IPE by typing the following string:

`>QueryPM`

and pressing the Enter key.

Make sure “load within IPE” matches “loadnames” PMload.

17 If replacing an NT7D07BA or spare, using the system management tool Optivity Telephony Manager for MSL-100, verify the bootable flashload in the IPE matches table IPEINV.

Specify the current IPE and open the IPE load utility.

Verify the bootable load matches table IPEINV.

18 If replacing an NT7D07BA or spare, if no bootable load exists in the IPE, download the current software load from the SLM to the IPE using OTM.

19 Send any faulty cards for repair according to local procedure.

20 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

21 You have completed this procedure. After you have used the Optivity Telephony Manager for Meridian SL-100 to download firmware to the EXPEC controller card, go to the MAP, man busy the card, and return to service (RTS) the card in order for the new firmware load to take effect.

22 Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

4 MCRM-S card replacement procedures

This chapter contains procedures for replacing the following cards in a Meridian Cabinet Remote Module-SONET (MCRM-S) Remote Maintenance Module (RMM).

- NT0X10 in an MCRM-S RMM
- NT2X06 in an MCRM-S RMM
- NT2X09 in an MCRM-S RMM
- NT2X10 in an MCRM-S RMM
- NT2X11 in an MCRM-S RMM
- NT2X57 in an MCRM-S RMM
- NT2X59 in an MCRM-S RMM
- NT2X77 in an MCRM-S RMM
- NT2X90 in an MCRM-S RMM
- NT3X04 in an MCRM-S RMM
- NT3X09 in an MCRM-S RMM
- NT6X69 in an MCRM-S RCC2
- NT6X74 in an MCRM-S RMM
- NT6X78 in an MCRM-S RCC2
- NT6X87 in an MCRM-S LCME
- NT6X92 in an MCRM-S RCC2
- NTBX01 in an MCRM-S RCC2
- NTBX02 in an MCRM-S EXT or RCC2
- NTMX72 in an MCRM-S RCC2
- NTMX73 in an MCRM-S RCC2
- NTMX74 in an MCRM-S RCC2
- NTMX75 in an MCRM-S RCC2
- NTMX77 in an MCRM-S RCC2
- NTMX79 in an MCRM-S EXT
- NTMX81 in an MCRM-S EXT or RCC2

- NTMX83 in an MCRM-S EXT or RCC2
- NTMX87 in an MCRM-S Quad frame carrier

For each card replacement task, you will find a procedure containing the following details:

- explanatory and context-setting information
- summary flowchart
- step-action instructions

Recording card replacement activities

When a card is replaced, the following information should be noted in office records:

- the serial number of the replaced card
- the date of replacement
- the reason for the replacement

Explanatory and context-setting information

In each procedure, the section titled “Application” identifies the card PECs (including suffixes) and the shelves or frames to which this procedure applies. Read this section before you perform the step-action instructions. If the “Application” section does not identify the card and shelf you are looking for, go to the “Index” where all card and shelf combinations included in this book are listed.

The “Common procedures” section lists common procedures that you may be asked to perform as you follow the step-action instructions. Go to these common procedures only when directed to do so.

Summary flowchart

The flowchart is a summary of the main actions, decision points, and possible paths you may take. Do not use the summary flowchart to perform the procedure. Instead, use it to preview what you will be doing and to prepare. For example, if you see that the instructions will involve another office, you will know to advise that office before you begin the step-action instructions.

Step-action instructions

The step-action instructions tell you how to change a card. Normally, you perform the steps in order, but you may be directed to return to a previous step and repeat a sequence. The successful completion of a step in a sequence may depend on previous steps; therefore always perform the steps in the order specified.

While following the step-action instructions, you may be sent to the “Common card replacement procedures” chapter of this book or to another Nortel Networks technical publication (NTP) to perform a set of instructions. If this happens, you will be told when to return to the original instructions, and to which point in those instructions you should go.

The step-action instructions provide the command syntax and machine output you use or see while performing this procedure. For help on DMS commands or output, see *Commands Reference Manual*, 297-1001-822.

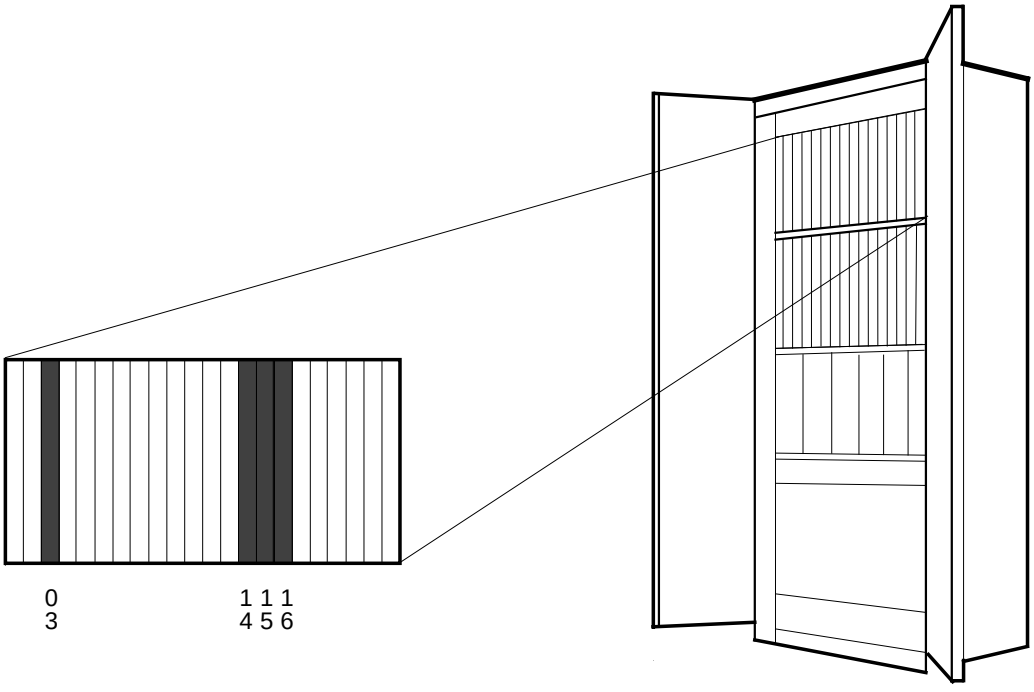
NT0X10 in an MCRM-S RMM

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT0X10	AA	Miscellaneous Scan Card (MSC)	MCRM-S RMM

See the following figure for NT0X10 card positions in the MCRM-S RMM.



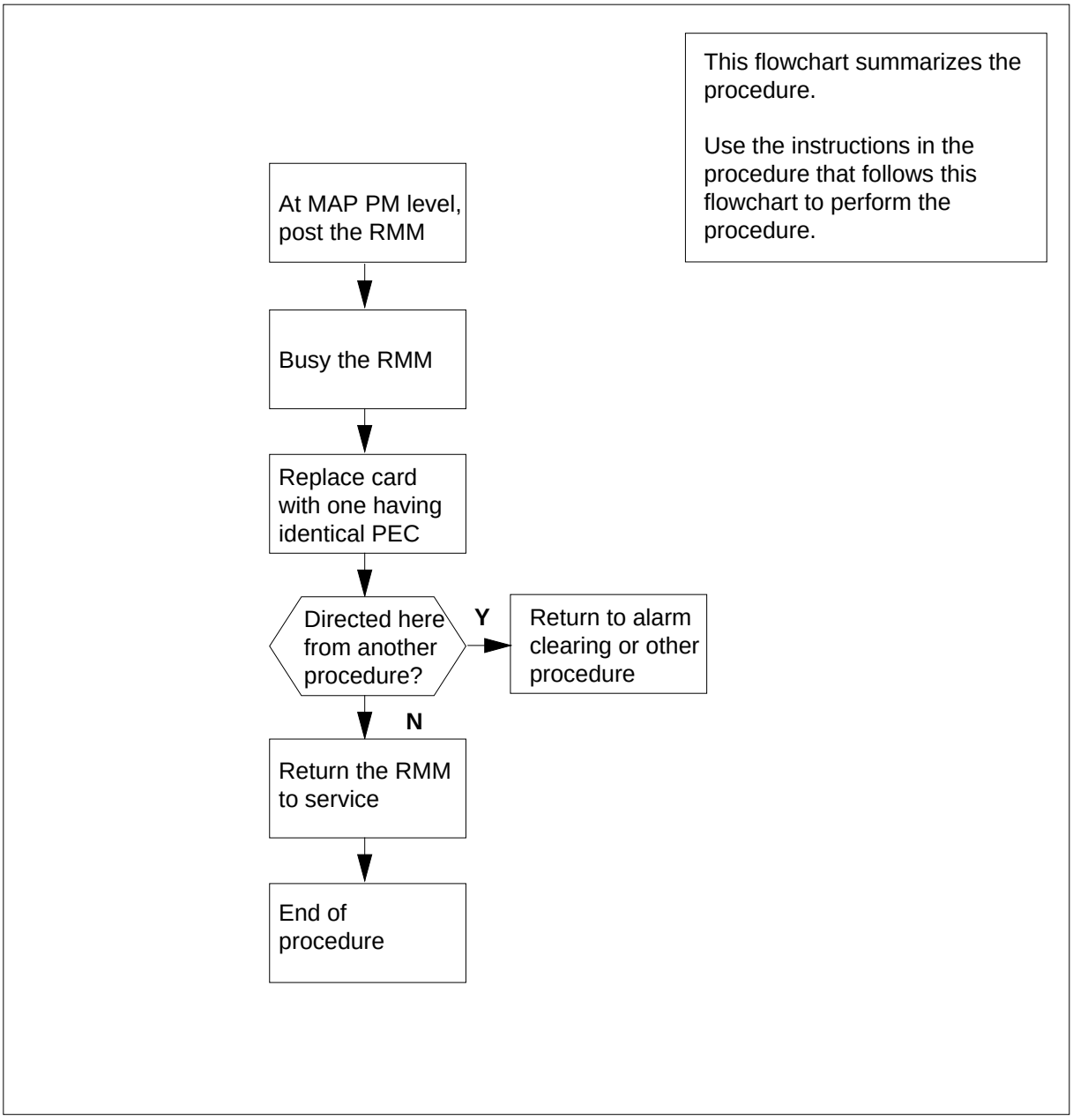
Note: Position 03 is always provisioned. Positions 14–16 are provisioned depending on customer applications.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT0X10
in an MCRM-S RMM (continued)

Summary of card replacement procedure for NT0X10 card in an MCRM-S RMM



NT0X10 in an MCRM-S RMM (continued)

Replacing an NT0X10 in an MCRM-S RMM

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card being removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level by typing the following string:

> *MAPCI;MTC;PM;POST RMM* rmm_no

and pressing the Enter key.

where

rmm_no
is the number of the RMM from which the card is to be removed.

Example of a MAP response

```
 CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
  .      .      .      .      .      .      .      .      .
 RMM             SysB   ManB   OffL   CBsy     ISTb   InSv
0 Quit     PM       0      0      0      0        0    130
2 Post_    RMM      0      0      0      0        0      0
3
4          RMM 5 INSV
5 Trns;
6 Tst
7 Bsy
8 Rts
9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Busy the RMM by typing the following string:

>BSY

and pressing the Enter key.

Example of a MAP response

NT0X10
in an MCRM-S RMM (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .    1ManB    .      .      .       .
  RMM            SysB   ManB   OffL   CBsy     ISTb    InSv
 0 Quit     PM      4      0     10      0        0     130
 2 Post_    RMM     0      1      0      0        0       0
 3
 4          RMM 5 ManB
 5 Trns;
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
 10 LoadPM
 11 Disp_
 12 Next
 13
 14 QueryPM
 15
 16
 17
 18
```

At the RMM shelf

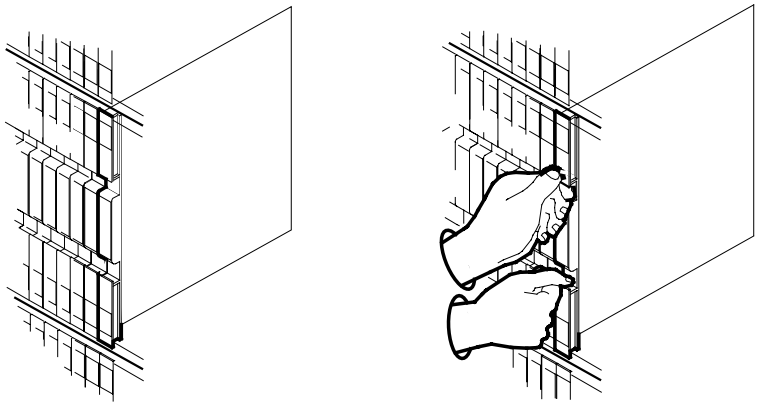
5

CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap and connect it to the frame of the RMM before removing any cards. This protects the RMM against service degradation caused by static electricity.

Put on a wrist strap.

6 Locate the card to be removed on the appropriate shelf as shown in the following figures.

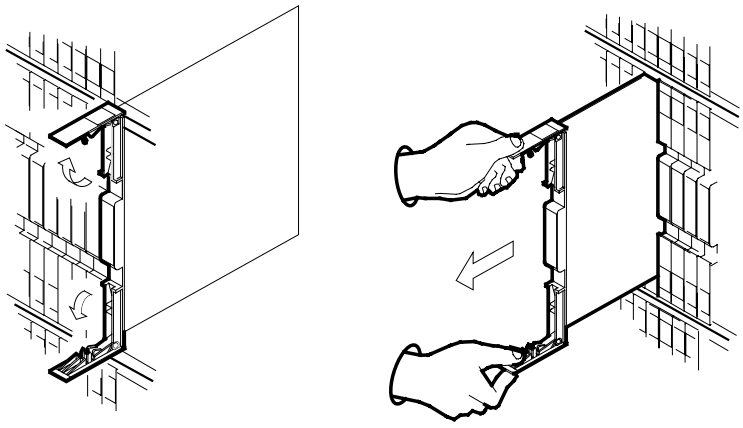
NT0X10
in an MCRM-S RMM (continued)



7

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

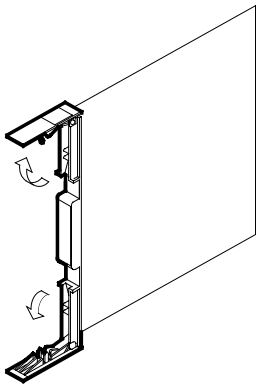
Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

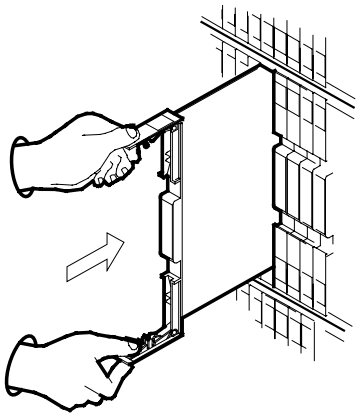


8 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

9 Set the switch settings on the card to match those of the card you are replacing.

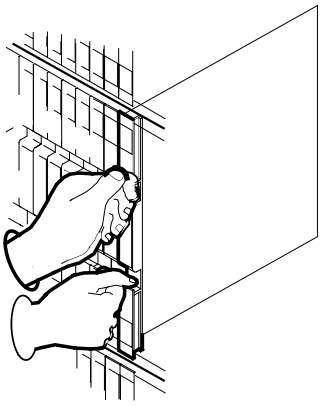
10 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.





11 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

12 Close the locking levers.



13 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 20
other	Step14

At the MAP terminal

14 Test the RMM by typing the following string:

>TST

and pressing the Enter key.

NT0X10 in an MCRM-S RMM (end)

15 Use the following information to determine where to proceed.

If TST passed	Do
passed	Step 16
failed	Step 20

16 Return the RMM to service by typing the following string:

>RTS

and pressing the Enter key.

17 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 18
failed	Step 21

18 Send any faulty cards for repair according to local procedure.

19 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 22.

20 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

21 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

22 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

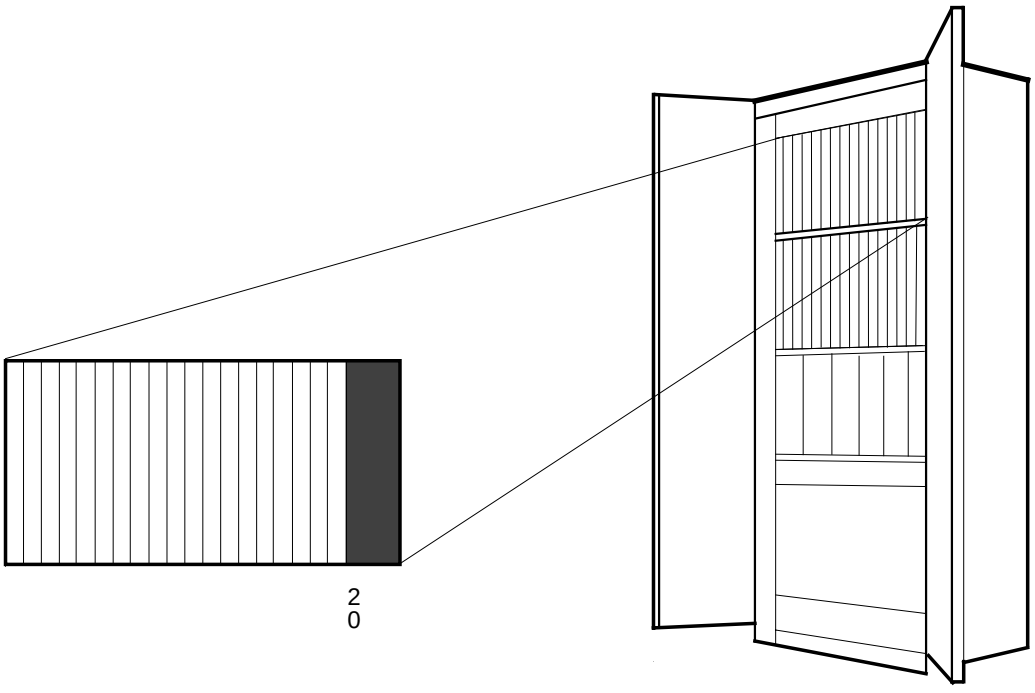
NT2X06 in an MCRM-S RMM

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT2X06	AB	5V/40A Power Converter	Remote Maintenance Module (RMM)

See the following figure for NT2X06 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



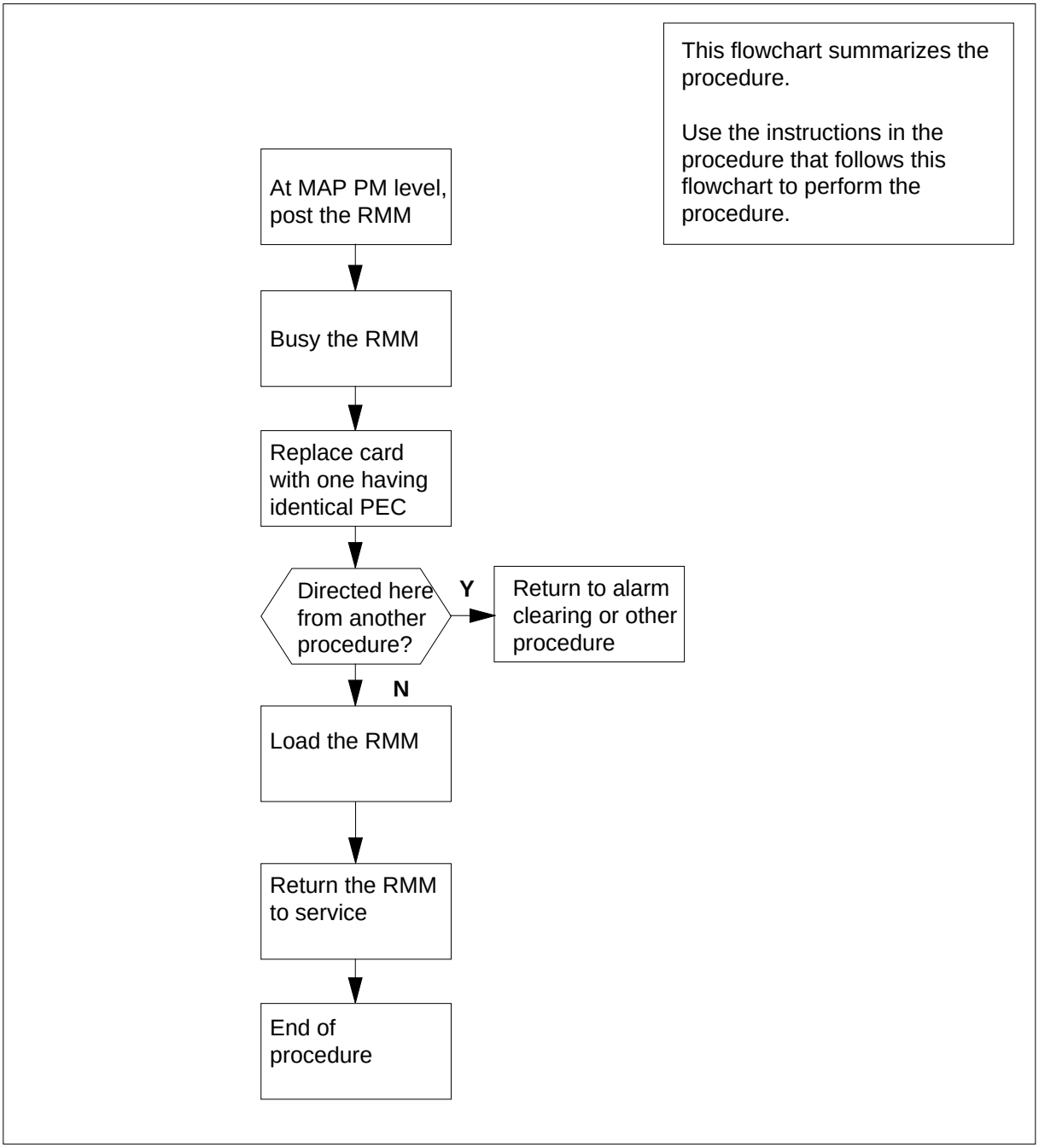
Note: Position 20 is always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT2X06
in an MCRM-S RMM (continued)

Summary of card replacement procedure for NT2X06 card in an MCRM-S RMM



Replacing an NT2X06 in an MCRM-S RMM

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level by typing the following string:

> *MAPCI;MTC;PM;POST RMM* rmm_no

and pressing the Enter key.

where

rmm_no
is the number of the RMM from which the card is to be removed.

Example of a MAP display:

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .      .      .      .       .      .
RMM                SysB   ManB   OffL   CBsy     ISTb    InSv
 0 Quit    PM        4      0     10      0        0     130
 2 Post_   RMM       0      1      0      0        0       0
 3
 4         RMM  5  ManB
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Busy the RMM by typing the following string:

>BSY

and pressing the Enter key.

NT2X06
in an MCRM-S RMM (continued)

At the RMM shelf

5

CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap and connect it to the frame of the RMM before removing any cards. This protects the RMM against service degradation caused by static electricity.

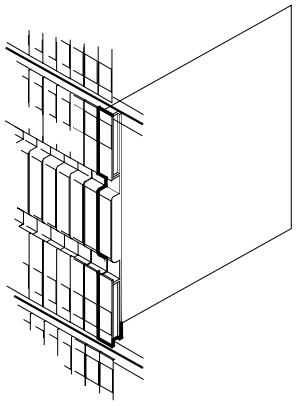
Put on a wrist strap.

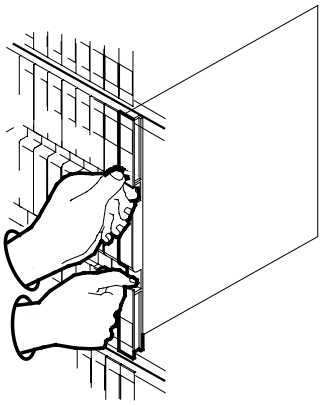
6 Power down the unit by setting the ON/OFF switch on the power converter faceplate to the OFF position. Both the converter FAIL LED and FRAME FAIL lamp on the Frame Supervisory Panel (FSP) turn ON. An audible alarm may sound. If an alarm does sound, silence it by typing the following string at the MAP terminal:

```
> sil
```

and pressing the Enter key.

7 Locate the card to be removed on the appropriate shelf as shown in the following figures.



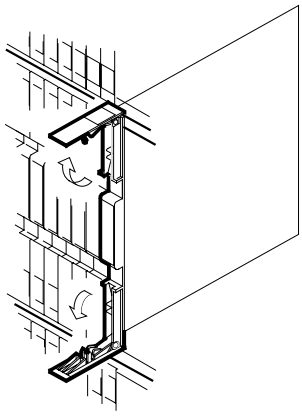


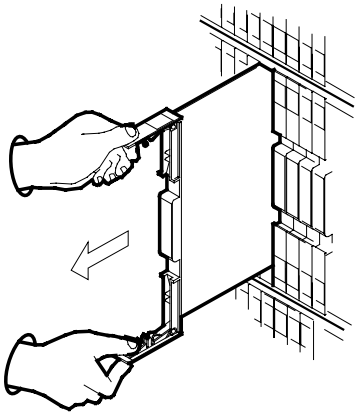
8

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

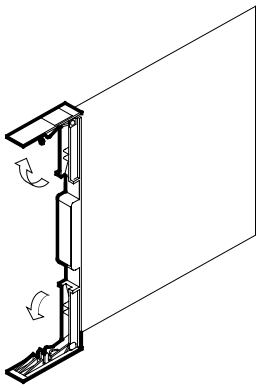
NT2X06
in an MCRM-S RMM (continued)

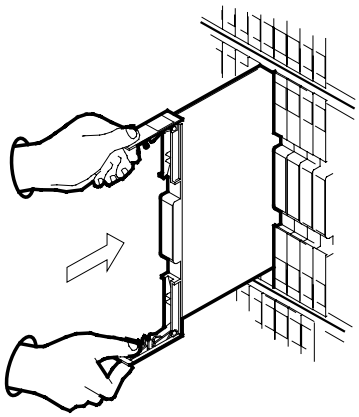




9 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

10 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

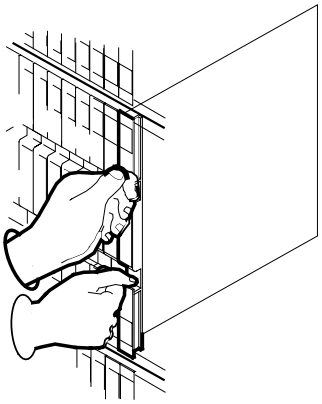




11 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

12 Close the locking levers.

NT2X06
in an MCRM-S RMM (continued)



13 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 32
other	Step 14

14 Ensure that the converter (NT2X06) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.

15 Set the POWER switch to the ON position.

16 Use the following information to determine where to proceed.

If the FSP is equipped with	Do
fuses	Step 18
circuit breakers	Step 17

17 Press and hold the RESET button for 1 second. Both the converter FAIL LED and FRAME FAIL lamp on the FSP go OFF. Go to Step 25.

18 Press the RESET button while setting the circuit breaker to the ON position. Both the converter FAIL LED and FRAME FAIL lamps on the FSP illuminate.

Go to Step 20.

At the MAP terminal

19 Reload the RMM by entering the following string:

```
> loadpm
```

and pressing the Enter key.

20 Use the following information to determine where to proceed.

If	Do
message “loadfile not found in directory” is received	Step 21
load passes	Step 25
load fails	Step 32

21 Use the following information to determine where to proceed.

If you are using	Do
Disk version1	Step 22
Disk version 2	Step 23

22 List the loadfile in the directory by entering the following string:

`>DSKUT;LISTVOL D000volume_name all`

or

`>DSKUT;LISTVOL D010volume_name all`

and pressing the Enter key.

where

volume_name
is the name of the disk volume_name

Local operating company policy determines on which disk, D000 or D010, the loadfile is to be placed.

Proceed to Step 19.

23 List the loadfile in the directory by entering the following string:

`>DISKUT;LV S00D`

and pressing the Enter key.

`>LF S00Dvolume_name`

and pressing the Enter key.

or

`>DISKUT;LV S01D`

and pressing the Enter key.

`>LF S01Dvolume_name`

and pressing the Enter key.

where

volume_name
is the name of the disk_volume.

NT2X06 in an MCRM-S RMM (end)

Go to Step 24.

24 Leave the disk utility by entering the following string:

>QUIT

and pressing the Enter key.

25 Test the RMM by typing the following string:

>TST

and pressing the Enter key.

26 Use the following information to determine where to proceed.

If TST passed	Do
passed	Step 27
failed	Step 31

27 Return the RMM to service by typing the following string:

>RTS

and pressing the Enter key.

28 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 29
failed	Step 32

29 Send any faulty cards for repair according to local procedure.

30 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 33.

31 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

32 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

33 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

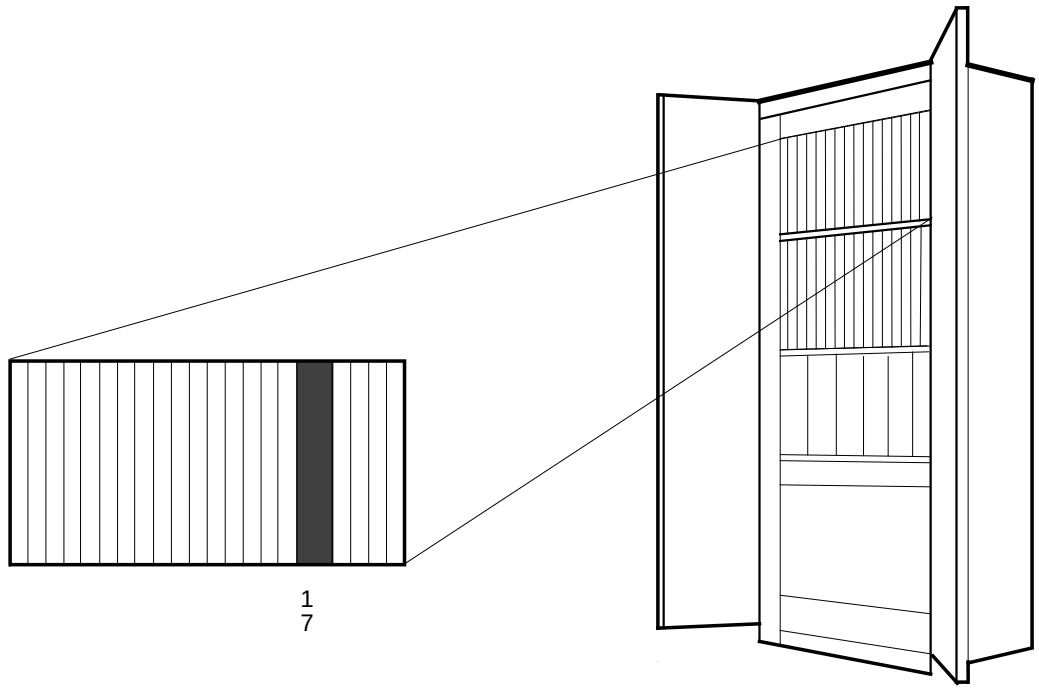
NT2X09 in an MCRM-S RMM

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT2X09	AA	Power Converter	MCRM-S RMM

See the following figure for NT2X09 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



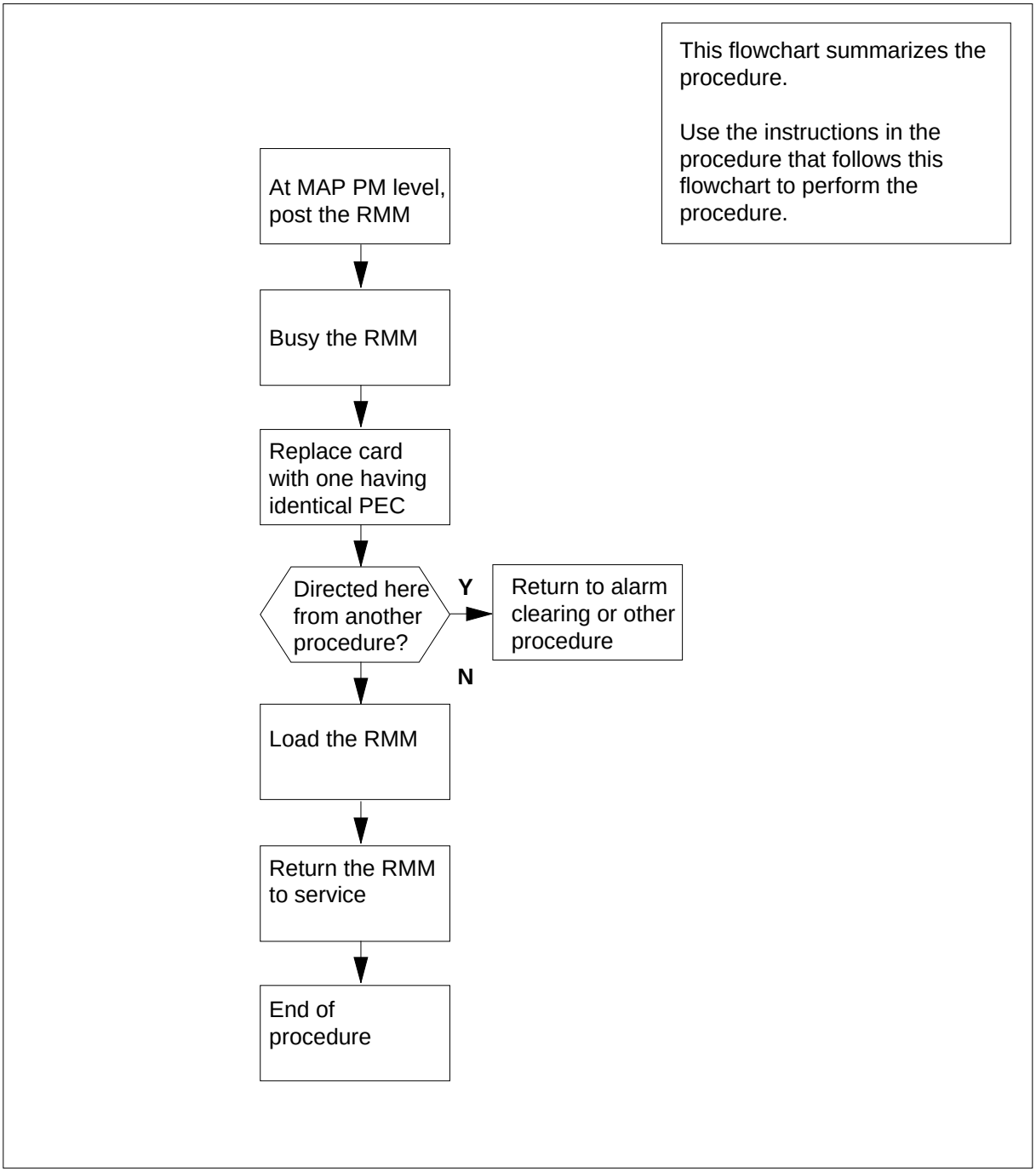
Note: Position 17 is always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT2X09
in an MCRM-S RMM (continued)

Summary of card replacement procedure for a NT2X09 card in an MCRM-S RMM



Replacing an NT2X09 in an MCRM-S RMM

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level by typing the following string:

> *MAPCI;MTC;PM;POST RMM* rmm_no

and pressing the Enter key.

where

rmm_no
is the number of the RMM from which the card is to be removed.

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .      .      .      .       .      .
RMM                SysB    ManB   OffL   CBsy     ISTb    InSv
 0 Quit    PM        4       0     10      3        3     130
 2 Post_   RMM       0       1      1      0        0       2
 3
 4         RMM 5 INSV
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Busy the RMM by typing the following string:

>BSY

and pressing the Enter key.

Example of a MAP response

NT2X09
in an MCRM-S RMM (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .    1ManB    .      .       .      .
RMM              SysB    ManB   OffL   CBsy     ISTb    InSv
 0 Quit    PM       4       0     10      0        0     130
 2 Post_   RMM      0       1      0      0        0       0
 3
 4         RMM  5  ManB
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

At the RMM shelf

5

CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap and connect it to the frame of the RMM before removing any cards. This protects the RMM against service degradation caused by static electricity.

Put on a wrist strap.

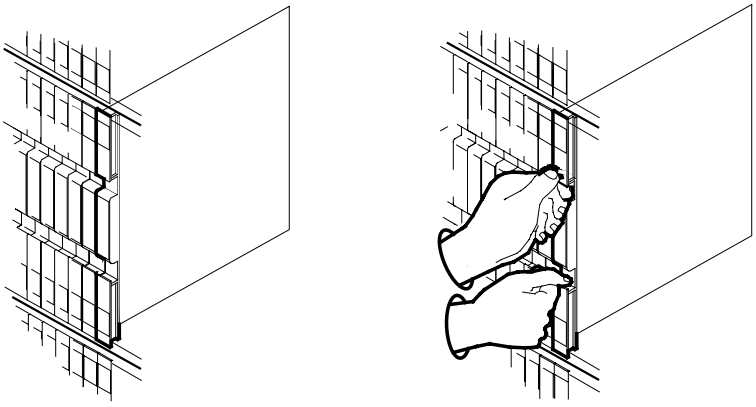
6 Power down the unit by setting the ON/OFF switch on the power converter faceplate to the OFF position. Both the converter FAIL LED and FRAME FAIL lamp on the Frame Supervisory Panel (FSP) turn ON. An audible alarm may sound. If an alarm does sound, silence it by typing the following string at the MAP terminal:

```
> sil
```

and pressing the Enter key.

7 Locate the card to be removed on the appropriate shelf as shown in the following figures.

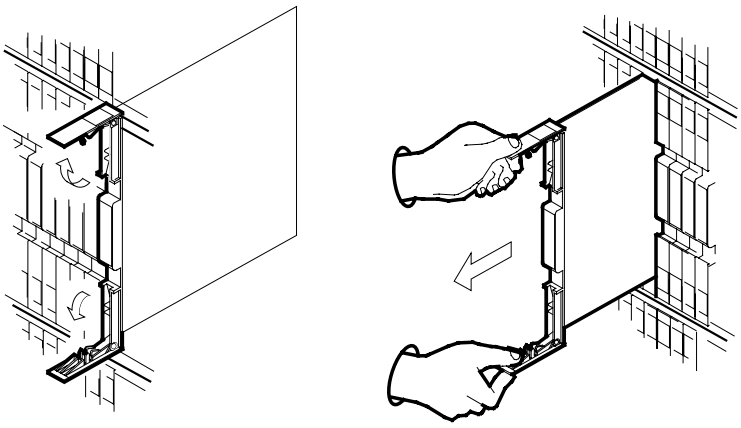
NT2X09
in an MCRM-S RMM (continued)



8

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

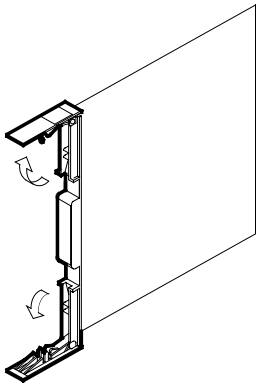
Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

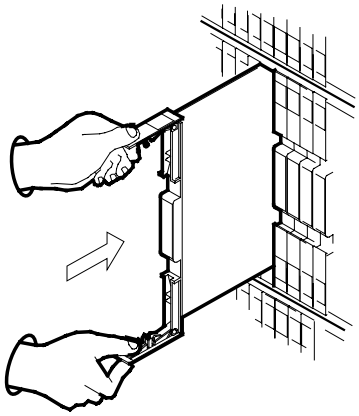


9 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

10 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

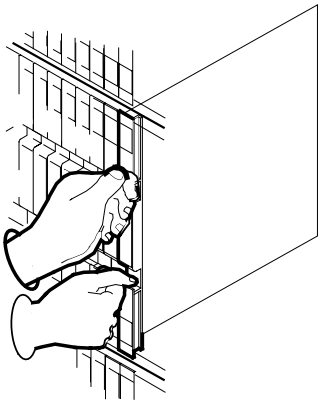
NT2X09
in an MCRM-S RMM (continued)





11 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

12 Close the locking levers.



13 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 31
other	Step 14

14 Ensure that the converter is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.

15 Set the POWER switch to the ON position.

16 Use the following information to determine where to proceed.

If the FSP is equipped with	Do
fuses	Step 17
circuit breakers	Step 18

17 Press and hold the RESET button for one second. Both the converter FAIL LED and FRAME FAIL lamp on the FSP go OFF. Go to Step 19.

18 Press the RESET button while setting the circuit breaker to the ON position. Both the converter FAIL LED and FRAME FAIL lamps on the FSP illuminate.Go to Step 19.

At the MAP terminal

19 Reload the RMM by entering the following string:

```
> loadpm
```

and pressing the Enter key.

20 Use the following information to determine where to proceed.

If	Do
message "loadfile not found in directory" is received	Step 21
load passes	Step 25
load fails	Step 32

21 Use the following information to determine where to proceed.

If you are using	Do
Disk Drive Version 1	Step 22
Disk Drive Version 2	Step 23

22 List the loadfile in the directory by entering the following string:

```
>DSKUT;LISTVOL D000volume_name All
```

or

```
>DSKUT;LISTVOL D010volume_name all
```

and pressing the Enter key.

where

volume_name
is the name of the disk volume

Local operating company policy determines on which disk, D000 or D010, the loadfile is to be placed.Proceed to Step 24.

NT2X09
in an MCRM-S RMM (continued)

23 List the loadfile in the directory by entering the following string:

`>DISKUT;LV S00D`

and pressing the Enter key.

`>LF S00Dvolume_name`

and pressing the Enter key.

or

`>DISKUT;LV S01D`

and pressing the Enter key.

`>LF S01Dvolume_name`

and pressing the Enter key.

where

volume_name
is the name of the disk volume.

24 Leave the disk utility by entering the following string:

`>QUIT`

and pressing the Enter key.

At the MAP terminal

25 Test the RMM by typing the following string:

`>TST`

and pressing the Enter key.

26 Use the following information to determine where to proceed.

If TST passed	Do
passed	Step 27
failed	Step 31

27 Return the RMM to service by typing the following string:

`>RTS`

and pressing the Enter key.

28 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 29
failed	Step 32

29 Send any faulty cards for repair according to local procedure.

NT2X09
in an MCRM-S RMM (end)

30 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 33.

31 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

32 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

33 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

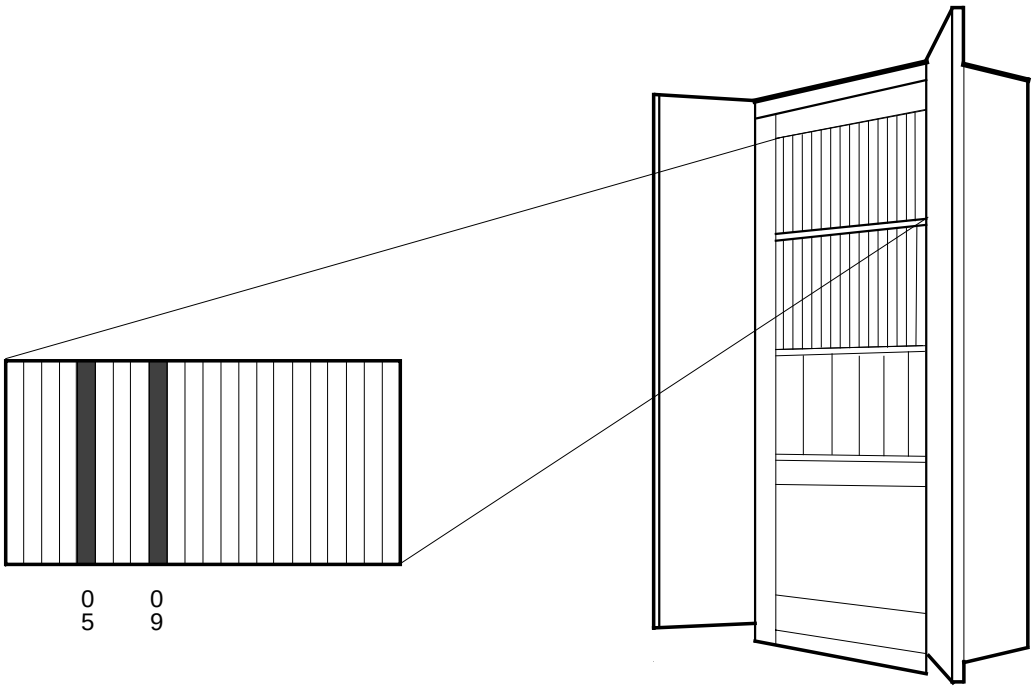
NT2X10 in an MCRM-S RMM

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT2X10	AA	Line Test Unit (analog)	MCRM-S RMM
NT2X10	BA	Metallic Test Unit (analog)	MCRM-S RMM

See the following figure for NT2X10 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) Remote Maintenance Module (RMM).



Note: Position 05 can be provisioned as either an NT2X10AB or NT2X10BA depending on the customer applications. Position 09 can be provisioned as an NT2X10AB, if needed.

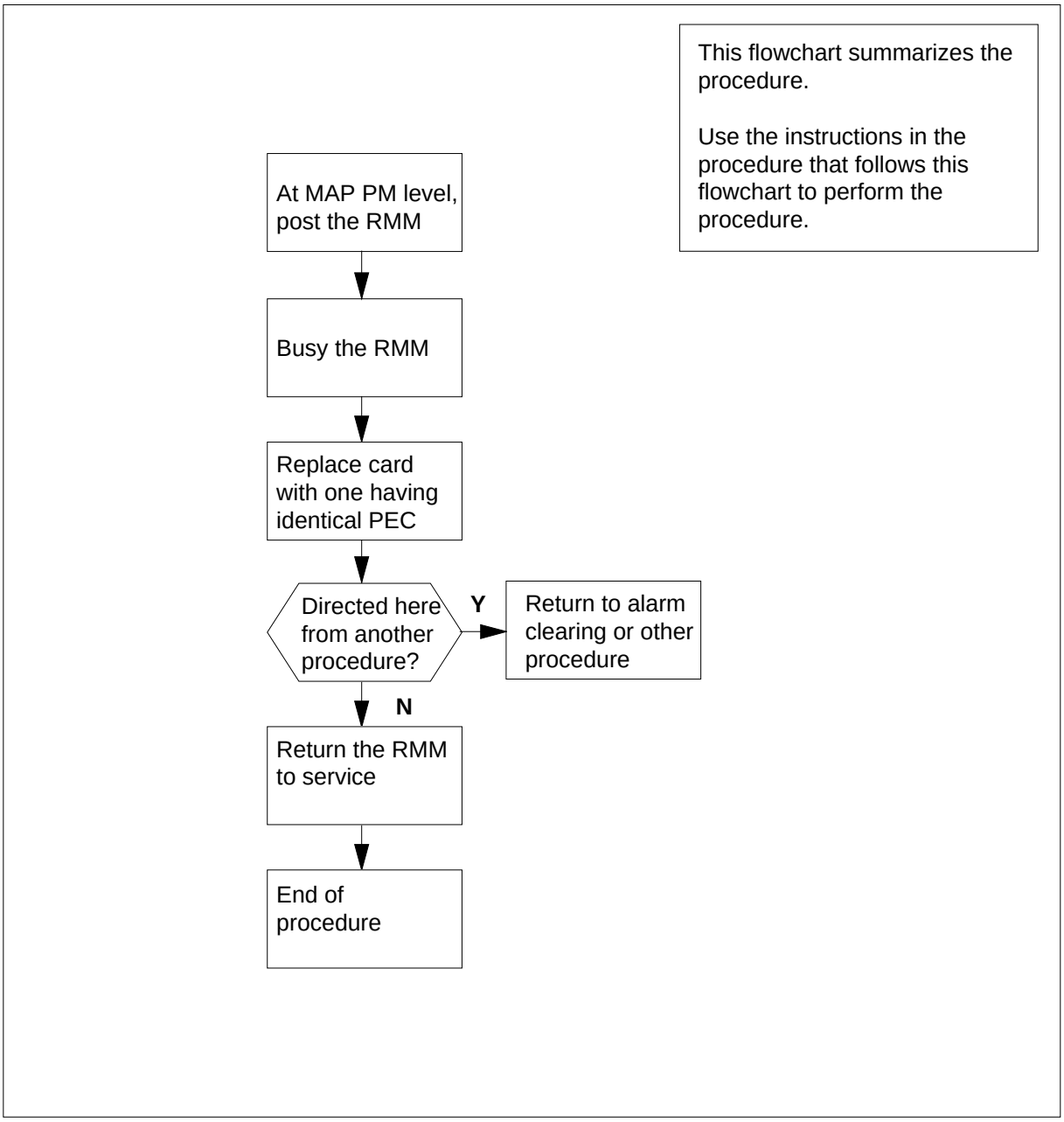
NT2X10
in an MCRM-S RMM (continued)

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT2X10
in an MCRM-S RMM (continued)

Summary of card replacement procedure for an NT2X10 card in an MCRM-S RMM



Replacing an NT2X10 in an MCRM-S RMM

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level by typing the following string:

> *MAPCI;MTC;PM;POST RMM* rmm_no

and pressing the Enter key.

where

rmm_no
is the number of the RMM from which the card is to be removed.

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .      .      .      .      .      .
RMM              SysB   ManB   OffL   CBsy     ISTb   InSv
 0 Quit    PM       0      0     10      0        0    130
 2 Post_   RMM      0      0      0      0        0      0
 3
 4         RMM 5 INSV
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Busy the RMM by typing the following string:

>BSY

and pressing the Enter key.

Example of a MAP response

NT2X10
in an MCRM-S RMM (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .    1ManB    .      .       .      .
RMM              SysB   ManB   OffL   CBsy     ISTb   InSv
 0 Quit    PM       4      0     10      0        0    130
 2 Post_   RMM      0      1      0      0        0      0
 3
 4         RMM  5  ManB
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

At the RMM shelf

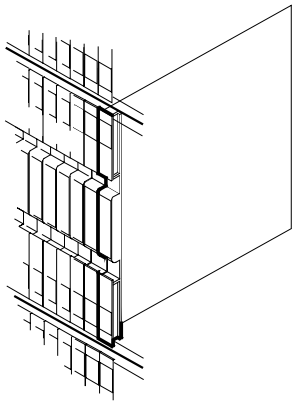
5

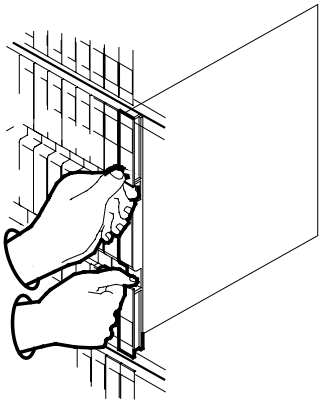
CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap and connect it to the frame of the RMM before removing any cards. This protects the RMM against service degradation caused by static electricity.

Put on a wrist strap.

6 Locate the card to be removed on the appropriate shelf as shown in the following figures.

NT2X10
in an MCRM-S RMM (continued)

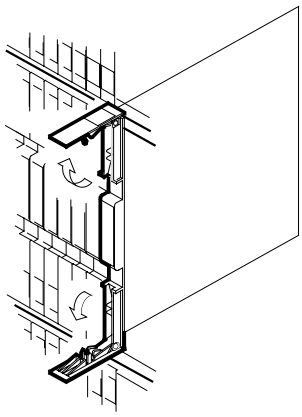


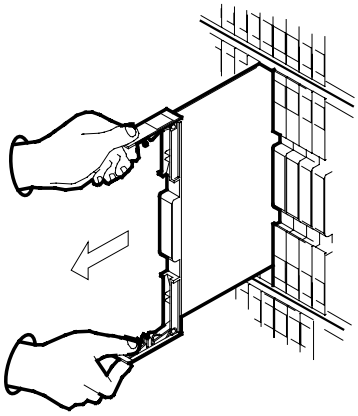


7

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

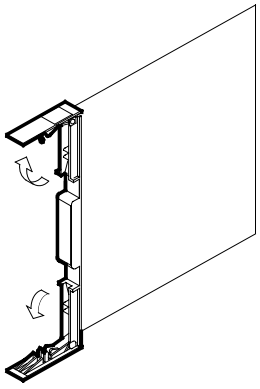


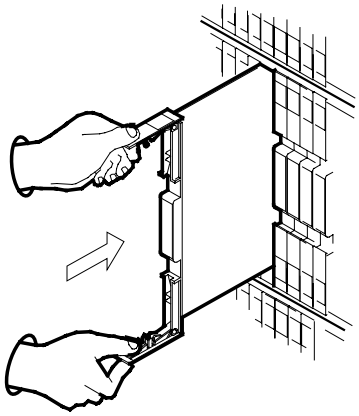


8 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

9 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

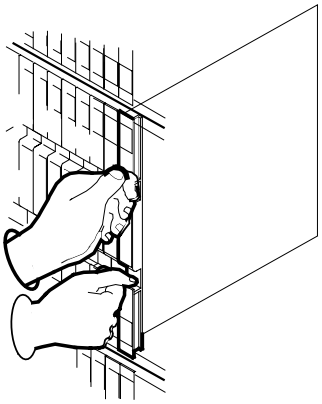
NT2X10
in an MCRM-S RMM (continued)





10 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

11 Close the locking levers.



12 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 19
other	Step 13

At the MAP terminal

13 Test the RMM by typing the following string:

>TST

and pressing the Enter key.

NT2X10 in an MCRM-S RMM (end)

14 Use the following information to determine where to proceed.

If TST passed	Do
passed	Step 15
failed	Step 19

15 Return the RMM to service by typing the following string:

>RTS

and pressing the Enter key.

16 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 17
failed	Step 20

17 Send any faulty cards for repair according to local procedure.

18 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 21.

19 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

20 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

21 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

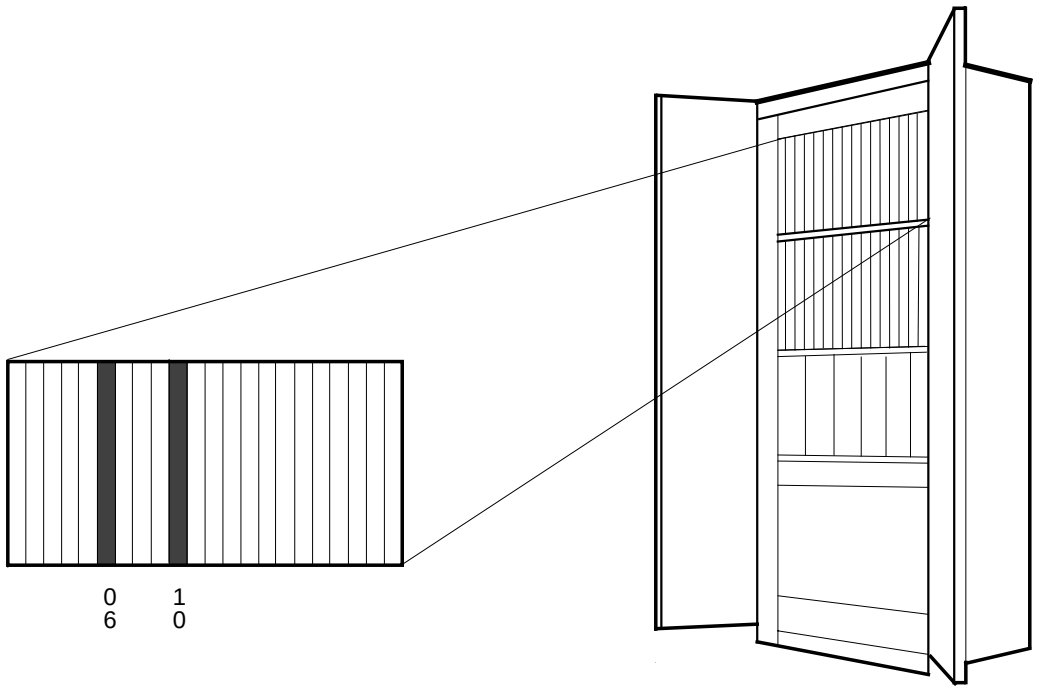
NT2X11 in an MCRM-S RMM

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT2X11	AD	Line Test Unit (digital)	MCRM-S RMM
NT2X11	BA	Metallic Test Unit (digital)	MCRM-S RMM

See the following figure for NT2X11 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



Note: Position 06 can be provisioned as either an NT2X11AD or an NT2X11BA depending on customer applications. Position 10 can be provisioned as an NT2X11AD, if needed.

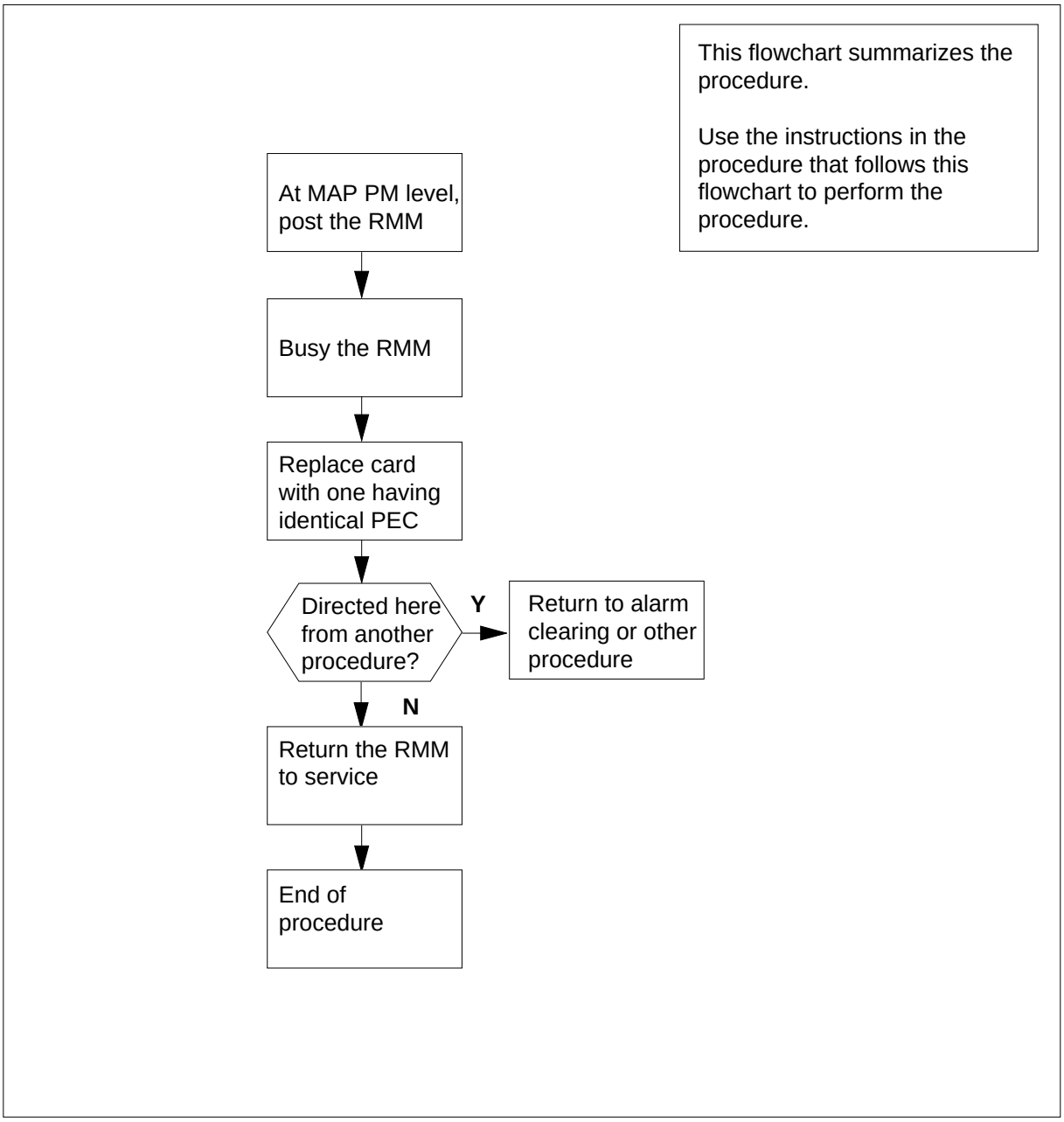
NT2X11
in an MCRM-S RMM (continued)

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT2X11
in an MCRM-S RMM (continued)

Summary of card replacement procedure for an NT2X11 card in an MCRM-S RMM



Replacing an NT2X11 in an MCRM-S RMM

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level by typing the following string:

> *MAPCI;MTC;PM;POST RMM* rmm_no

and pressing the Enter key.

where

rmm_no
is the number of the RMM from which the card is to be removed.

Example of a MAP response:

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .      .      .      .       .      .
RMM                SysB    ManB   OffL   CBsy      ISTb    InSv
 0 Quit     PM        0       0      0      0         0     130
 2 Post_    RMM       0       0      0      0         0       0
 3
 4          RMM 5 INSV
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Busy the RMM by typing the following string:

>BSY

and pressing the Enter key.

Example of a MAP response:

NT2X11
in an MCRM-S RMM (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .    1ManB    .      .      .      .
RMM                SysB    ManB   OffL   CBsy     ISTb    InSv
 0 Quit    PM        4       0     10      0        0     130
 2 Post_   RMM       0       1      0      0        0       0
 3
 4         RMM  5  ManB
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

At the RMM shelf

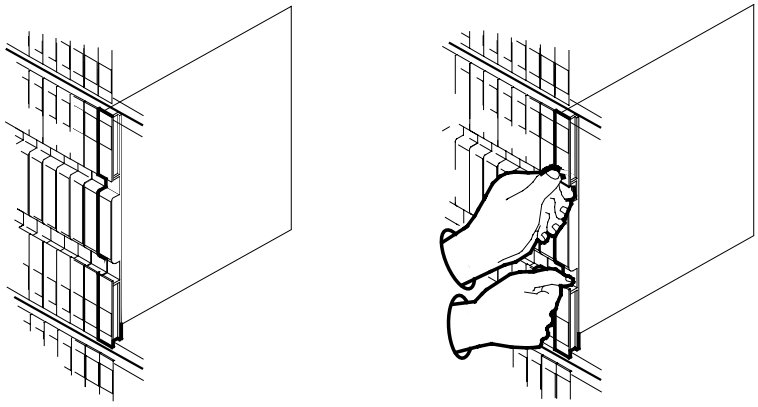
5

CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap and connect it to the frame of the RMM before removing any cards. This protects the RMM against service degradation caused by static electricity.

Put on a wrist strap.

6 Locate the card to be removed on the appropriate shelf as shown in the following figures.

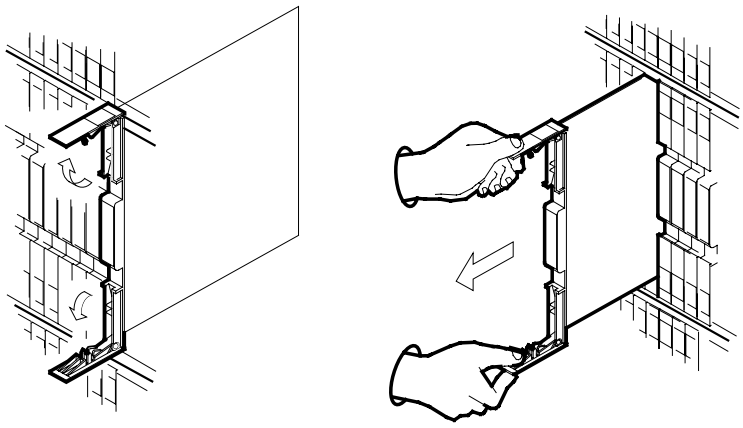
NT2X11
in an MCRM-S RMM (continued)



7

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

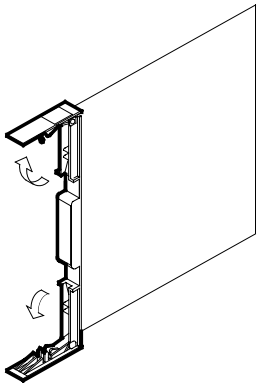
Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

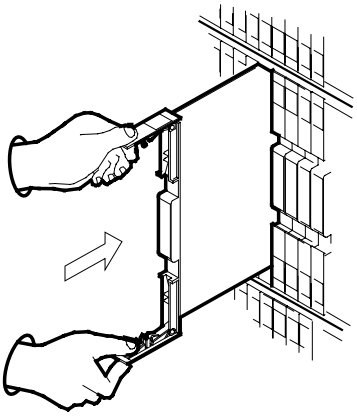


8 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

9 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

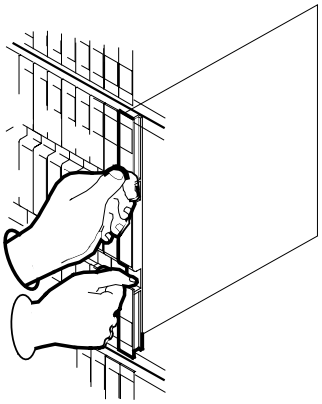
NT2X11
in an MCRM-S RMM (continued)





10 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

11 Close the locking levers.



12 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 19
other	Step 13

At the MAP terminal

13 Test the RMM by typing the following string:

>TST

and pressing the Enter key.

14 Use the following information to determine where to proceed.

If TST passed	Do
passed	Step 15
failed	Step 19

15 Return the RMM to service by typing the following string:

>RTS

and pressing the Enter key.

16 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 17
failed	Step 20

17 Send any faulty cards for repair according to local procedure.

18 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 21.

19 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

20 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

21 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

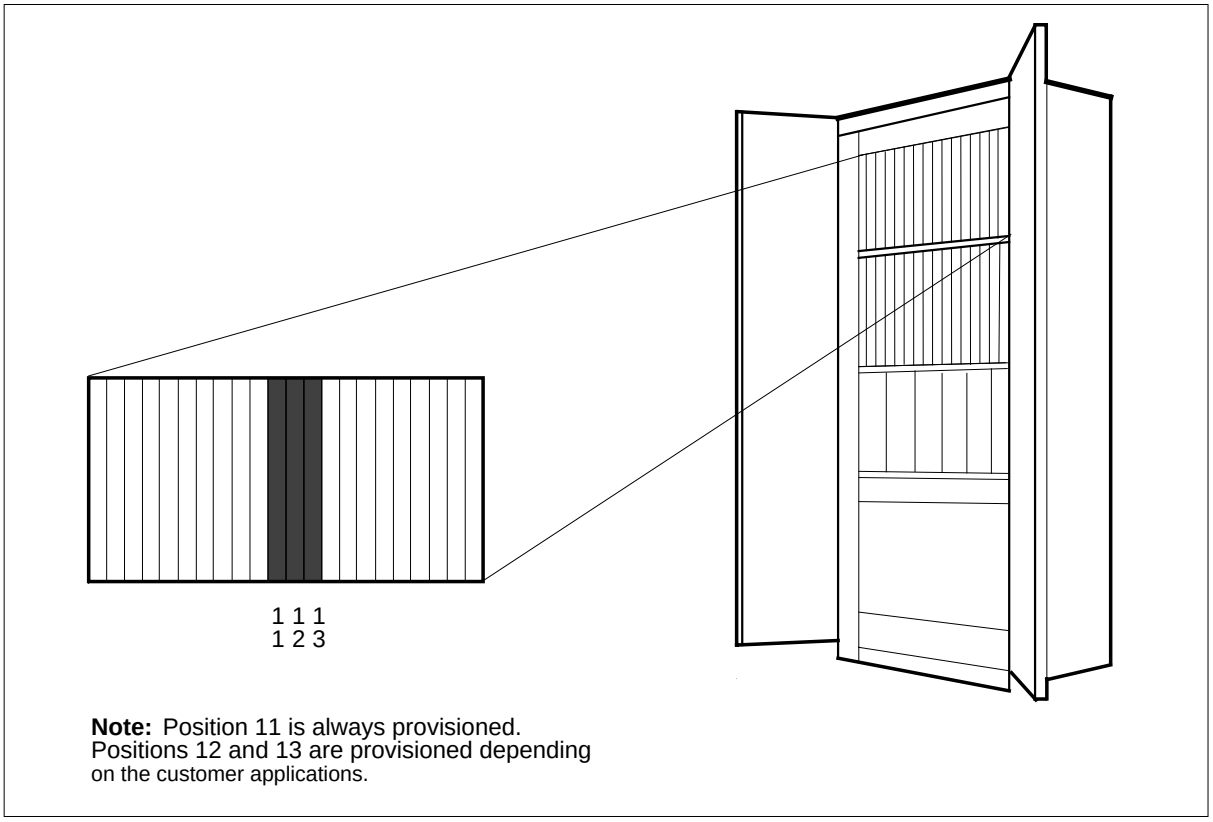
NT3X09 in an MCRM-S RMM

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT3X09	BA	Remote Metallic Test Access	MCRM-S RMM

See the following figure for NT3X09 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



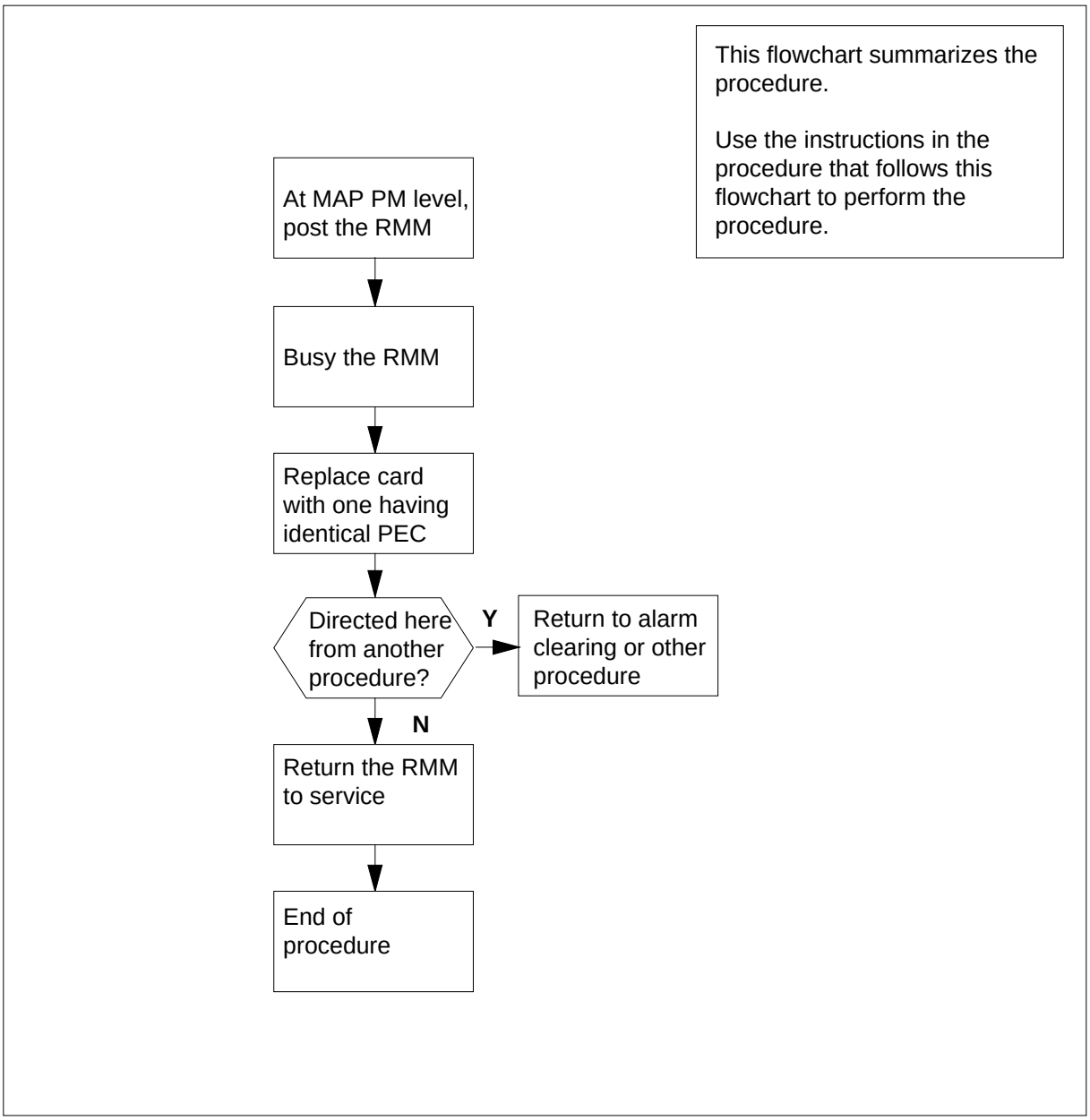
Note: Position 11 is always provisioned. Positions 12 and 13 are provisioned depending on the customer applications.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT3X09
in an MCRM-S RMM (continued)

Summary of card replacement procedure for an NT3X09 card in an MCRM-S RMM



NT3X09 in an MCRM-S RMM (continued)

Replacing an NT3X09 card in an MCRM-S RMM

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the RMM by typing the following string:

> *MAPCI;MTC;PM;POST RMM* rmm_no

and pressing the Enter key.

where

rmm_no
is the number of the RMM from which the card is to be removed

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .      .      .      .       .      .
RMM              SysB   ManB   OffL   CBsy     ISTb    InSv
 0 Quit    PM       0      0      0      0        0     130
 2 Post_   RMM      0      0      0      0        0       0
 3
 4         RMM 5 INSV
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Busy the RMM by typing the following string:

>BSY

and pressing the Enter key.

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .    1ManB    .      .      .      .
RMM                SysB    ManB   OffL   CBsy     ISTb    InSv
 0 Quit     PM       4       0     10      0        0     130
 2 Post_    RMM      0       1      0      0        0       0
 3
 4          RMM  5  ManB
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

At the RMM shelf

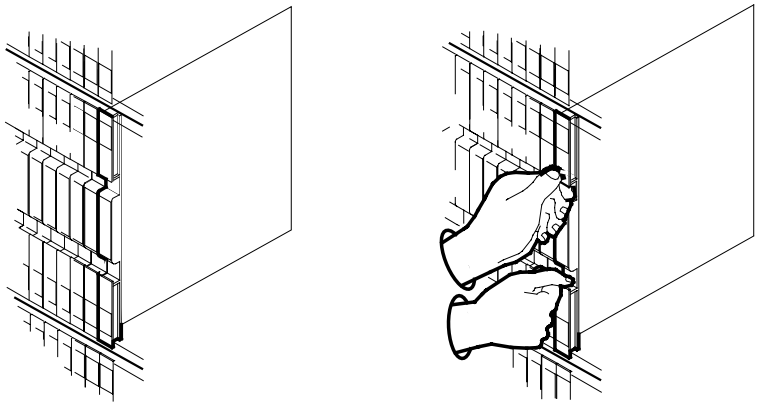
5

CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap and connect it to the frame of the RMM before removing any cards. This protects the RMM against service degradation caused by static electricity.

Put on a wrist strap.

6 Locate the card to be removed on the appropriate shelf as shown in the following figures.

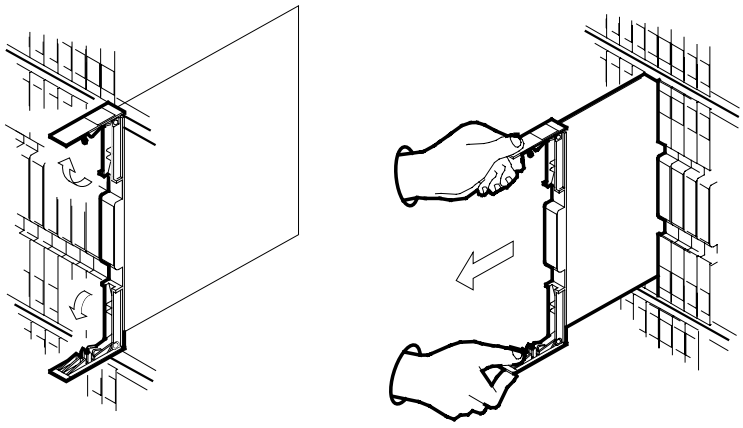
NT3X09
in an MCRM-S RMM (continued)



7

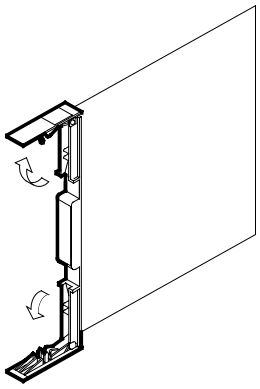
CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

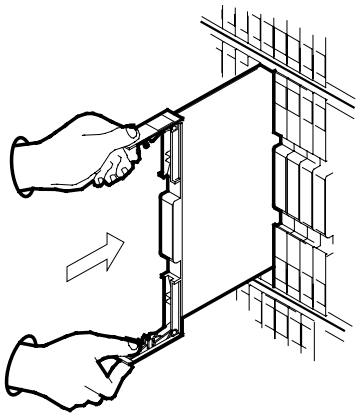
Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



8 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

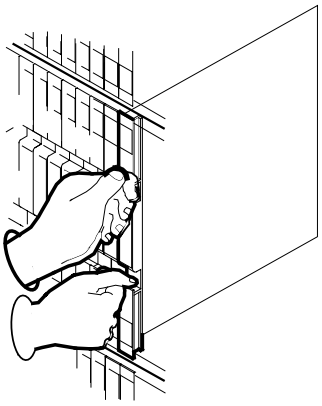
9 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.





10 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

11 Close the locking levers.



12 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 19
other	Step 13

At the MAP terminal

13 Test the RMM by typing the following string:

>TST

and pressing the Enter key.

NT3X09 in an MCRM-S RMM (end)

14 Use the following information to determine where to proceed.

If TST passed	Do
passed	Step 15
failed	Step 19

15 Return the RMM to service by typing the following string:

>RTS

and pressing the Enter key.

16 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 17
failed	Step 20

17 Send any faulty cards for repair according to local procedure.

18 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 21.

19 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

20 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

21 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

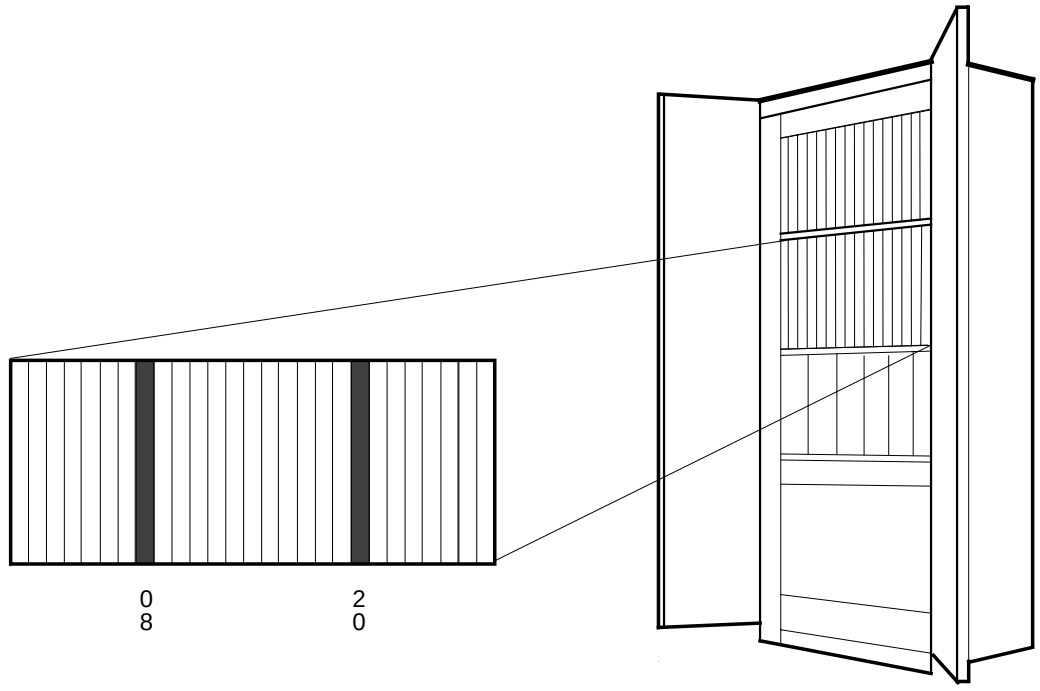
NT6X69
in an MCRM-S RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Cardname	Shelf/frame name
NT6X69	AC	Message Protocol and Tone	MCRM-S RCC2

See the following figure for NT6X69 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



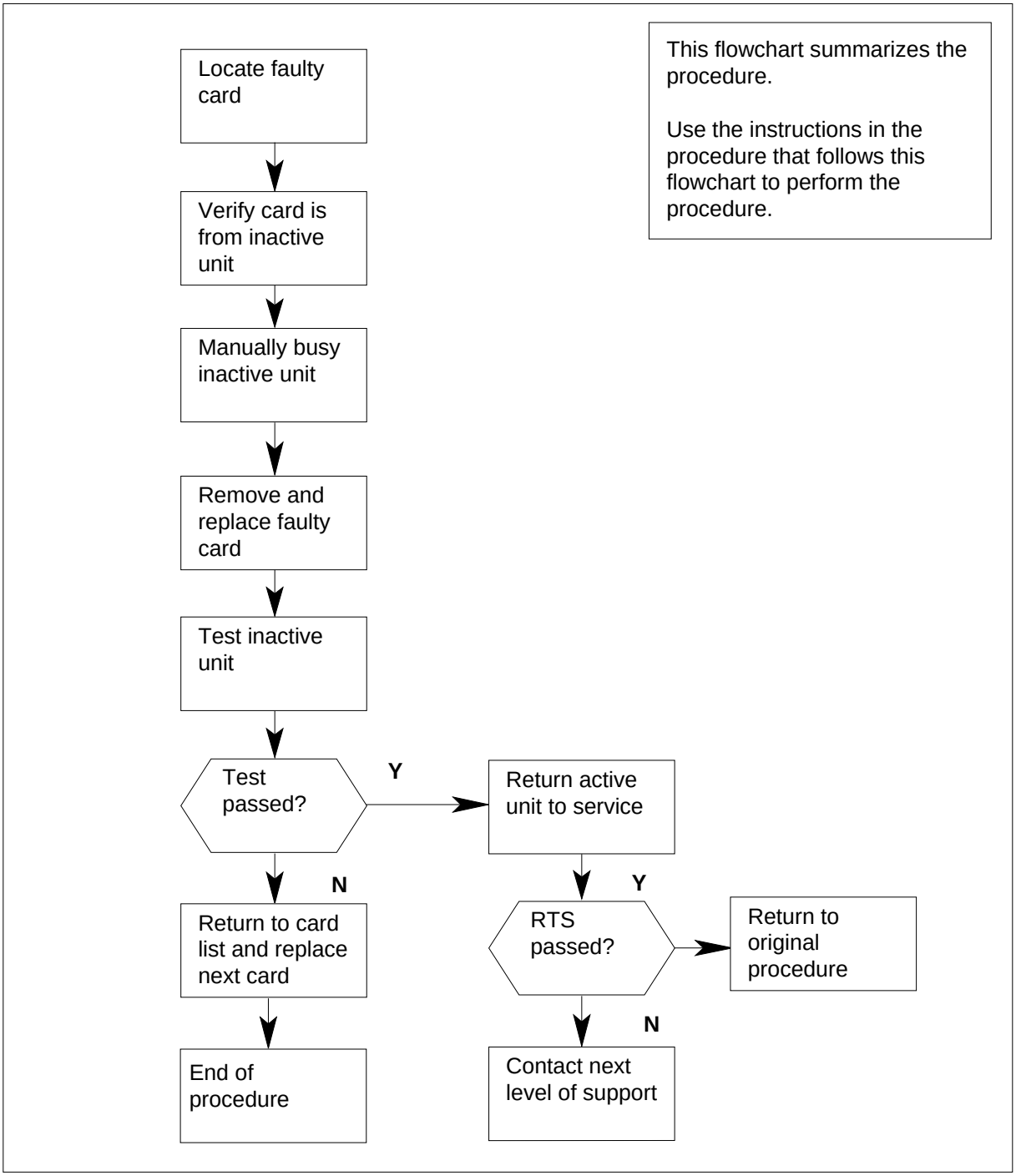
Note: Positions 08 and 20 are always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flow-chart.

NT6X69
in an MCRM-S RCC2 (continued)

Summary of card replacement procedure for NT6X69 card in MCRM-S RCC2



NT6X69
in an MCRM-S RCC2 (continued)

Replacing an NT6X69 card in an MCRM-S RCC2
At your current location

> CAUTION
> Loss of subscriber service
> Subscriber service may be lost in the active unit when reseating the NT6X69 card.It is recommended that this procedure be performed during low traffic periods.

Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

> CAUTION
> Loss of service
> When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
At the MAP terminal
Set the MAP terminal to the peripheral module (PM) level and post the RCC2 by typing the following string:
> *MAPCI;MTC;PM;POST RCC2* rcc2_no
and pressing the Enter key.
where
rcc2_no
is the number of the RCC2 to be posted (0 or 1)
Example of a MAP response

NT6X69
in an MCRM-S RCC2 (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .    1RCC2    .      .       .      .
RMM              SysB    ManB   OffL   CBsy     ISTb    InSv
 0 Quit   PM        0       0      2      0        2      25
 2 Post_  RCC2      0       0      0      0        1       1
 3 ListSet
 4        RCC2   0 InSv Links_00S:CSide  1,PSide   1
 5 Trnsl  Unit0:  Inact InSv
 6 Tst    Unit1:  Act  Insv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

By observing the MAP display, be sure that the card that is to be removed is on the inactive unit.

Use the following information to determine where to proceed.

the faulty card is on	
an active unit	Step
an inactive unit	Step

Switch the processing activity (SWACT) to the inactive unit by typing the following string:

>SWACT

and pressing the Enter key.

Answer the prompt by typing *YES*.

At the RCC2 shelf

Put a sign on the active unit bearing the words *“Active unit - Do not touch."*

At the MAP terminal

Busy the inactive unit by typing the following string:

> *bsy unit* rcc2_unit_no

and pressing the Enter key.

where

rcc2_unit_no

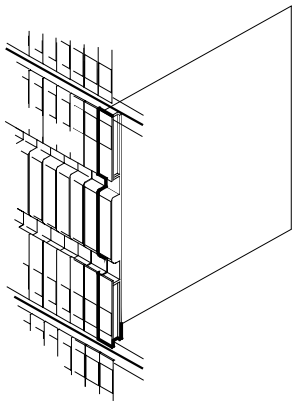
is the number of the inactive RCC2 unit to be busied (0 or 1)

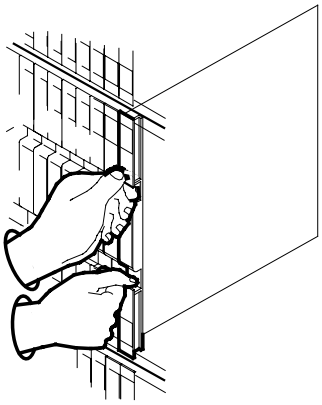
At the RCC2 shelf

NT6X69
in an MCRM-S RCC2 (continued)

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.
Locate the card to be removed on the appropriate shelf as shown in the following figures.

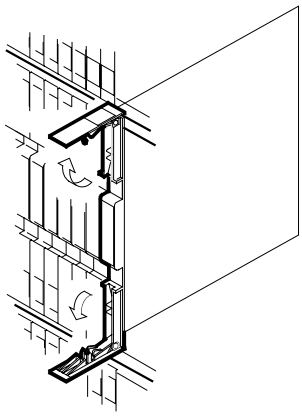


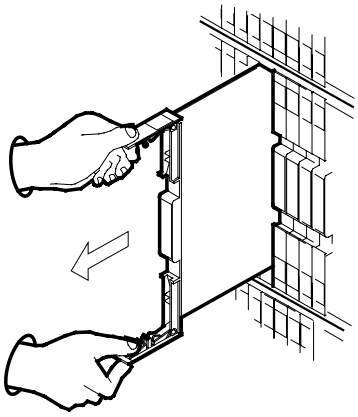


CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

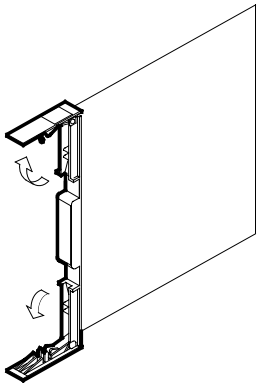
Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

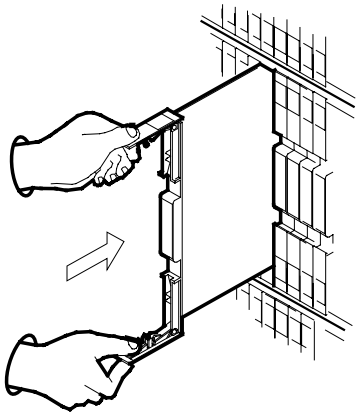
NT6X69
in an MCRM-S RCC2 (continued)



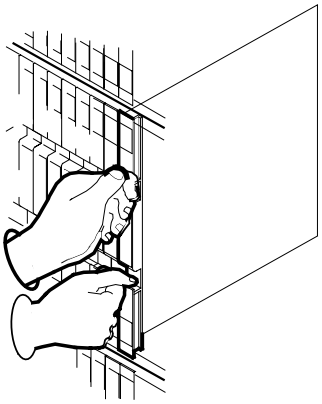


Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.
Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.





Using your fingers or thumbs, push on the upper and lower edges of the face-plate to ensure that the card is fully seated in the shelf.
Close the locking levers.



Unseat the 6X69 card in slot 08 if working in unit 0, or in slot 20 if working in unit 1.
Reseat the 6X69 card in slot 08 if working in unit 0, or in slot 20 if working in unit 1.
At the MAP terminal
Use the following information to determine where to proceed.

you entered this procedure from	
alarm clearing procedures	Step
other	Step

Test the inactive unit by typing the following string:
>TST *UNIT* rcc2_unit_no
and pressing the Enter key.
where
rcc2_unit_no
is the number of the RCC2 unit busied in Step
Use the following information to determine where to proceed.

TST passed	
passed	Step
failed	Step

Return the inactive RCC2 to service by typing the following string:
>RTS *UNIT* rcc2_unit_no
and pressing the Enter key.
where

NT6X69
in an MCRM-S RCC2 (end)

rcc2_unit_no
is the number of the RCC2 unit tested in Step .
Use the following information to determine where to proceed.

RTS	
passed	Step
failed	Step

Send any faulty cards for repair according to local procedure.
Record the following items in office records:
date the card was replaced
serial number of the card
symptoms that prompted replacement of the card
Go to Step .
Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.
Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.
You have completed this procedure. Remove the sign from the active unit and return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

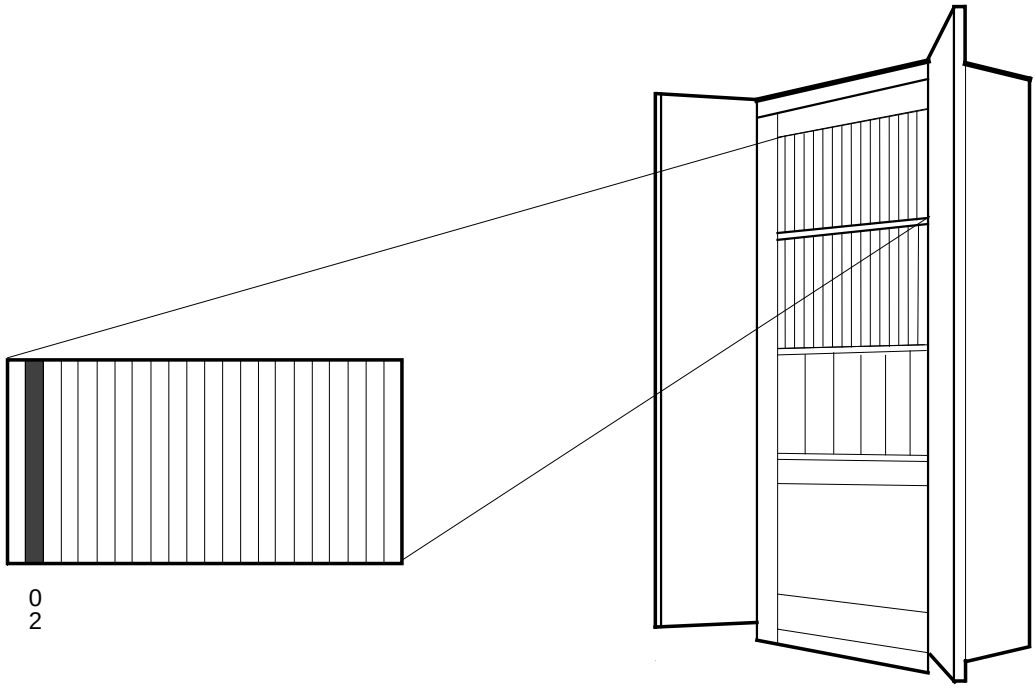
NT6X74
in an MCRM-S RMM

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT6X74	AB	RMM Control Card (RMMC)	MCRM-S RMM

See the following figure for NT6X74 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



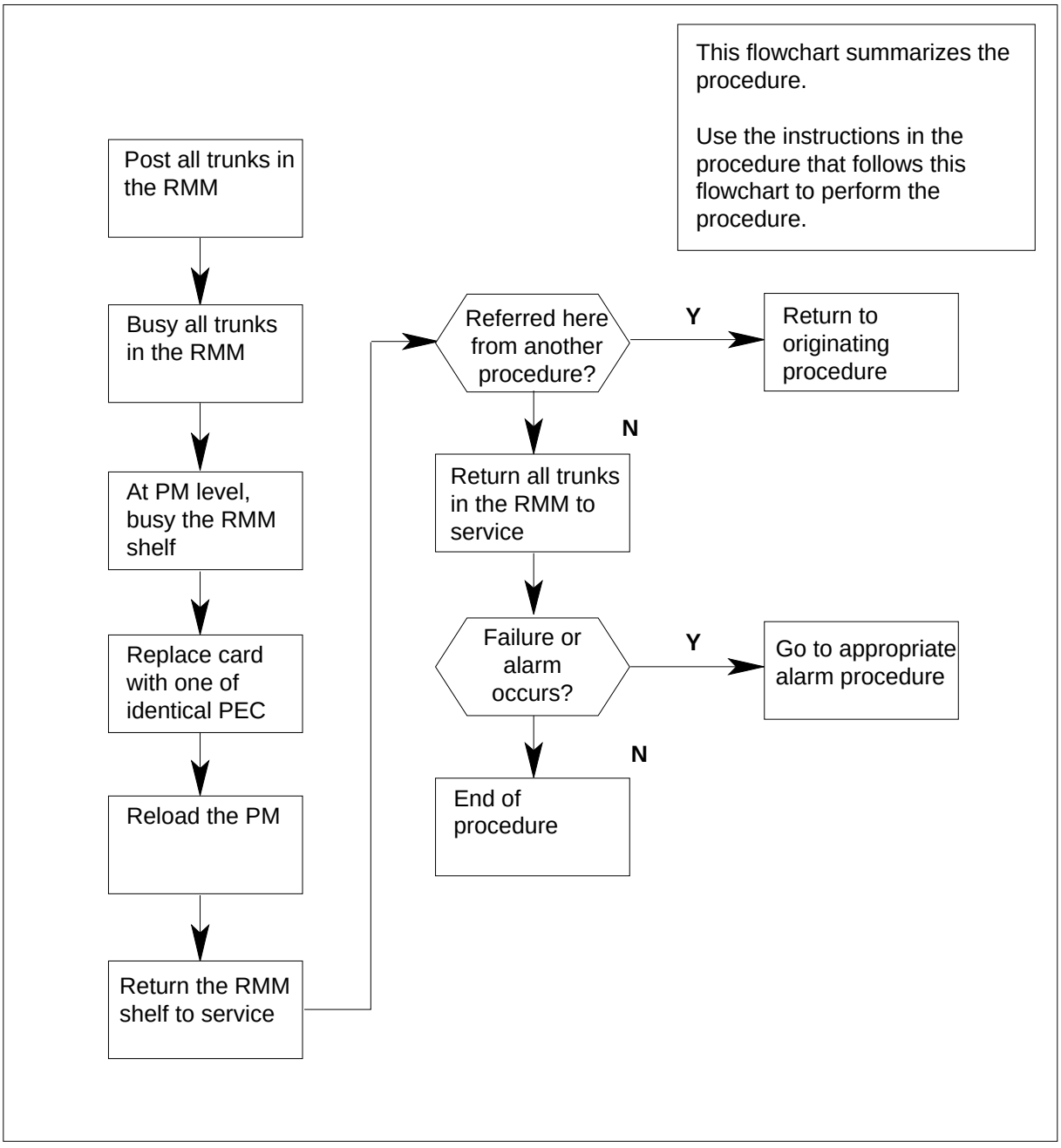
Note: Position 02 is always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT6X74
in an MCRM-S RMM (continued)

Summary of card replacement procedure for an NT6X74 card in an MCRM-S RMM



Replacing an NT6X74 in an MCRM-S RMM

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level by typing the following string:

```
> mapci;mtc;trks;ttp;post tm  rmm_no
```

and pressing the Enter key.

where

rmm_no
is the number of the RMM in which the card is to be replaced.

4 Busy all trunks in the RMM by typing the following string:

```
>bsy inb all
```

and pressing the Enter key.

5 At the PM level, busy the RMM shelf by typing the following string:

```
> PM;post rmm rmm_no;BSY
```

and pressing the Enter key.

where

rmm_no
is the number of the RMM in which the card is to be replaced.

Example of a MAP response

NT6X74
in an MCRM-S RMM (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .    4SysB    .      .       .      .
RMM              SysB    ManB   OffL   CBsy     ISTb    InSv
 0 Quit    PM       4       1     10      3        0     130
 2 Post_   RMM      0       1      1      0        0       2
 3
 4         RMM 5 ManB
 5 Trnsl
 6 Tst
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

At the RMM shelf

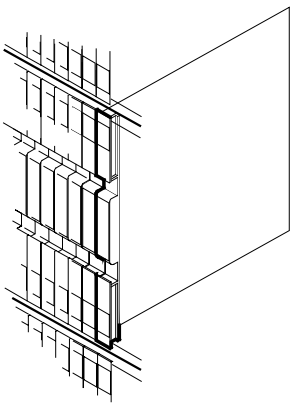
6

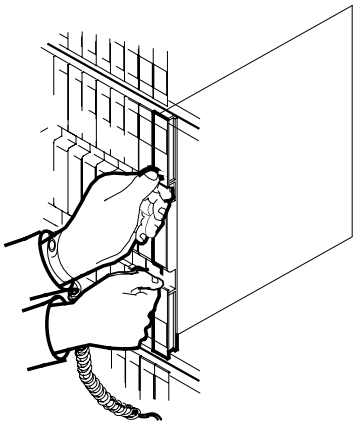
CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RMM. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

7 Locate the card to be removed on the appropriate shelf as shown in the following figures.

NT6X74
in an MCRM-S RMM (continued)

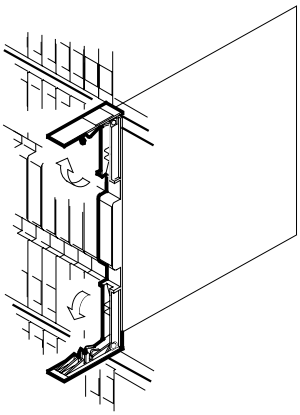


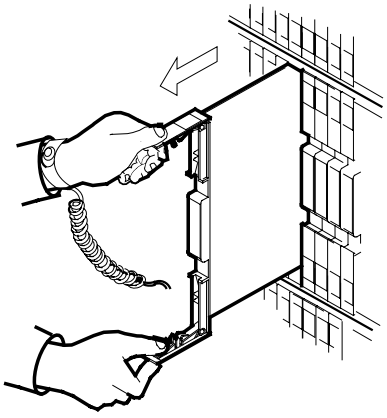


8

CAUTION
Improper insertion may cause damage to circuit packs
Do not apply direct pressure to the components.Do not force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

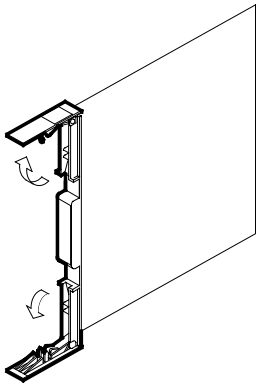


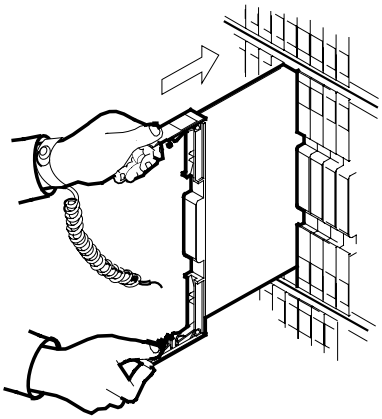


9 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

10 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

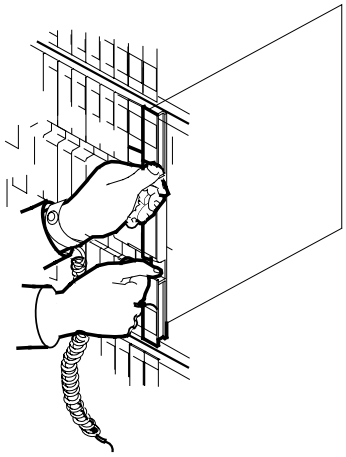
NT6X74
in an MCRM-S RMM (continued)





11 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

12 Close the locking levers.



13 Reload the RMM by entering the following string:

```
> loadpm
```

and pressing the Enter key.

14 Use the following information to determine where to proceed.

If	Do
message “loadfile not found in directory” is received	Step 15
load passes	Step 18

If	Do
load fails	Step 26

15 Use the following information to determine where to proceed.

If you are using	Do
System Load Module Version 1	Step 16
System Load Module Version 2	Step 17

16 List the loadfile in the directory by entering the following string:

>DSKUT;LISTVOL D000volume_name all

or

>DSKUT;LISTVOL D010volume_name all

and pressing the Enter key.

where

volume_name
is the name of the disk volume

Local operating company policy determines on which disk, D000 or D010, the loadfile is to be placed.Proceed to Step 18.

17 List the loadfile in the directory by entering the following string:

>DISKUT;LV S00D *>LF*

or

> diskut;LV s01d>Lf

and pressing the Enter key.Go to Step 18.

18 Leave the disk utility by entering the following string:

>QUIT

and pressing the Enter key.

19 Return the RMM to service by typing the following string:

>RTS

and pressing the Enter key.

20 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 21
failed	Step 25

NT6X74 in an MCRM-S RMM (end)

21 Use the following information to determine where to proceed.

If referred or directed to this procedure from	Do
an alarm clearing procedure	Step 25
other	Step 22

At the MAP terminal

22 Return all trunks in the RMM to service by typing the following strings:

```
> trks;ttp;post tm rmm rmm_no
```

and pressing the Enter key.

```
> bsy all;rts all
```

and pressing the Enter key.

where

rmm_no
is the number of the RMM in which the card has been replaced.

23 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 27
failed	Step 25

24 Observe the alarm that is produced and go to the appropriate alarm clearing procedure in the *Alarm Clearing Procedures*.

25 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

26 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

27 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

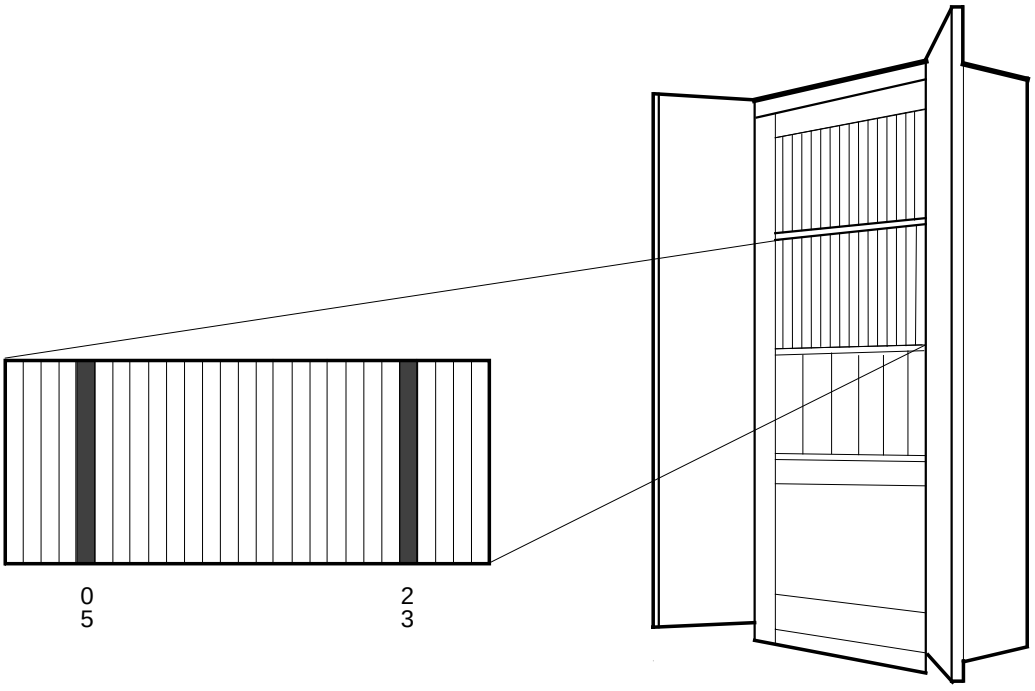
NT6X78 in an MCRM-S RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT6X78	AA	CLASS Modem Resource	MCRM-S RCC2

See the following figure for NT6X78 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



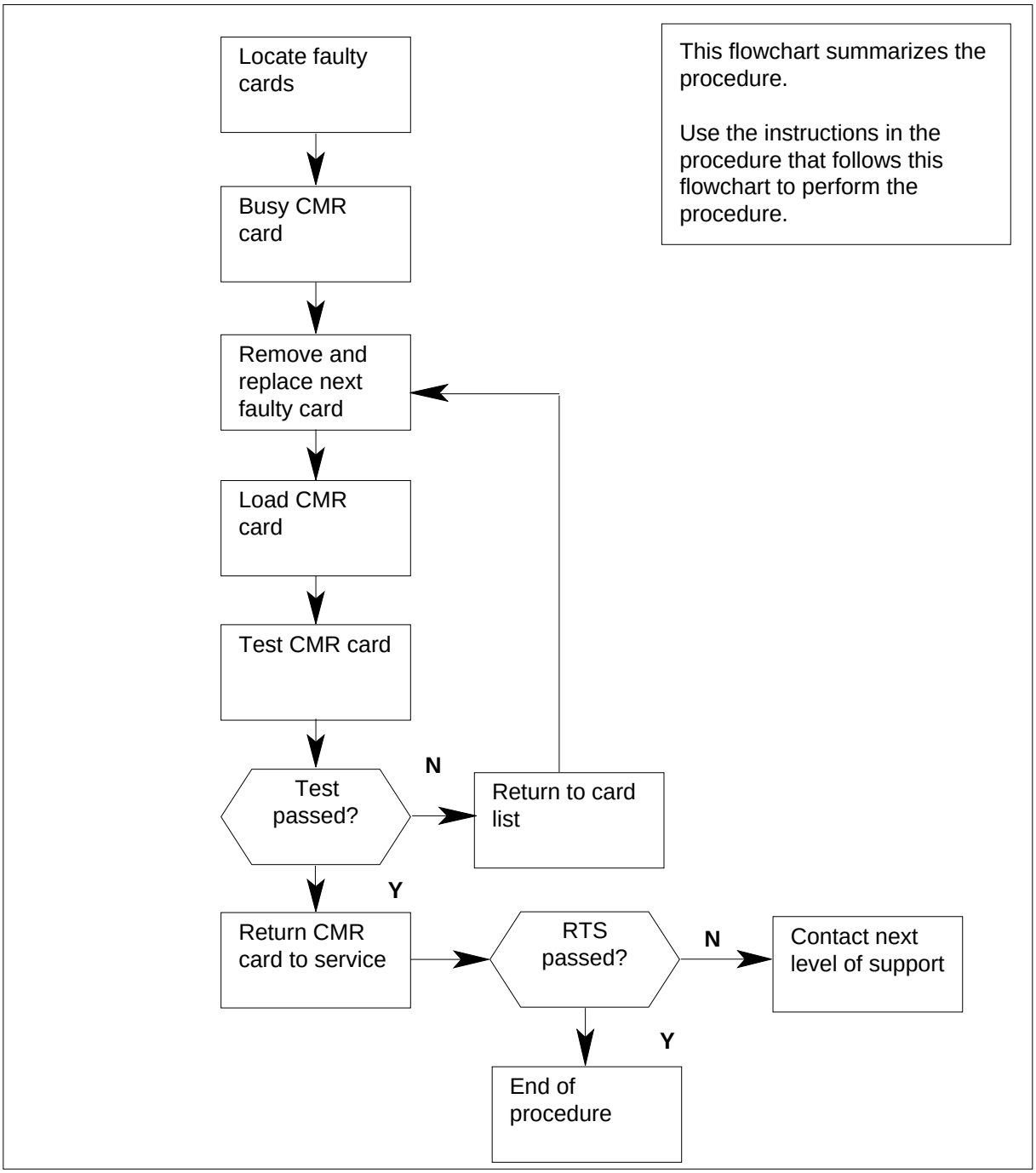
Note: Positions 05 and 23 are provisioned depending on customer applications.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT6X78
in an MCRM-S RCC2 (continued)

Summary of card replacement procedure for a NT6X78 card in an MCRM-S RCC2



NT6X78
in an MCRM-S RCC2 (continued)

Replacing an NT6X78 in an MCRM-S RCC2

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Access the peripheral module (PM) level and find out which RCC2 is ISTb by typing the following string:

```
>MAPCI;MTC;PM;DISP STATE ISTB RCC2
```

and pressing the Enter key.

4 Access the ISTb RCC2 by typing the following string:

```
>POST RCC2 0-127 or  0-255
```

and pressing the Enter key.

where

variable
is 0-127 range with an NT40 system and 0-255 with a SuperNodesystem.

5 Busy the CMR card (NT6X78) by typing the following string:

```
bsy UNIT  unit_no CMR
```

and pressing the Enter key.

where

unit_no
is the number of the unit containing the faulty Customer Local AreaSignaling Service Modem Resource (CMR) card.

NT6X78
in an MCRM-S RCC2 (continued)

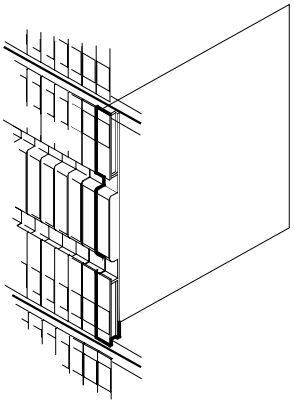
At the RCC2 frame

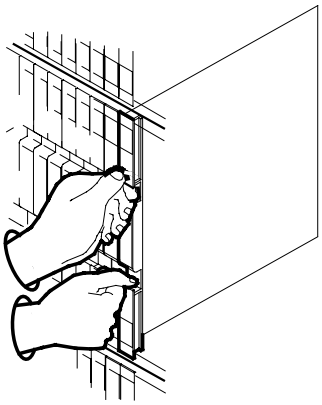
6

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

7 Locate the card to be removed on the appropriate shelf as shown in the following figures.



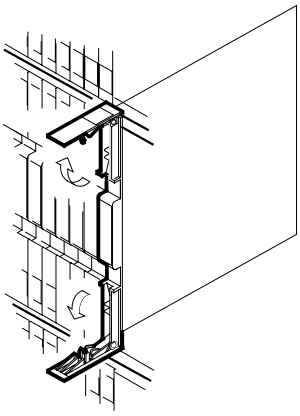


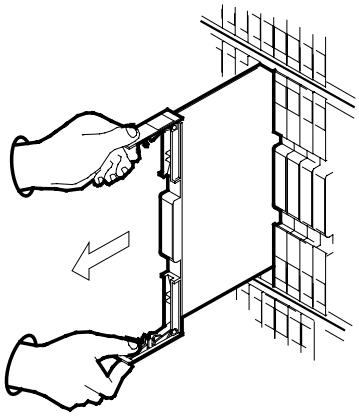
8

CAUTION
Equipment damage
Do not apply direct pressure to the components or force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

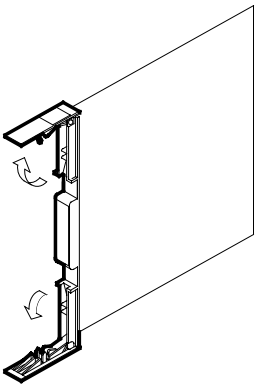
NT6X78
in an MCRM-S RCC2 (continued)

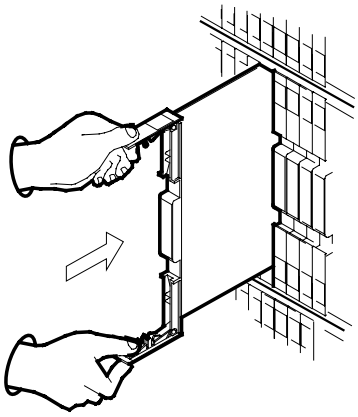




9 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

10 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

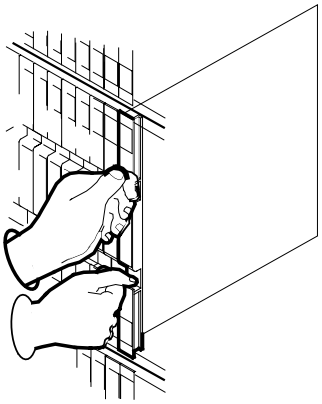




11 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

12 Close the locking levers.

NT6X78
in an MCRM-S RCC2 (continued)



13 Load the CMR card by typing the following string:

`> loadpm unit unit_no CMR`

and pressing the Enter key.

where

unit_no
is the number of the unit containing the faulty CMR card.

14 Use the following information to determine where to proceed.

If	Do
load passes	Step 15
load fails	Step 23

15 Use the following information to determine where to proceed.

If you entered this procedure from	Do
an alarm clearing procedure	Step 22
other	Step 16

16 Test the CMR card by typing the following string:

`> TST UNIT unit_no CMR`

and pressing the Enter key.

where

unit_no
is the number of the unit containing the faulty CMR card.

17 Use the following information to determine where to proceed.

If TST	Do
passed	Step 18
failed	Step 22

18 Return the CMR card to service by typing the following string:

```
>RTS UNIT unit_no CMR
```

and pressing the Enter key.

where

unit_no
is the number of the unit containing the faulty CMR card.

19 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 20
failed	Step 23

20 Send any faulty cards for repair according to local procedure.

21 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

22 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

23 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

24 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

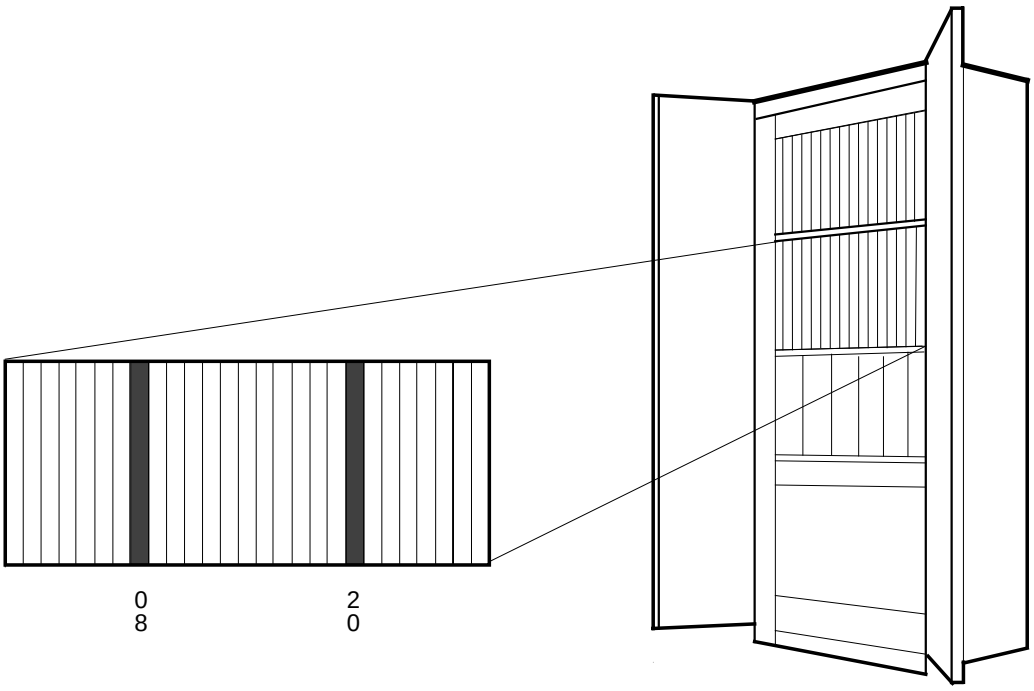
NT6X87 in an MCRM-S LCME

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT6X87	AA	Data Voice Line Card	MCRM-S LCME

See the following figure for NT6X87 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



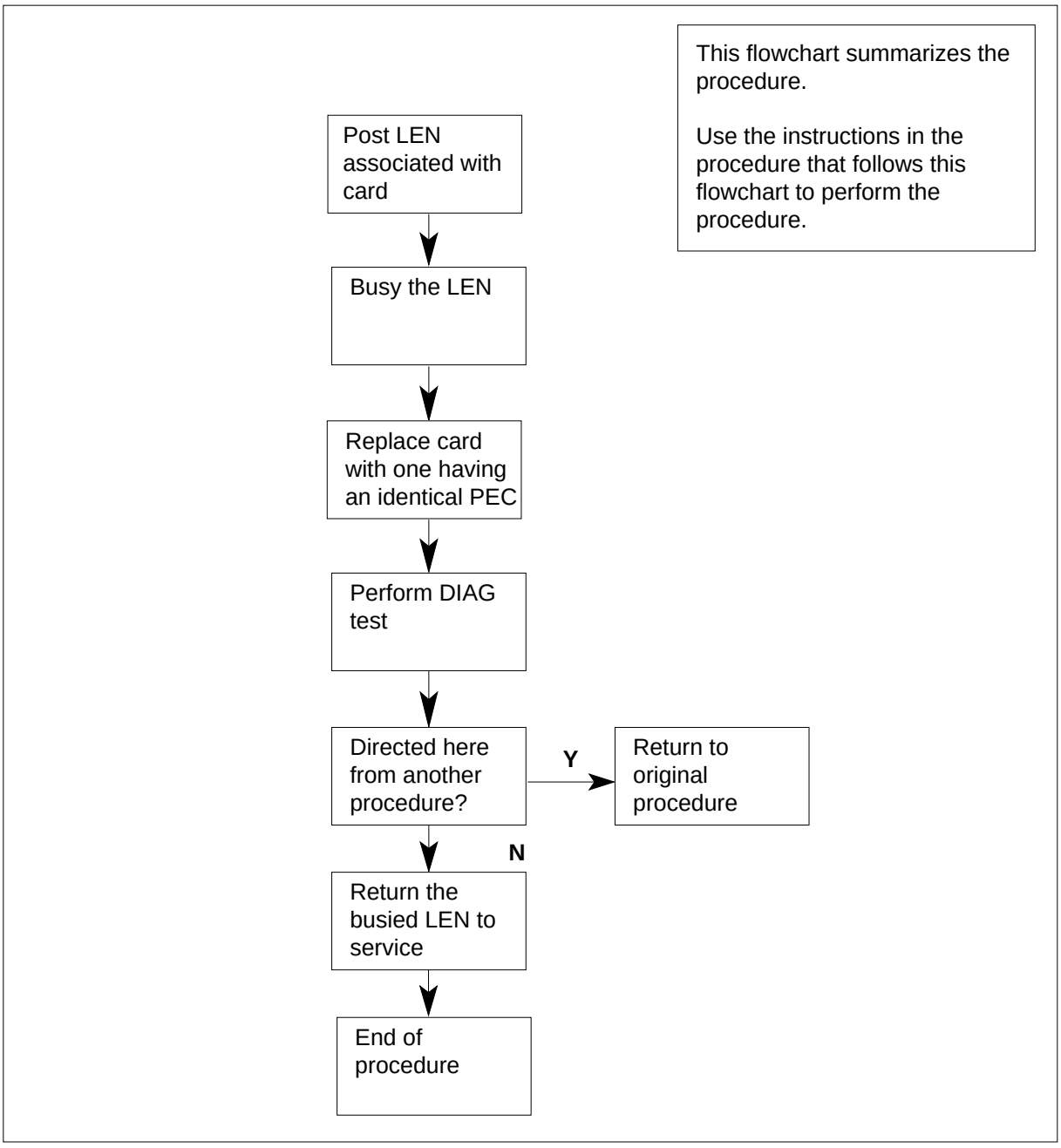
Note: Positions 08 and 20 are always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT6X87
in an MCRM-S LCME (continued)

Summary of card replacement procedure for an NT6X87 card in an MCRM-S LCME



NT6X87 in an MCRM-S LCME (continued)

Replacing an NT6X87 in an MCRM-S LCME

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2 Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Post the line equipment number (LEN) of the card to be replaced by typing the following string:

```
> MAPCI;MTC;LTP;POST L site_name lcm(e)_no unit_no lsg_no ckt_no
```

and pressing the Enter key.

where

site_name
is the name of the LCM(E) with the faulty card.

lcm(e)
is the number of the LCM(E) with the faulty card.

unit_no
is the number of the LCM(E) unit with the faulty card.

lsg_no
is the number of the LSG with the faulty card.

ckt_no
is the number of the circuit associated with the faulty card

4 Busy the NT6X87 in an MCRM-S line card by typing the following string:

```
>BSY
```

and pressing the Enter key.

Example of a MAP response

NT6X87
in an MCRM-S LCME (continued)

```
  CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
   .      .      .      .      .      .      .       .      .

RMM
 0 Quit  Post       DELQ       BUSYQ       PREFIX
 2 Post_
 3          LCC PTY  RNG....LEN.....DN  STA   F   S  LTA  TE  RESULT
 4       CKT  TYPE  FL   HOST  00 0  03 03  4931082   MBSY
 5 BSY
 6 RTS   Unit1:  Act Insv
 7 DIAG
 8
 9 AIMStat
10 CKTLOC
11 Hold
12 Next_
13
14
15
16 Prefix
17 LCO
18 Level
```

NT6X87
in an MCRM-S LCME (continued)

At the RMM shelf

5

CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap and connect it to the frame of the RMM before removing any cards. This protects the RMM against service degradation caused by static electricity.

CAUTION
Card damage - transport
Take these precautions to protect the circuit cards from electrical and mechanical damage while transporting cards. When handling a circuit card not in and Electrostatic Discharge (ESD) protective container, stand on a conductive floor mat and wear a wrist strap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS frame (Northern Telecom Corporate Standard 5028).Store and transport circuit cards in an ESD protective container.

CAUTION
Special tools required
Take these precautions when removing or inserting a card:Card shrouds and removal tools are required for removing cards from the line drawers.

Put on a wrist strap.

6 Face the drawer shelf and grasp the handle at the bottom of the drawer with the right hand.

7 Push up on the drawer latch with the thumb and pull the drawer out until fully withdrawn. It is fully withdrawn when the drawer stop at the top prevents further travel.

8 Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (one inch).

9 While holding the drawer in this position, push the bottom of the drawer, nearest the shelf, with your left hand to a position about one (1) cm (half inch) to the right.

10 Hold the drawer in this position with the left hand and lower the faceplate of the drawer by releasing the grip of your right hand.

NT6X87
in an MCRM-S LCME (continued)

11

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

Ensure that a card shroud and line card extractor are available.

Card shrouds are required for inserting or removing cards in line drawers Two sizes are available for use with 3-inch or 6-inch cards. Descriptions of these shrouds are as follows:

- Three-inch Line Card Insertion/Withdrawal Tool (Apparatus Code QTH56A, Common Product Code A0298291)
- Six-inch Line Card Insertion/Withdrawal Tool (Apparatus Code QTH58A)

12 Card removal tools are required for removing cards from line drawers. Two sizes are available. Descriptions of these tools are as follows:

- Three-inch or larger Card Removal Tool (Apparatus Code QTH57A, Common product Code A0298292)
- Large grip tool for 4-inch or larger cards is Nortel tool ITA9353

13

CAUTION
Hot materials
Exercise care when handling the line card. The line feed resistor may be hot.

To remove the line card, slide a card shroud over the card to be removed and an adjacent card. (If there is not an adjacent card on either side, do not use the card shroud.)

14 Grasp the edge of the card with a line card extractor at a point midway between the top and bottom edges. Hold the extractor in the right hand.

15 Squeeze the handles of the extractor together to grasp the card tightly.

16 Hold the front cover of the line drawer to steady it with the left hand.

17 Pull the extractor away from the drawer and the card will unplug from its socket on the drawer backplane.

18 Continue pulling the card with the extractor until the card is clear of the shroud.

19 Insert the removed card into the ESD container and store per local procedures.

NT6X87
in an MCRM-S LCME (continued)

20 To replace the faulty card, remove the replacement card from the ESD container.

21 Slide the card in the shroud guide slots towards the drawer backplane.

22 Hold the front cover of the line drawer with the left hand to steady it.

23 Grasp the top and bottom edges of the card with the fingers of the right hand.

24 Push the card toward the backplane until it plugs fully into the backplane socket.

25 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 32
other	Step 26

At the MAP terminal

26 Test the NT6X87 line card by typing the following string:

```
>DIAG
```

and pressing the Enter key.

27 Use the following information to determine where to proceed.

If DIAG passed	Do
passed	Step 28
failed	Step 32

28 Return the NT6X87 card to service by typing the following string:

```
>RTS
```

and pressing the Enter key.

29 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 30
failed	Step 33

30 Send any faulty cards for repair according to local procedure.

31 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 34.

32 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

33 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

34 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

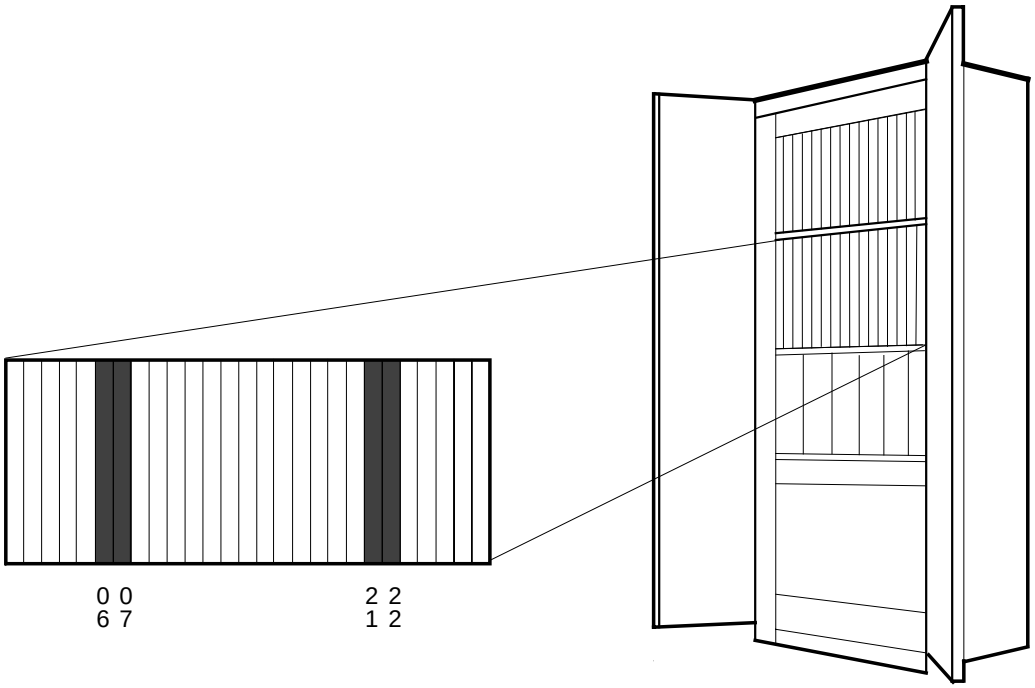
NT6X92 in an MCRM-S RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT6X92	BB	Universal Tone Receiver	MCRM-S RCC2

See the following figure for NT6X92 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



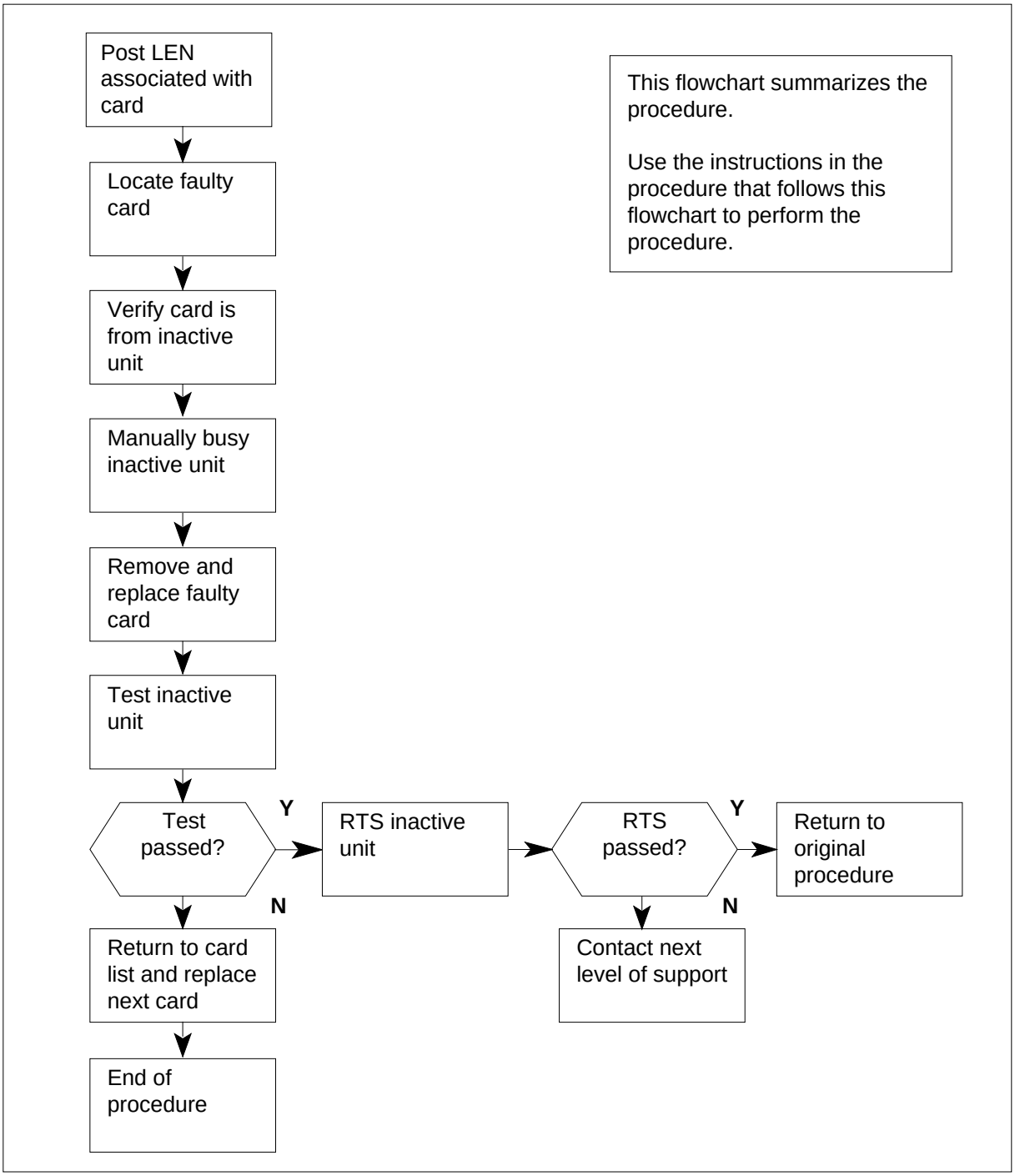
Note: Positions 06, 07, 21, and 22 are provisioned depending on customer applications.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT6X92
in an MCRM-S RCC2 (continued)

Summary of card replacement procedure for NT6X92 card in an MCRM-S RCC2



NT6X92 in an MCRM-S RCC2 (continued)

Replacing an NT6X92 in an MCRM-S RCC2

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Ensure the peripheral module (PM) level of the MAP terminal is currently displayed and the RCC2 is posted by typing the following string:

```
> MAPCI;MTC;PM;POST RCC2 rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit to be posted (0 or 1)

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .    1RCC2    .      .       .      .
RMM               SysB    ManB   OffL   CBsy      ISTb    InSv
 0 Quit   PM        0       0      2      0         2      25
 2 Post_  RCC2      0       0      0      0         1       1
 3 ListSet
 4        RCC2   0 InSv Links_00S:CSide  1,PSide   1
 5 Trnsl  Unit0:  Inact InSv
 6 Tst    Unit1:  Act  Insv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 By observing the MAP display, be sure that the card that is to be removed is on the inactive unit.

5 Use the following information to determine where to proceed.

If you entered this procedure from	Do
active unit	Step 6
inactive unit	Step 7

6 Switch the processing activity (SWACT) to the inactive unit by typing the following string:

`> SWACT`

and pressing the Enter key.

Answer the prompt by typing *YES*.

At the RCC2 shelf

7 Put a sign on the ACTIVE unit bearing the words *"Active unit - Do not touch."*

At the MAP terminal

8 Busy the inactive unit by typing the following string:

`> bsy unit rcc2_unit_no`

and pressing the Enter key.

where

NT6X92
in an MCRM-S RCC2 (continued)

rcc2_unit_no
is the number of the inactive RCC2 unit (0 or 1) to be busied

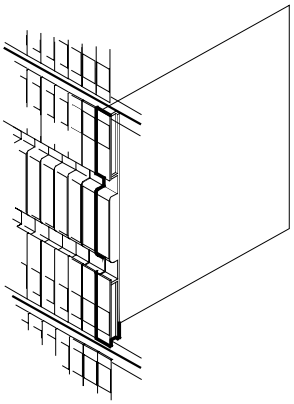
At the RMM shelf

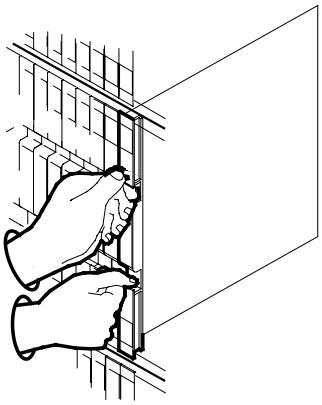
9

CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap and connect it to the frame of the RMM before removing any cards. This protects the RMM against service degradation caused by static electricity.

Put on a wrist strap.

10 Locate the card to be removed on the appropriate shelf as shown in the following figures.



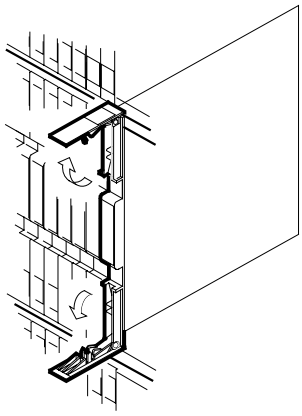


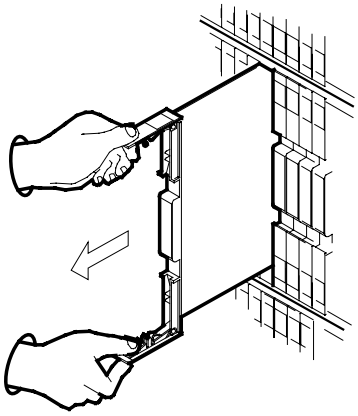
11

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

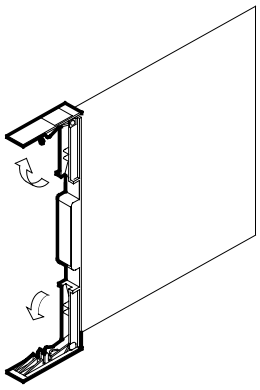
NT6X92
in an MCRM-S RCC2 (continued)

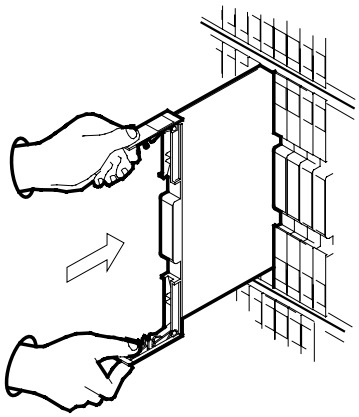




12 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

13 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

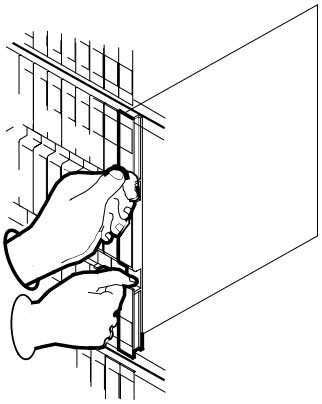




14 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

15 Close the locking levers.

NT6X92
in an MCRM-S RCC2 (continued)



16 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 21
other	Step 17

At the MAP terminal

17 Return the inactive RCC2 unit to service by typing the following string:

```
> RTS UNIT rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit

18 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 19
failed	Step 22

19 Send any faulty cards for repair according to local procedure.

20 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 23.

NT6X92
in an MCRM-S RCC2 (end)

21 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

22 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

23 Remove the sign from the unit that you posted in Step 7.

24 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

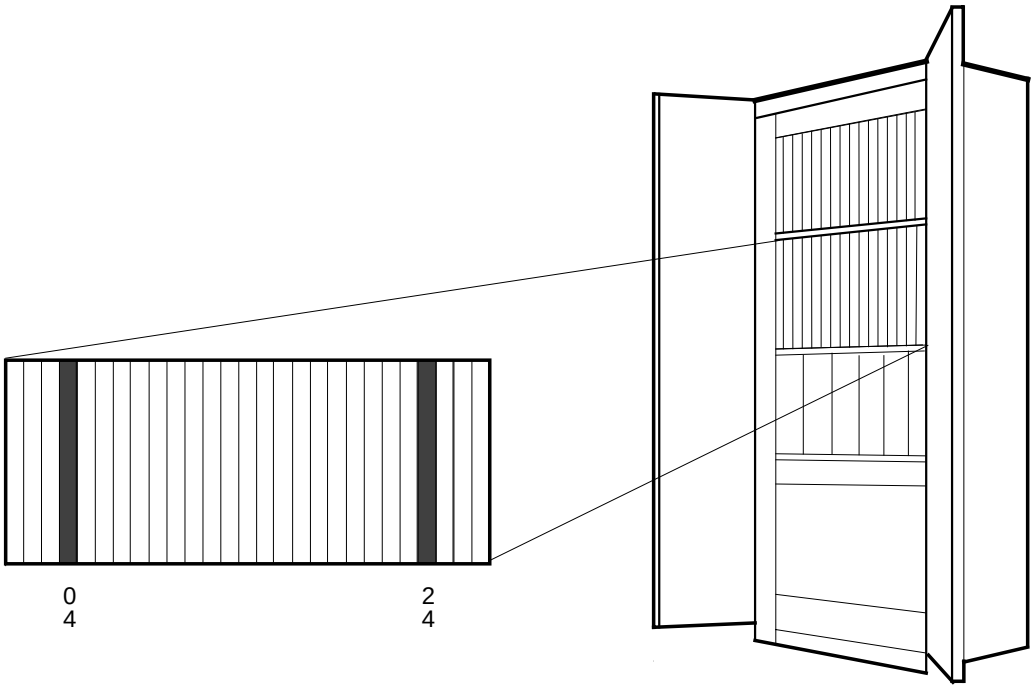
NTBX01 in an MCRM-S RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NTBX01	AB	ISDN Pre-processor	MCRM-S RCC 2

See the following figure for NTBX01 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



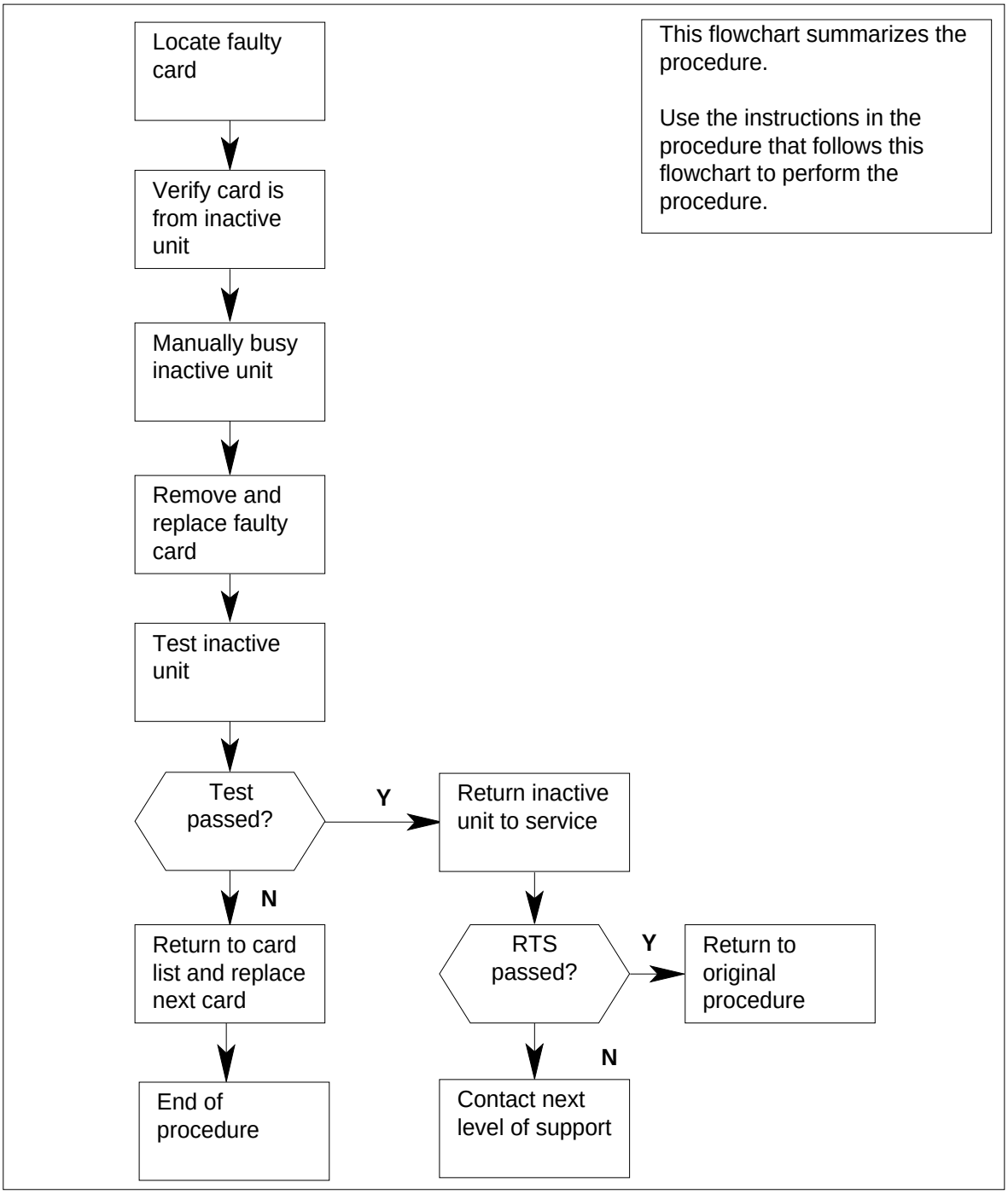
Note: Positions 04 and 24 are always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTBX01
in an MCRM-S RCC2 (continued)

Summary card replacement procedure for an NTBX01 card in an MCRM-S RCC2



NTBX01 in an MCRM-S RCC2 (continued)

Replacing an NTBX01 in an MCRM-S RCC2

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Ensure that the peripheral module (PM) level of the MAP screen is currently displayed and the RCC2 is posted by typing the following string:

```
> MAPCI;MTC;PM;POST RCC2 rcc2_no
```

and pressing the Enter key.

where

rcc2_no
is the number of the RCC2 to be posted (0 or 1)

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .              .      .       .      .
RMM              SysB    ManB    OffL   CBsy     ISTb    InSv
 0 Quit    PM       0       0       2      0        0      25
 2 Post_   RCC2     0       0       0      0        0       0
 3 ListSet
 4         RCC2   0 InSv Links_00S:CSide 0, PSide 0
 5 Trnsl   Unit0:  Inact InSv
 6 Tst     Unit1:  Act  Insv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 By observing the MAP display, be sure that the card that is to be removed is on the inactive unit.

5 Use the following information to determine where to proceed.

If the faulty card is on	Do
an active unit	Step 6
an inactive unit	Step 7

6 Switch the processing activity (SWACT) to the inactive unit by typing the following string:

>SWACT

and pressing the Enter key.

At the RCC2 shelf

7 Put a sign on the ACTIVE unit bearing the words *"Active unit - Do not touch."*

At the MAP terminal

8 Busy the INACTIVE unit by typing the following string:

> *bsy unit* rcc2_unit_no

and pressing the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit to be busied (0 or 1)

NTBX01
in an MCRM-S RCC2 (continued)

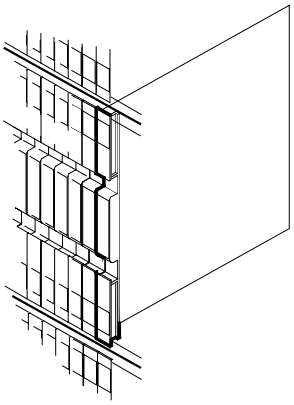
At the RCC2 shelf

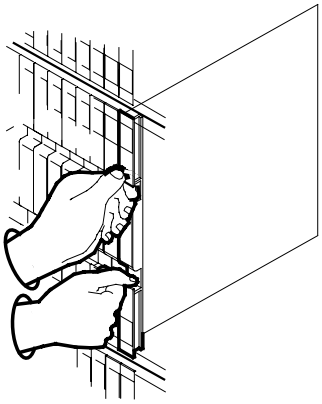
9

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

10 Locate the card to be removed on the appropriate shelf as shown in the following figures.



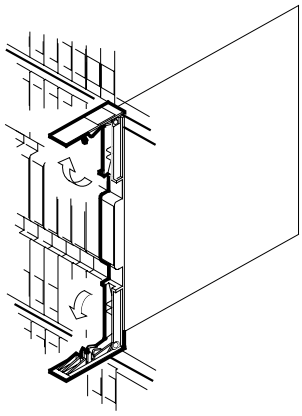


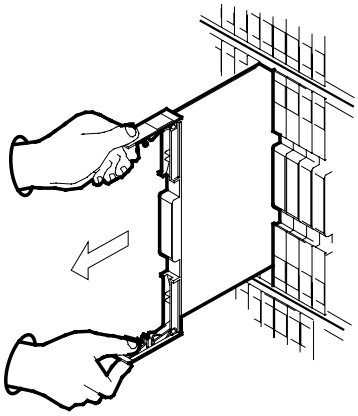
11

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

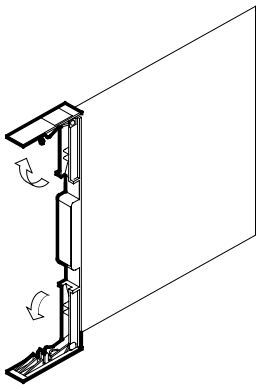
NTBX01
in an MCRM-S RCC2 (continued)

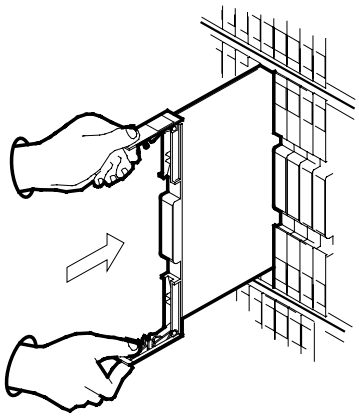




12 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

13 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

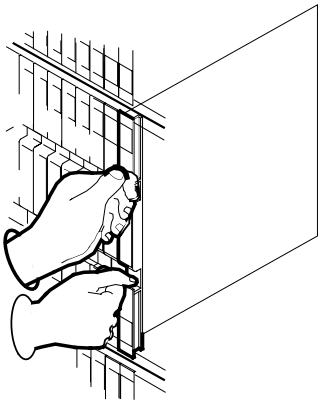




14 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

15 Close the locking levers.

NTBX01
in an MCRM-S RCC2 (continued)



16 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 25
other	Step 17

At the MAP terminal

17 After replacing the faulty card, load the inactive RCC2 unit by typing the following string:

```
LOADPM  UNIT  rcc2_unit_no
```

and pressing the Enter key.

rcc2_unit_no
is the number of the RCC2 unit busied in Step 8.

18 Use the following information to determine where to proceed.

If LOAD passed	Do
passed	Step 26
failed	Step 19

19 Test the inactive unit by typing the following string:

```
> TST UNIT  rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit loaded in Step 17.

20 Use the following information to determine where to proceed.

If TST passed	Do
passed	Step 21
failed	Step 25

21 Return the inactive RCC2 to service by typing the following string:

>RTS *UNIT* rcc2_unit_no

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit tested in Step 19.

22 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 23
failed	Step 25

23 Send any faulty cards for repair according to local procedure.

24 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 27.

25 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

26 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

27 You have completed this procedure. Remove the sign from the active unit and return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

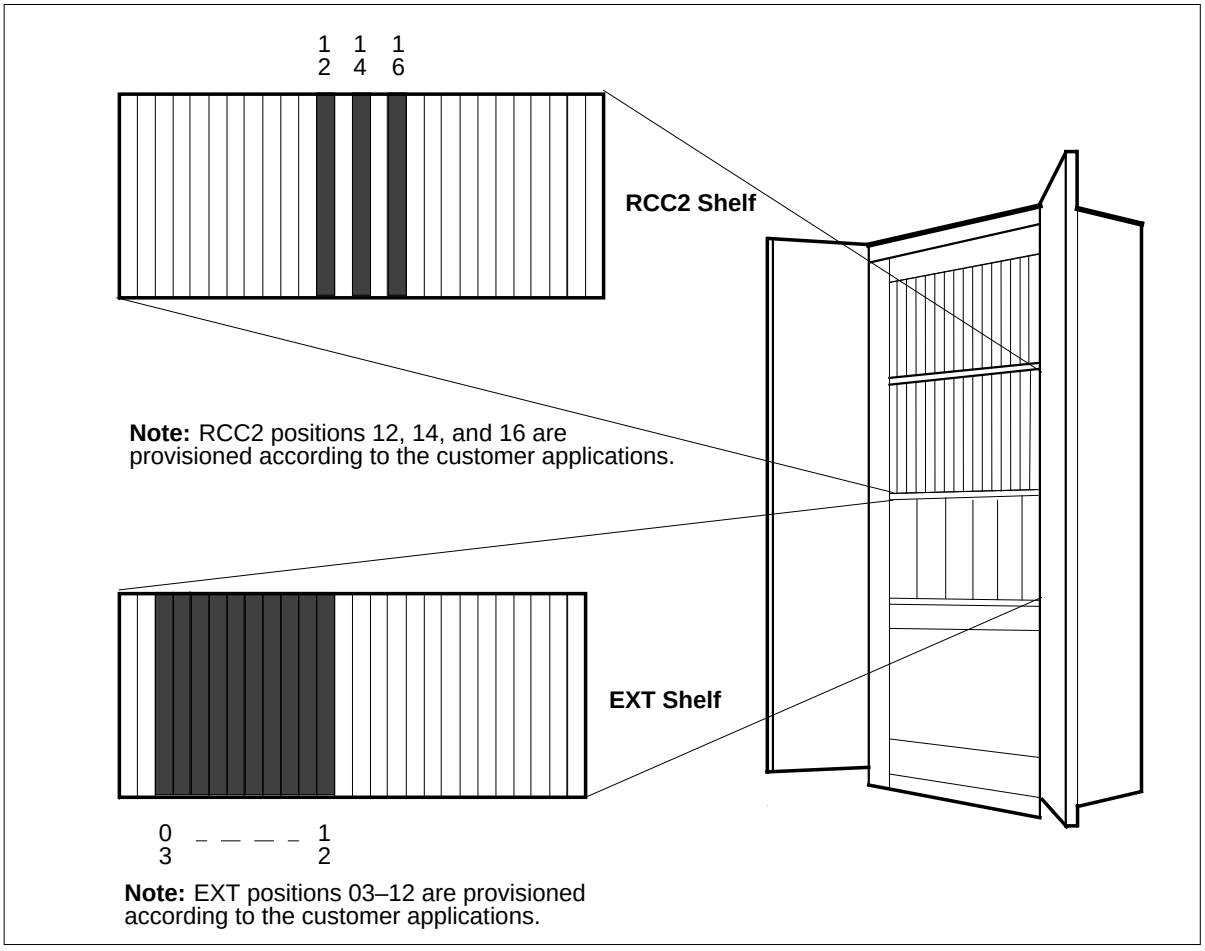
NTBX02 in an MCRM-S EXT or RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NTBX02	AA	D-Channel Handler	MCRM-S EXT or RCC2

See the following figure for NTBX02 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



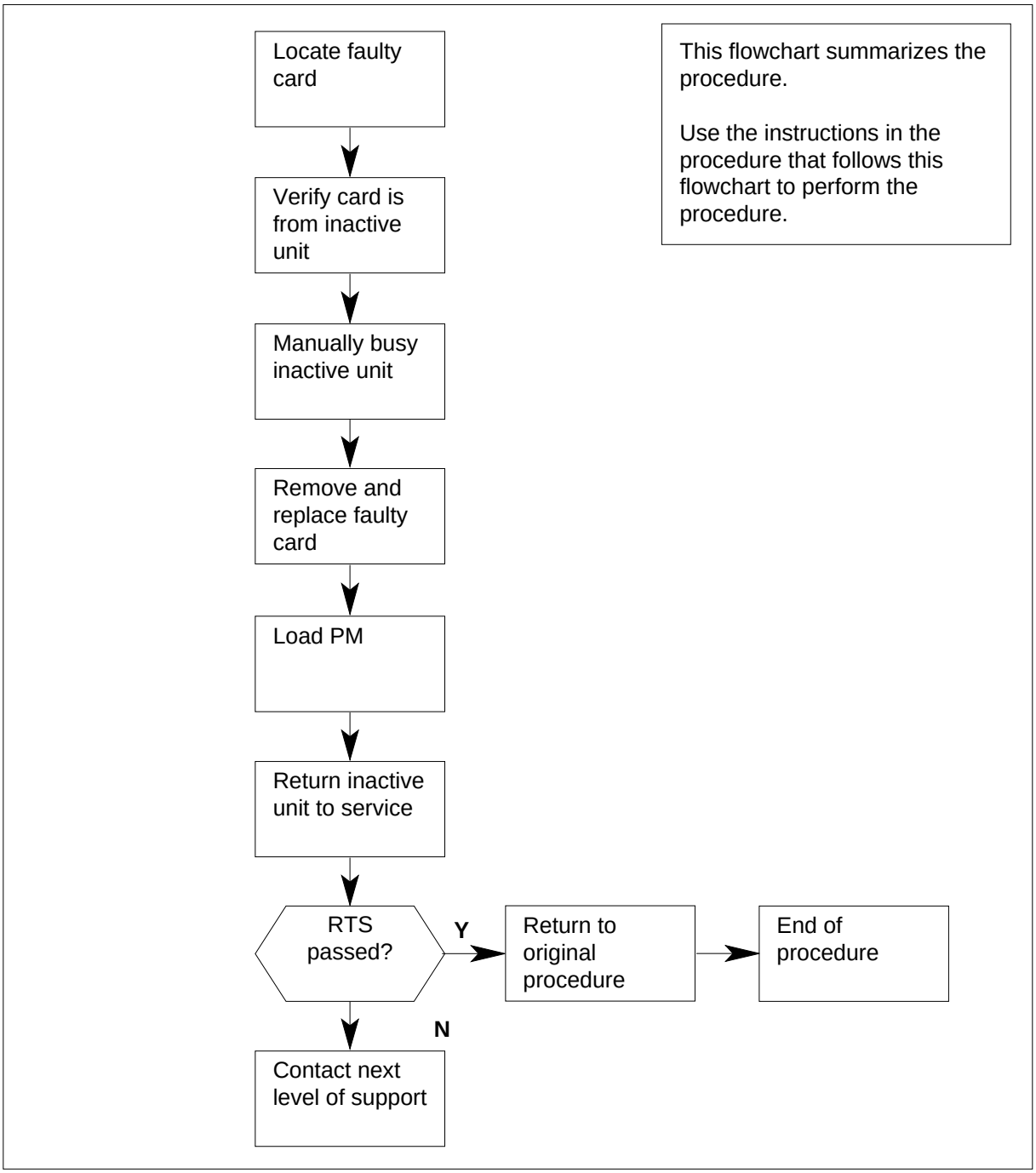
NTBX02
in an MCRM-S EXT or RCC2 (continued)

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTBX02 in an MCRM-S EXT or RCC2 (continued)

Summary of card replacement procedure for an NTBX02 card in an MCRM-S EXT or RCC2



NTBX02 in an MCRM-S EXT or RCC2 (continued)

Replacing an NTBX02 in an MCRM-S EXT or RCC2

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the RCC2 with the faulty data channel handler (DCH) card by typing the following string:

```
> MAPCI;MTC;PM;POST RCC2 rcc2_no
```

and pressing the Enter key.

where

rcc2_no
is the number of the RCC2 unit with the faulty card (0 or 1)

Example of a MAP response

NTBX02
in an MCRM-S EXT or RCC2 (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .            .      .       .      .
RMM              SysB    ManB   OffL   CBsy      ISTb    InSv
 0 Quit   PM        0       0      2      0         0      25
 2 Post_  RCC2      0       0      0      0         0       0
 3 ListSet
 4        RCC2  0     Links_00S:CSide 0,  PSide 0
 5 Trnsl  Unit0:  Inact InSv
 6 Tst    Unit1:  Act  Insv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

At the EXT shelf or RCC2 shelf

4 Put a sign on the active unit bearing the words *"Active unit - Do not touch."*

At the MAP terminal

5 Access the DCH level of the MAP terminal by typing the following string:

>DCH

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit (0 or 1) with the faulty DCHcard

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .             .      .       .      .
RMM               SysB    ManB    OffL   CBsy      ISTb    InSv
 0 Quit    PM        0       0       2      0         0      25
 2 Post_   RCC2      0       0       0      0         0       0
 3
 4         RCC2  0     Links_00S:  CSide 0, PSide 0
 5 Trnsl   Unit0:   InSv
 6 Tst     Unit1:   InSv
 7 Bsy
 8 Rts        DCH      0       0      0       1      0      0
 9 Offl
10 LoadPM
11 Disp_
12 Next
13 SWACT
14 QueryPM
15 DCH
16
17 Perform
18
```

6 Using the information displayed in the MAP terminal in Step 5, identify and post the faulty DCH card state by typing the following string:

post **dch_card_state**

and pressing the Enter key.

where

dch_card_state
is either Central Side Busy (CBsy), System Busy (SysB),or In-Service Trouble (ISTb). The example in Step 5shows the DCH card as being CBsy.

Example of a MAP response

NTBX02
in an MCRM-S EXT or RCC2 (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .             .      .       .      .
RMM              SysB   ManB   OffL   CBsy     ISTb   InSv
 0 Quit   PM        0      0      2      0        0     25
 2 Post_  RCC2      0      0      0      0        0      0
 3
 4        RCC2  0     Links_00S: CSide 0,PSide 0
 5 Trnsl  Unit0:  InSv
 6 Tst    Unit1:  InSv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM DCH 0    ISG 1   CBSY  RCCI    2  PORT  15
11 Disp_
12 Next
13 SWACT
14 QueryPM
15 DCH
16
17 Perform
18
```

7 Identify the DCH load file name by typing the following string:

`> querypm`

and pressing the Enter key.

8 Isolate the volume that contains the PM load by typing the following string:

`> dskut;print rootdir`

and pressing the Enter key.

9 Ensure that the PMLOAD is loaded in the user directory by typing the following string:

`dskut;listvol`* d000 or d010 volume_name *`all`

and pressing the Enter key.

where

volume_name
is the PM volume name that identifies the PM load.

10 Compare the information in Step 8 with the information in Step 9 to verify the DCH filename exists.

11 Busy the faulty card by typing the following string:

>BSY

and pressing the Enter key.

NTBX02
in an MCRM-S EXT or RCC2 (continued)

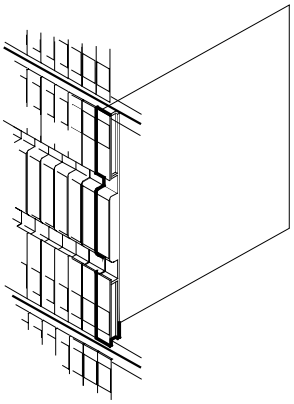
At the RCC2 shelf

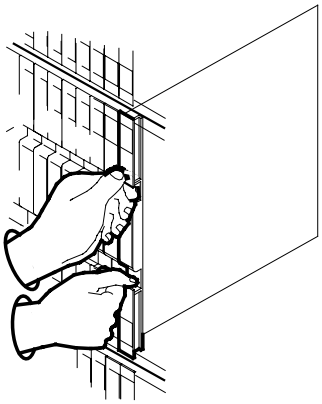
12

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

13 Locate the card to be removed on the appropriate shelf as shown in the following figures.



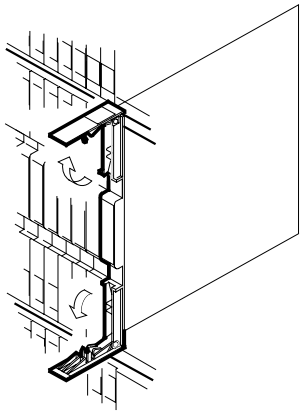


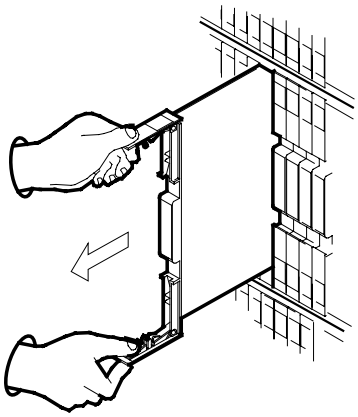
14

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

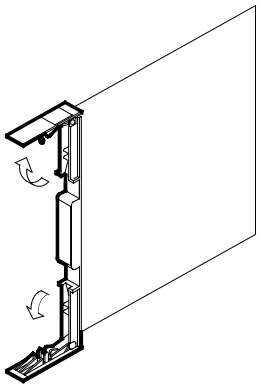
NTBX02
in an MCRM-S EXT or RCC2 (continued)

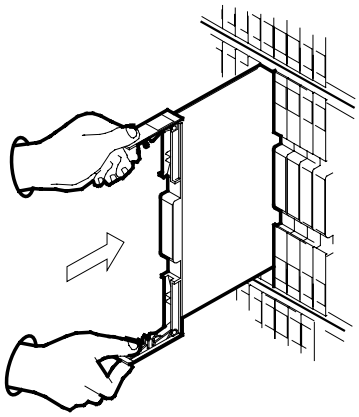




15 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

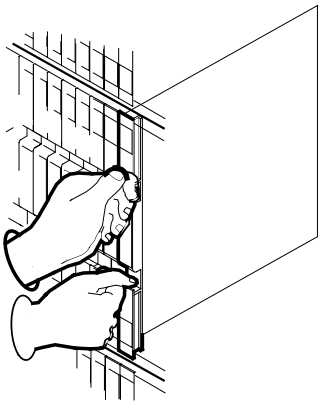
16 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.





17 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

18 Close the locking levers.



At the MAP terminal

19 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 29
other	Step 20

20 Load the inactive RCC2 unit by typing the following string:

LOADPM

and pressing the Enter key.

21 Use the following information to determine where to proceed.

If load	Do
passed	Step 22
failed	Step 30

22 Return the DCH card to service by typing the following string:

>RTS

and pressing the Enter key.

23 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 24
failed	Step 30

NTBX02
in an MCRM-S EXT or RCC2 (continued)

24 Leave the DCH level of the MAP terminal and return to the RCC2 level by typing the following string:

>quit

and pressing the Enter key.

25 Ensure that the RCC2 unit is in service by typing the following string:

> querypm flt

and pressing the Enter key.

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .      .      .      .       .      .
RMM               SysB    ManB    OffL   CBsy      ISTb    InSv
 0 Quit   PM        0       0       0      0         0       25
 2 Post_  RCC2      0       0       0      0         0        1
 3 ListSet
 4        RCC2  0 InSv Links_00S:CSide 0,PSide 0
 5 Trnsl  Unit0:  Inact InSv
 6 Tst    Unit1:  Act Insv
 7 Bsy    QUERYPM FLT
 8 Rts          Unit0   No troubles exist
 9 Offl         Unit1   No troubles exist
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15 DCH
16
17
18
```

26 Use the following information to determine where to proceed.

If faults are	Do
indicated	Step 30
not indicated	Step 27

27 Send any faulty cards for repair according to local procedure.

28 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 31.

29 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

NTBX02
in an MCRM-S EXT or RCC2 (end)

30 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

31 You have completed this procedure. Remove the sign from the active unit and return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

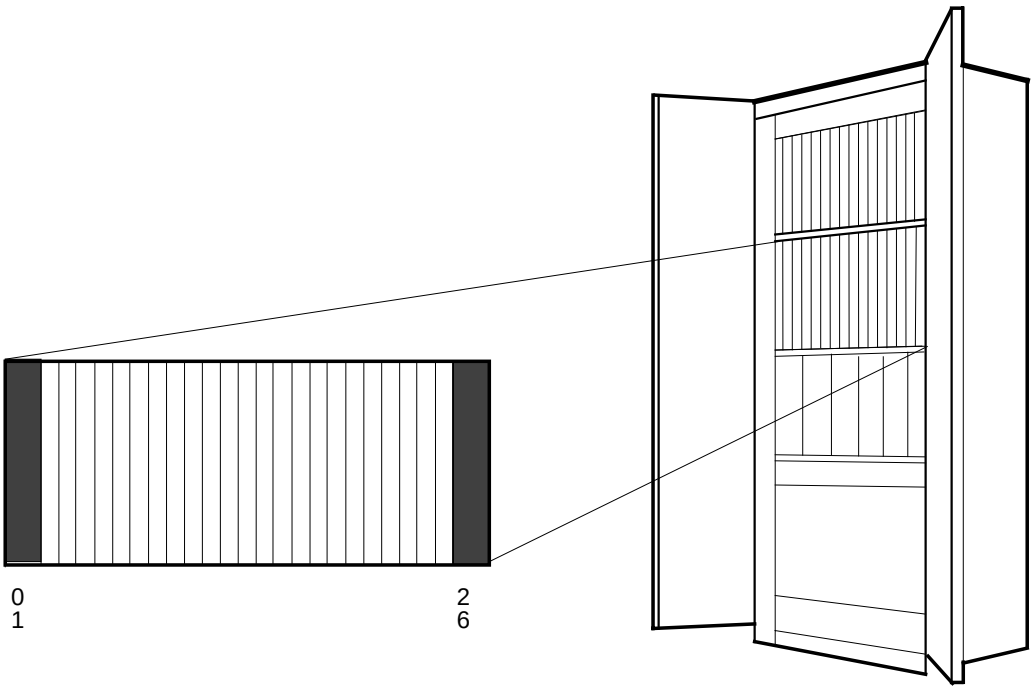
NTMX72 in an MCRM-S RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NTMX72	AA	Power Converter	MCRM-S RCC2

See the following figure for NTMX72 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



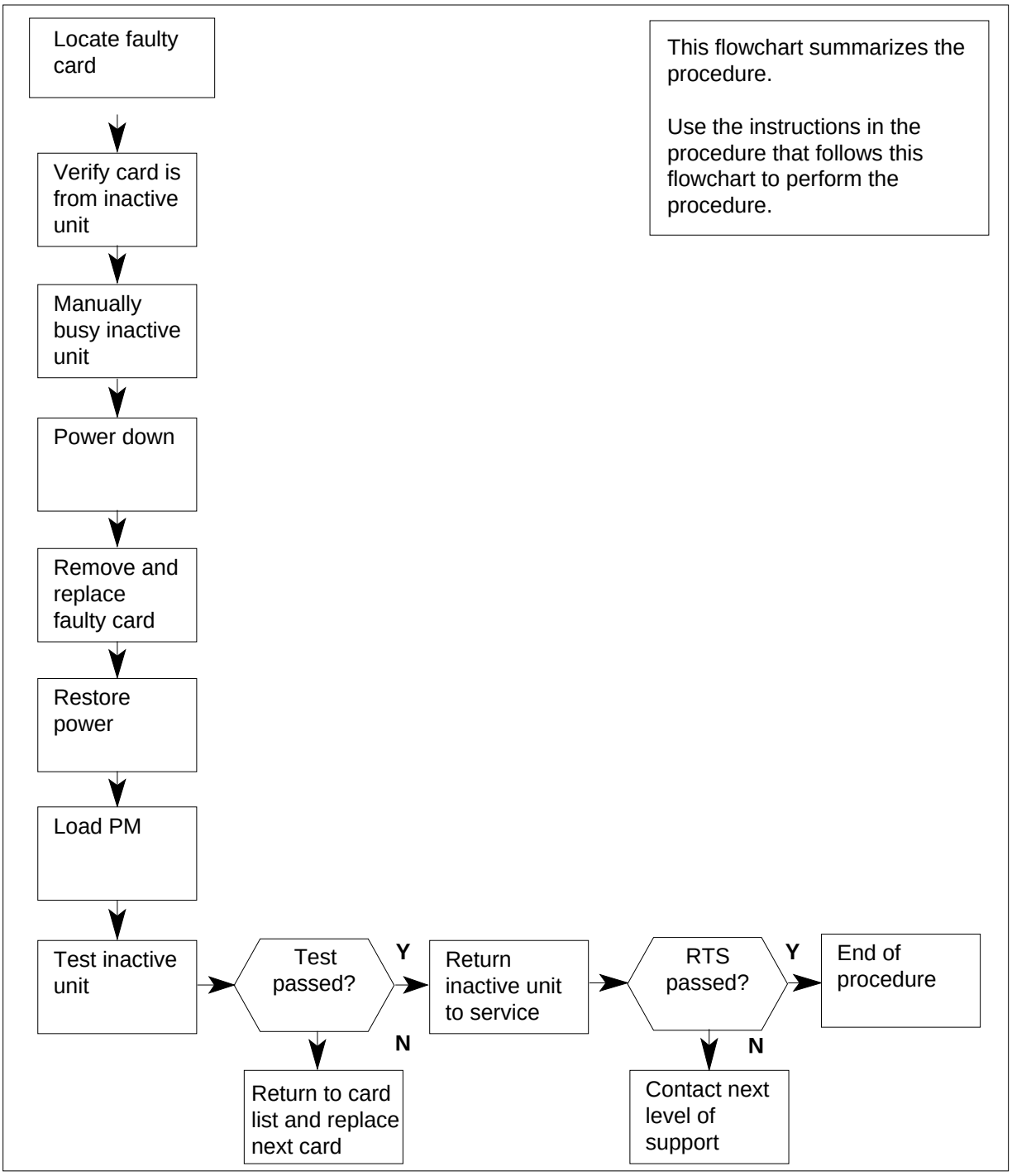
Note: Positions 01 and 26 are always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTMX72
in an MCRM-S RCC2 (continued)

Summary card replacement procedure for an NTMX72 card in an MCRM-S RCC2



NTMX72 in an MCRM-S RCC2 (continued)

Replacing an NTMX72 in an MCRM-S RCC2

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the RCC2 by typing the following string:

```
>MAPCI;MTC;PM;POST LCME lcme_site_name lcme_frame_no
lcme_no
```

and pressing the Enter key.

where

lcme_site_name
is the name of the site at which the LCME is located.

lcme_frame_no
is the number of the frame in which the LCME is located.

lcme_no
is the number of the LCME unit with the faulty card.

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .              .      .       .      .
RMM              SysB    ManB   OffL   CBsy     ISTb    InSv
 0 Quit   PM        1       0      2      0        2      12
 2 Post_  LCME      0       0      2      0        2       9
 3 ListSet
 4 SWRG   LCME    MCRM-S 14 1  ISTB Links_00S:CSide 0,PSide 0
 5 Trnsl  Unit0:     InSv                /RG: 1
 6 Tst    Unit1:     InSv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15 DCH
16
17
18
```

4 By observing the MAP display, be sure that the card that is to be removed is on the inactive unit.

5 Use the following information to determine where to proceed.

If faulty card is on	Do
active unit	Step 6
inactive unit	Step 7

6 Switch (SwAct) the processing activity to the inactive unit. To perform a SwAct, type the following command:

> SWACT

and pressing the Enter key.

Answer the prompt by typing *YES*.

At the RCC2 shelf

7 Put a sign on the active unit bearing the words *"Active unit - Do not touch."*

At the MAP terminal

8 Busy the inactive PM unit by typing the following string:

> bsy UNIT **unit_no**

and pressing the Enter key.

where

unit_no
is the number of the faulty RCC2 unit (0 or 1)

NTMX72
in an MCRM-S RCC2 (continued)

At the RCC2 shelf

9

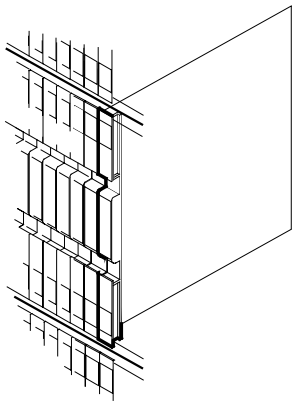
CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

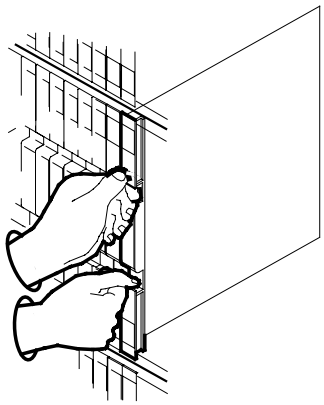
Put on a wrist strap.

10 Power down the NTMX72 power converter by setting the power switch to the OFF position.

Note: The NTMX72 card is located in slot 01 for unit 0 and in slot 26 for unit 1.

11 Locate the card to be removed on the appropriate shelf as shown in the following figures.



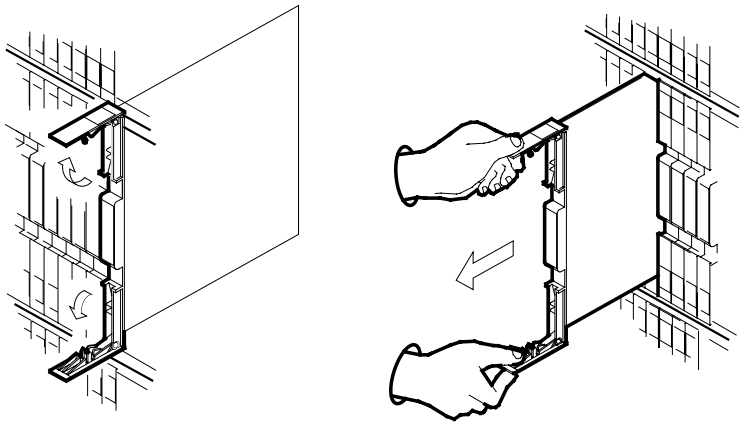


12

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

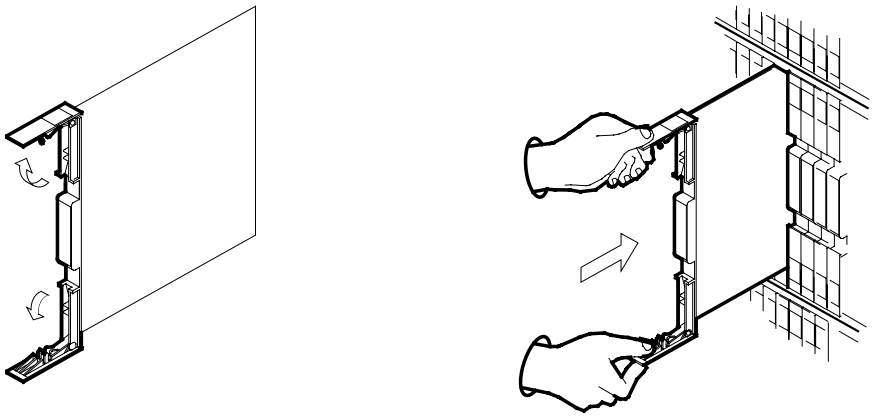
Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

NTMX72
in an MCRM-S RCC2 (continued)



13 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

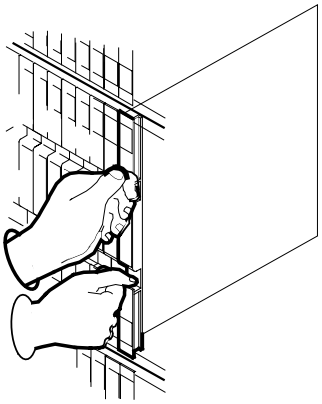
14 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.



15 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

16 Close the locking levers.

NTMX72
in an MCRM-S RCC2 (continued)



17 Power up the INACTIVE RCC2 unit as follows:

- Ensure that the power converter (NTMX72) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.
- Set power switch to the ON position. Set power switch to RESET when setting the circuit breaker to the ON position.

At the MAP terminal

18 After replacing the faulty card load the inactive RCC2 unit by typing the following string:

```
>LOADPM  UNIT  unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit (0 or 1).

19 Use the following information to determine where to proceed.

If load	Do
passed	Step 20
failed	Step 28

20 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 27
other	Step 21

21 Test the inactive unit by typing the following string:

```
> TST UNIT  unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit.

22 Use the following information to determine where to proceed.

If TST	Do
passed	Step 23
failed	Step 28

23 Return the inactive RCC2 unit to service by typing the following string:

```
> RTS UNIT unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit.

24 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 25
failed	Step 28

25 Send any faulty cards for repair according to local procedure.

26 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 29.

27 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

28 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

29 You have completed this procedure. Remove the sign from the active unit and return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

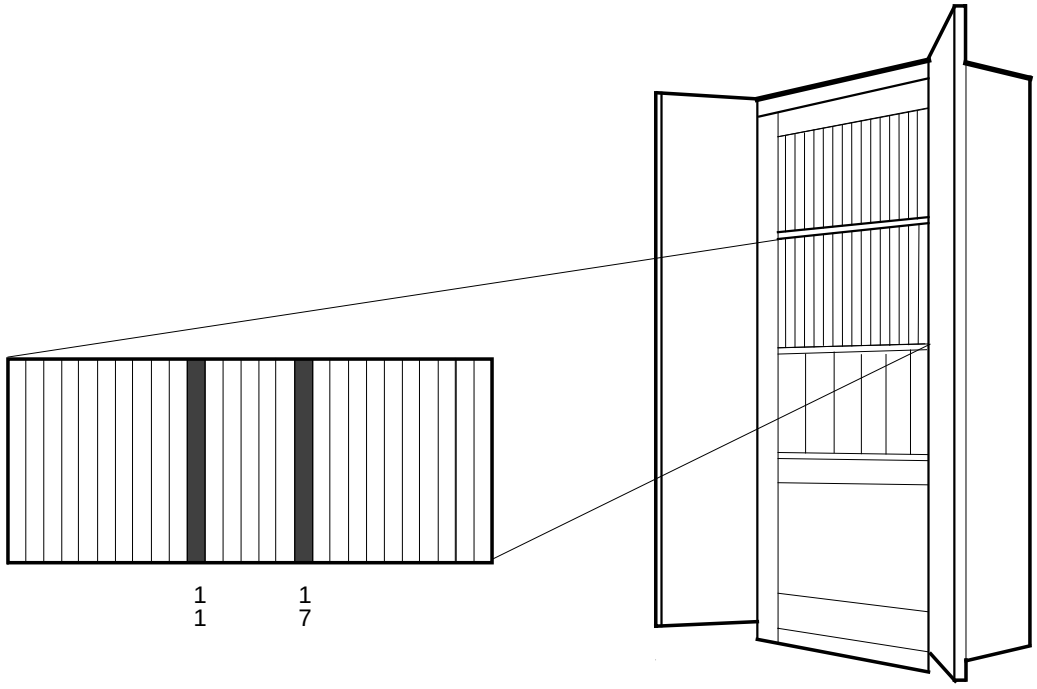
NTMX73 in an MCRM-S RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NTMX73	AA	NTMX73	MCRM-S RCC2

See the following figure for NTMX73 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



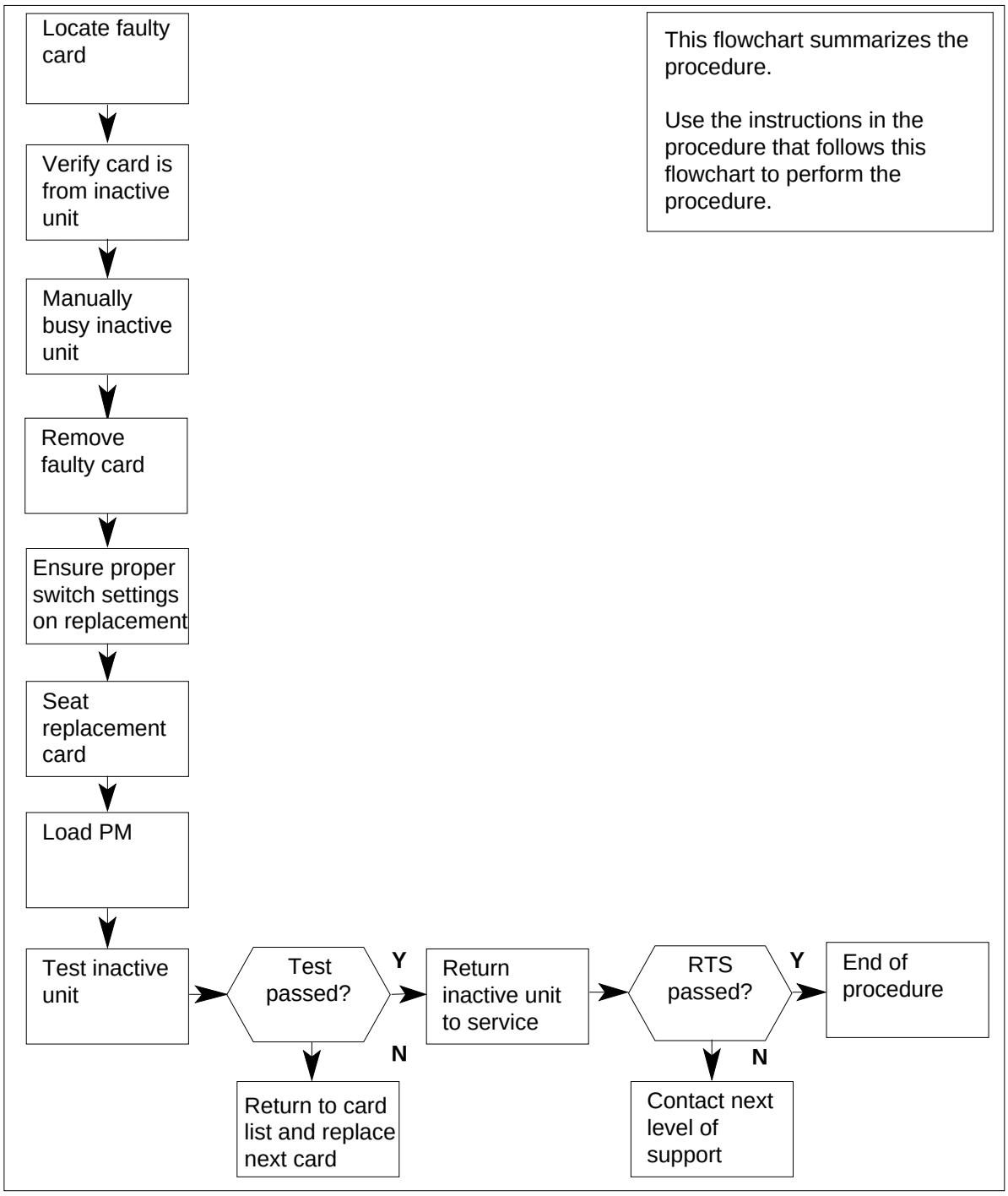
Note: Positions 11 and 17 are always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTMX73
in an MCRM-S RCC2 (continued)

Summary card replacement procedure for an NTMX73 card in an MCRM-S RCC2



NTMX73 in an MCRM-S RCC2 (continued)

Replacing an NTMX73 in an MCRM-S RCC2

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the RCC2 by typing the following string:

```
>MAPCI;MTC;PM;POST RCC2 rcc2_no
```

and pressing the Enter key.

where

rcc_unit_no
is the number of the unit to be loaded (0 or 1)

When both units are in-service, proceed to Step 4.

4 By observing the MAP display, be sure that the card that is to be removed is on the inactive unit.

5 Use the following information to determine where to proceed.

If faulty card is on	Do
active unit	Step 6
inactive unit	Step 7

6 Switch (SwAct) the processing activity to the inactive unit. To perform a SwAct, type the following command:

```
> SWACT
```

and pressing the Enter key.

Answer the prompt by typing *YES*.

where

rcc_unit_no
is the number of the unit (0 or 1) on which activity is to be switched

When both units are in-service proceed to step 7.

At the RCC2 shelf

7 Put a sign on the active unit bearing the words *"Active unit - Do not touch."*

At the MAP terminal

8 Busy the inactive PM unit by typing the following string:

```
> bsy  UNIT  unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the faulty RCC2 unit (0 or 1)

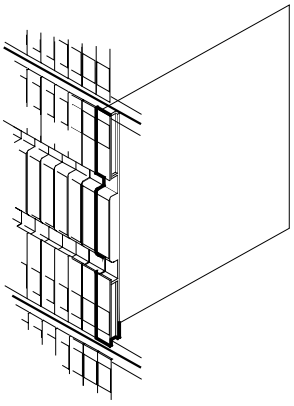
At the RCC2 shelf

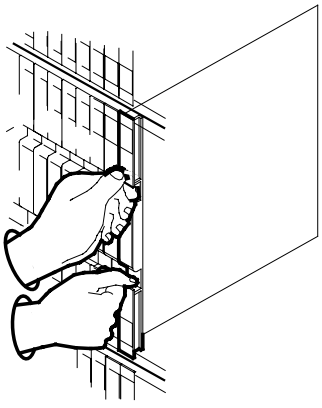
9

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

10 Locate the card to be removed on the appropriate shelf as shown in the following figures.



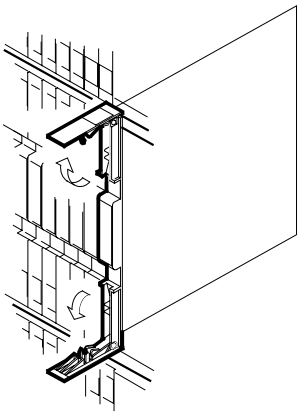


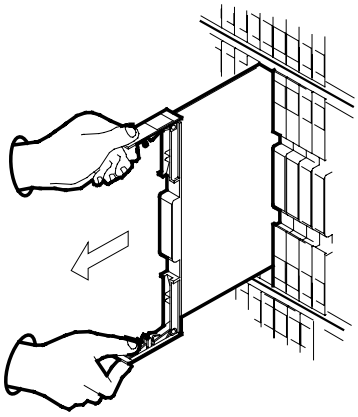
NTMX73
in an MCRM-S RCC2 (continued)

11

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

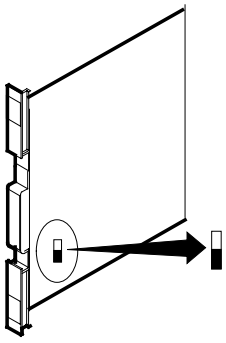
Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



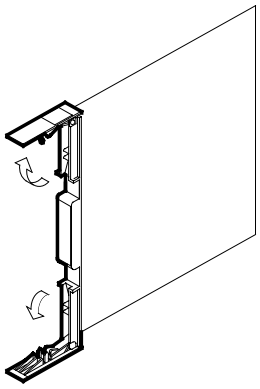


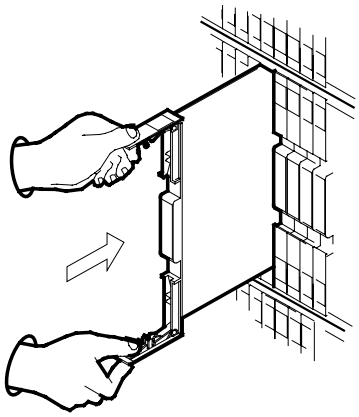
12 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

13 Set the S1 switch to IC U1 “Operations Mode” on the replacement card.



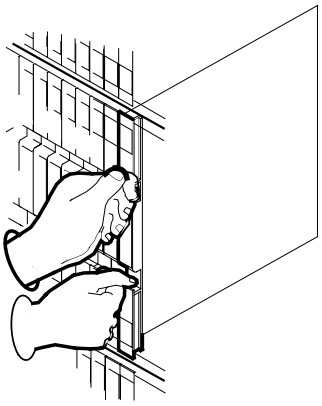
14 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.





15 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

16 Close the locking levers.



At the MAP terminal

17 Load the INACTIVE RCC2 unit by typing the following string:

```
>LOADPMUNIT  unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the inactive RCC2 unit (0 or 1)

When both units are in-service, proceed to step 18.

NTMX73
in an MCRM-S RCC2 (continued)

18 Use the following information to determine where to proceed.

If load	Do
passed	Step 19
failed	Step 25

19 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 24
other	Step 20

20 Test the inactive unit by typing the following string:

`> TST UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the faulty RCC2 unit.

21 Use the following information to determine where to proceed.

If TST	Do
passed	Step 22
failed	Step 24

22 Return the inactive RCC2 unit to service by typing the following string:

`> RTS UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the faulty RCC2 unit.

23 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 26
failed	Step 25

24 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty

card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

25 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

26 Remove the sign from the active RCC2 unit.

27 Send any faulty cards for repair according to local procedure.

28 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

29 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

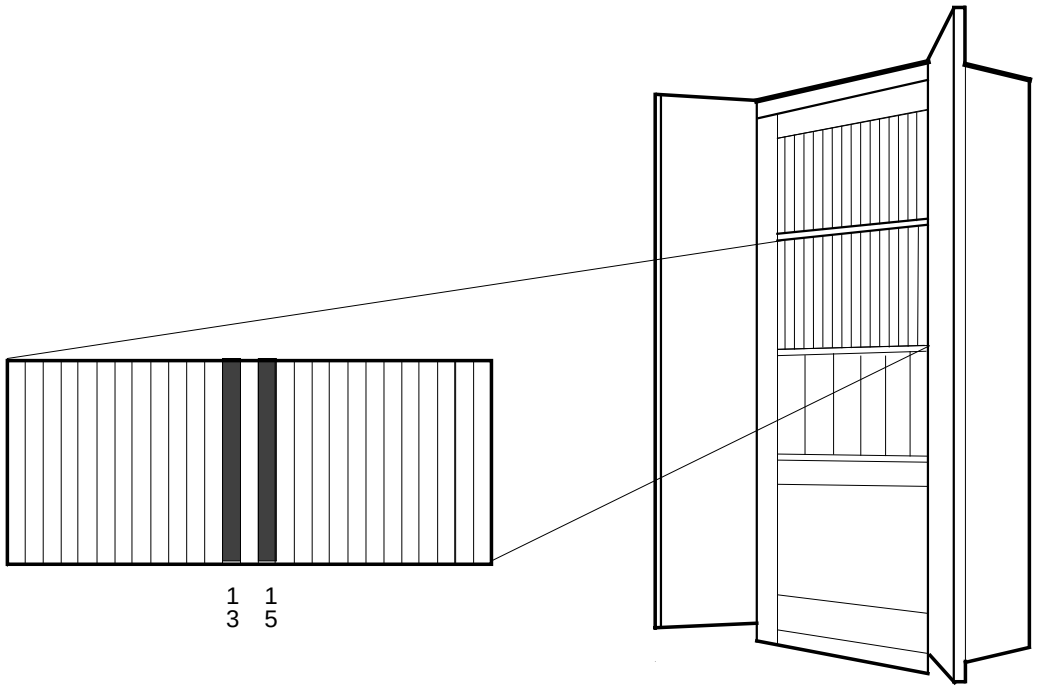
NTMX74 in an MCRM-S RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NTMX74	AA	DS30A Interface Card	MCRM-S RCC2

See the following figure for NTMX74 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



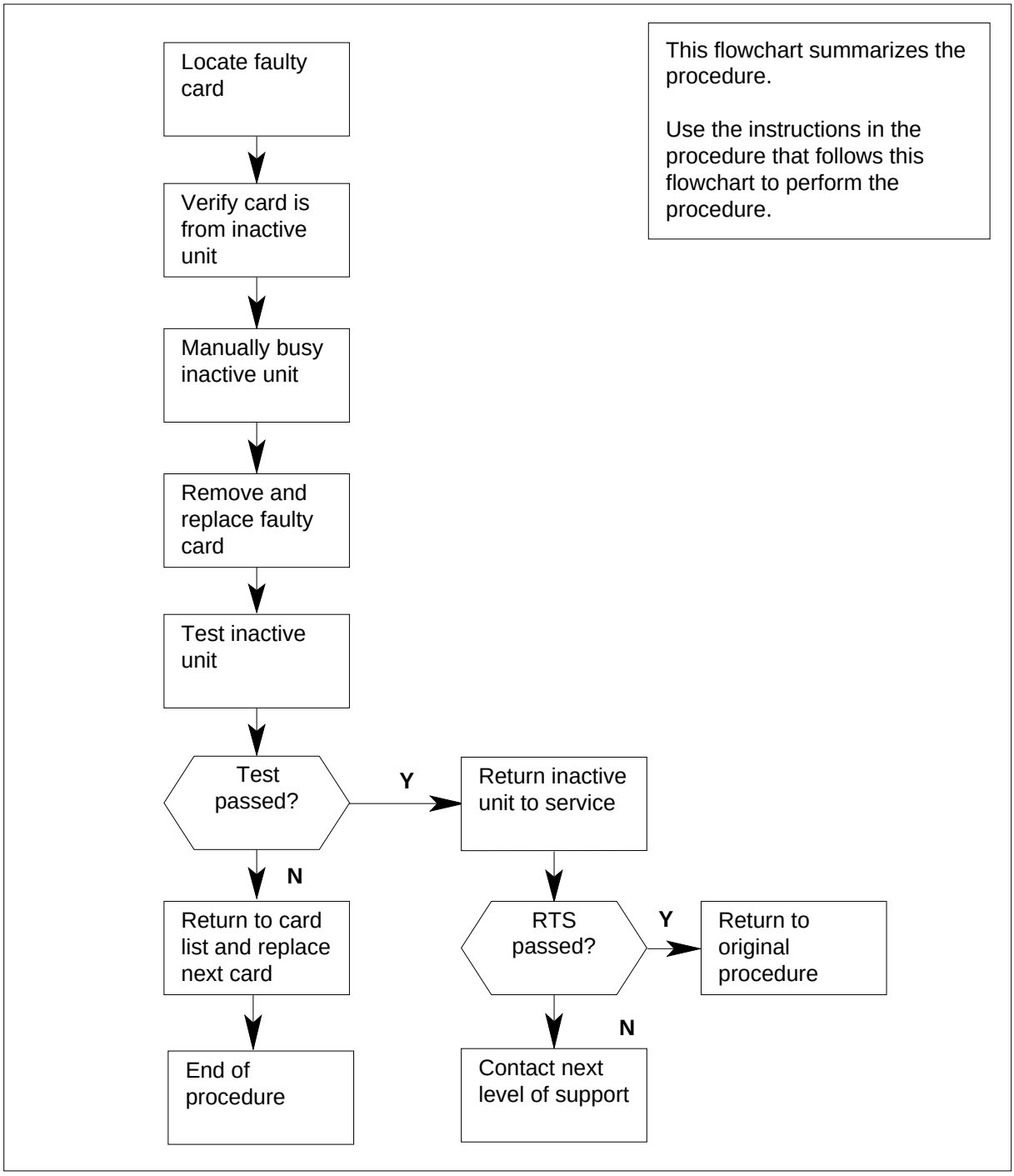
Note: Positions 13 and 15 are always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTMX74
in an MCRM-S RCC2 (continued)

Summary of card replacement procedure for an NTMX74 card in an MCRM-S RCC2



NTMX74 in an MCRM-S RCC2 (continued)

Replacing an NTMX74 in an MCRM-S RCC2

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the RCC2 by typing the following string:

```
> MAPCI;MTC;PM;POST RCC2 rcc2_no
```

and pressing the Enter key.

where

rcc2_no
is the number of the RCC2 to be posted (0 or 1)

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .   1RCC2     .      .       .      .
RMM                SysB    ManB   OffL   CBsy     ISTb    InSv
 0 Quit   PM          0       0      2      0        2      25
 2 Post_  RCC2        0       0      0      0        1       1
 3 ListSet
 4        RCC2    0  ISTbLinks_00S:  CSide 1,Pside 1
 5 Trnsl  Unit0: Inact  InSv
 6 Tst    Unit1: Act  InSv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Determine from the MAP display if the card that is to be removed is on the inactive unit.

If faulty card is on	Do
active unit	Step 5
inactive unit	Step 6

5 Switch (SwAct) the processing activity to the inactive unit. To perform a SwAct, type the following command:

`> SWACT`

and pressing the Enter key.

Answer the prompt by typing *YES*.

At the RCC2 shelf

6 Put a sign on the active unit bearing the words *"Active unit - Do not touch."*

At the MAP terminal

7 Busy the inactive PM unit by typing the following string:

`> bsy unit rcc2_unit_no`

and pressing the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit (0 or 1)

NTMX74
in an MCRM-S RCC2 (continued)

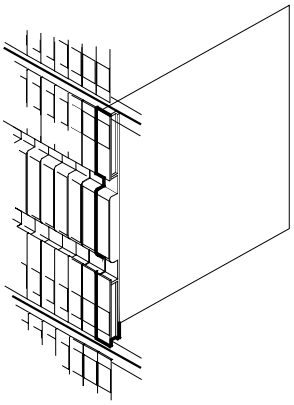
At the RCC2 shelf

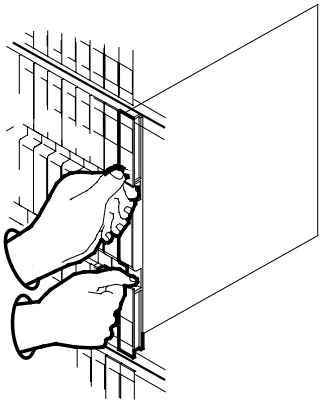
8

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

9 Locate the card to be removed on the appropriate shelf as shown in the following figures.



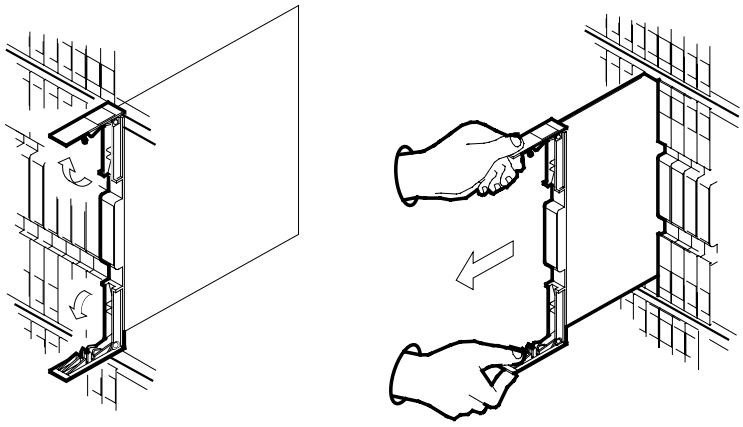


10

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

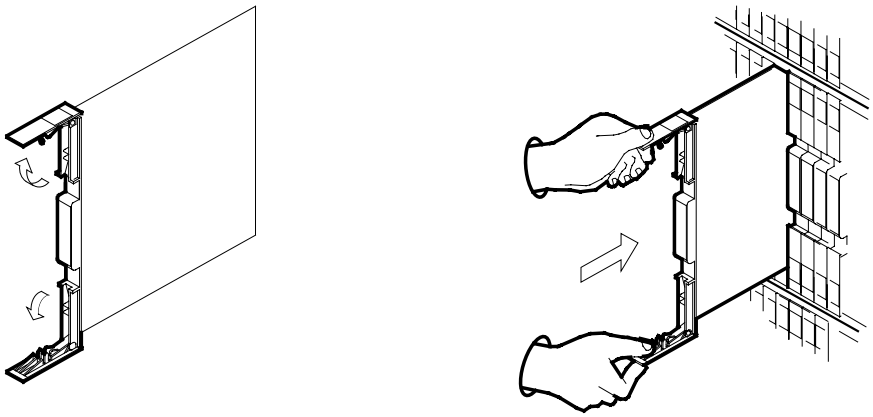
Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

NTMX74
in an MCRM-S RCC2 (continued)



11 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

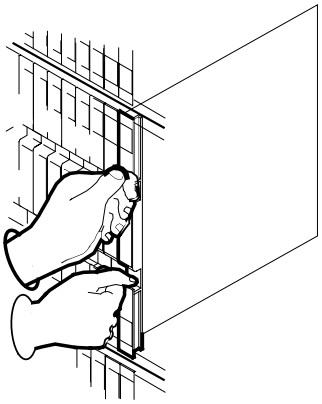
12 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.



13 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

14 Close the locking levers.

NTMX74
in an MCRM-S RCC2 (continued)



15 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 25
other	Step 16

At the MAP terminal

16 Load the inactive RCC2 unit by typing the following string:

>LOADPM

and pressing the Enter key.

17 Use the following information to determine where to proceed.

If load	Do
passed	Step 18
failed	Step 26

18 Test the inactive unit by typing the following string:

> TST

and pressing the Enter key.

19 Use the following information to determine where to proceed.

If TST	Do
passed	Step 20
failed	Step 26

20 Return the inactive RCC2 unit to service by typing the following string:

`> RTS UNIT rcc2_unit_no`

and pressing the Enter key.

where

unit_no
is the number of the RCC2 unit tested in step 18.

21 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 22
failed	Step 26

22 Remove the sign from the active RCC2 unit.

23 Send any faulty cards for repair according to local procedure.

24 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 27.

25 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

26 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

27 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

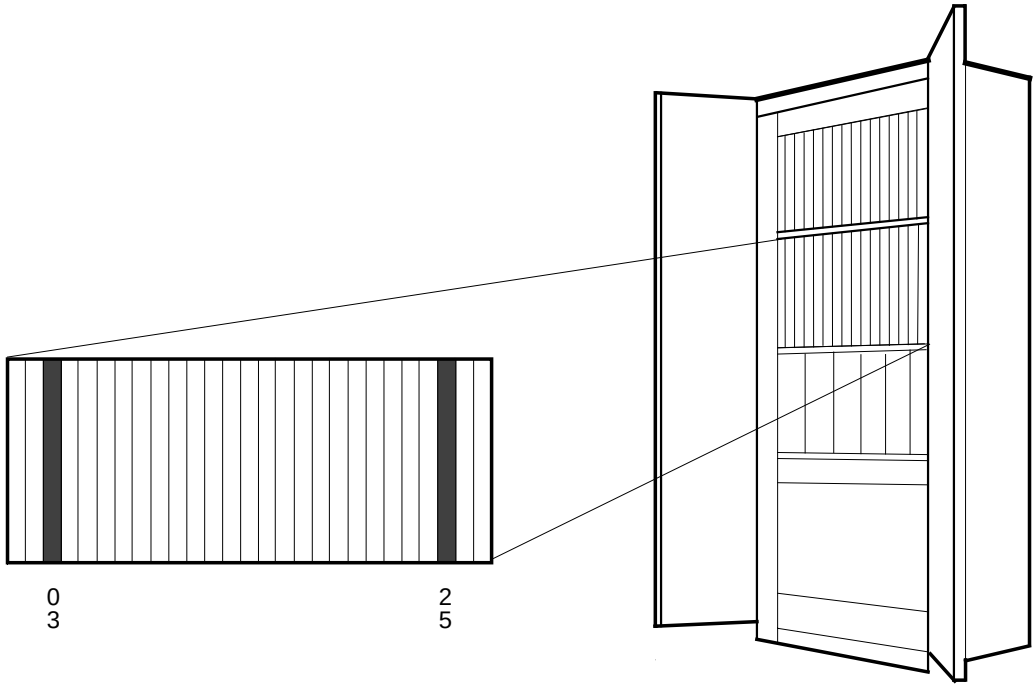
NTMX77 in an MCRM-S RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NTMX77	AA	Unified Processor	MCRM-S RCC2

See the following figure for NTMX77 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



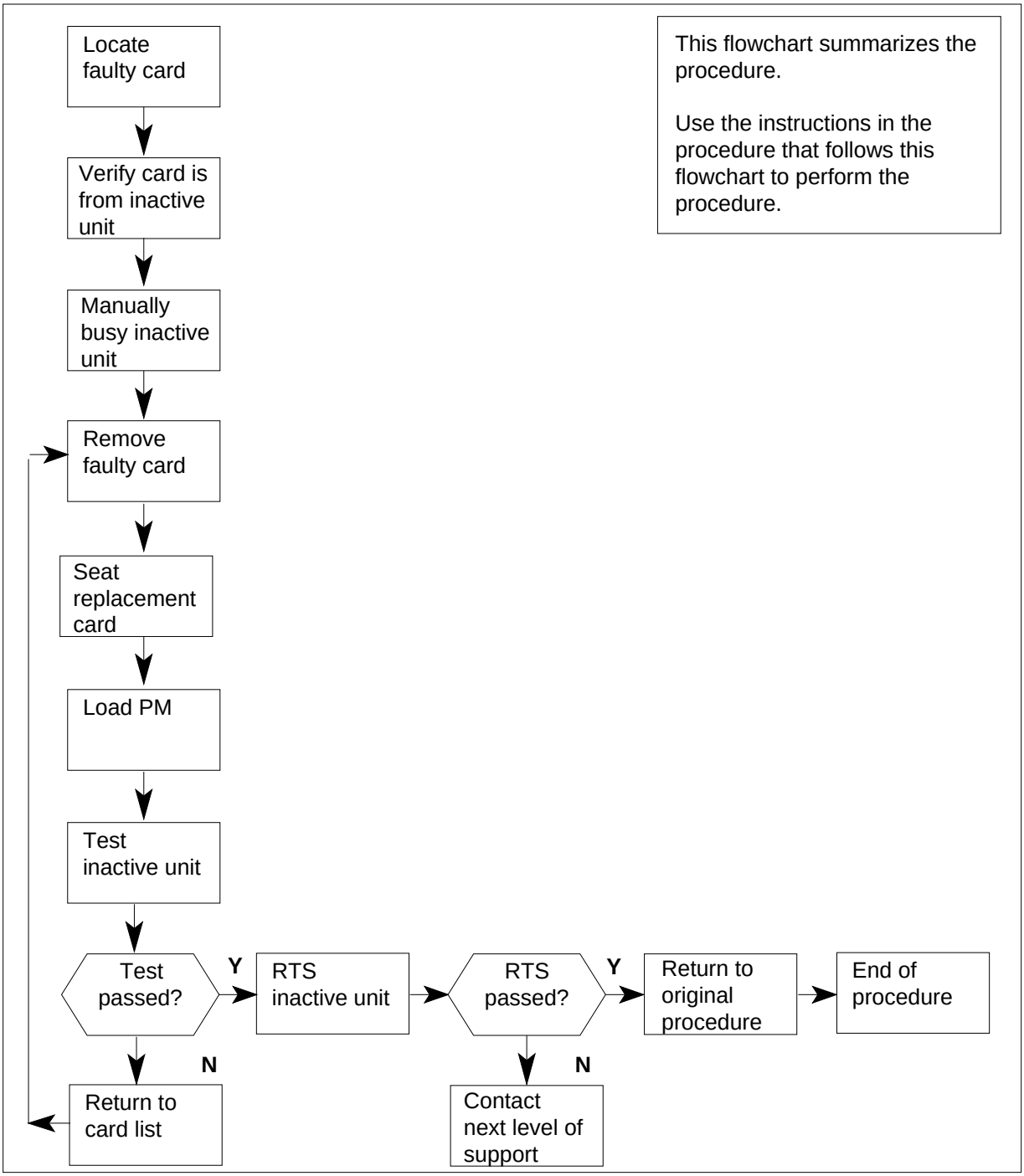
Note: Positions 03 and 25 are always provisioned.

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTMX77
in an MCRM-S RCC2 (continued)

Summary of card replacement procedure for an NTMX77 card in an MCRM-S RCC2



NTMX77 in an MCRM-S RCC2 (continued)

Replacing an NTMX77 in an MCRM-S RCC2

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the RCC2 by typing the following string:

```
> MAPCI;MTC;PM;POST RCC2 rcc2_no
```

and pressing the Enter key.

where

rcc2_no
is the number of the RCC2 to be posted

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .   1RCC2     .      .       .      .
RMM                SysB   ManB   OffL   CBsy     ISTb   InSv
 0 Quit   PM          0      0      2      0        2     25
 2 Post_  RCC2        0      0      0      0        1      1
 3 ListSet
 4        RCC2    0 InSv  Links_00S: CSide 1,Pside 1
 5 Trnsl  Unit0:    Inact InSv
 6 Tst    Unit1:    Act InSv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Determine from the MAP display if the card that is to be removed is on the inactive unit.

If faulty card is on	Do
active unit	Step 5
inactive unit	Step 6

5 Switch (SwAct) the processing activity to the inactive unit. To perform a SwAct, type the following command:

`> SWACT`

and pressing the Enter key.

Answer the prompt by typing *YES*.

At the RCC2 shelf

6 Put a sign on the active unit bearing the words *"Active unit - Do not touch."*

At the MAP terminal

7 Busy the inactive PM unit by typing the following string:

`> bsy unit rcc2_unit_no`

and pressing the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit (0 or 1)

NTMX77
in an MCRM-S RCC2 (continued)

At the RCC2 shelf

8

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

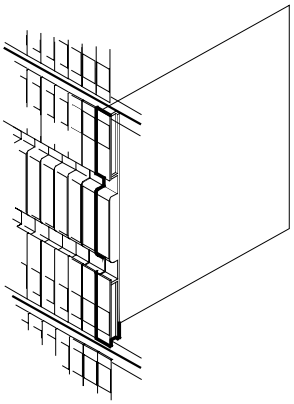
9 Power down the MX72 power converter by setting the POWER switch to the OFF position.

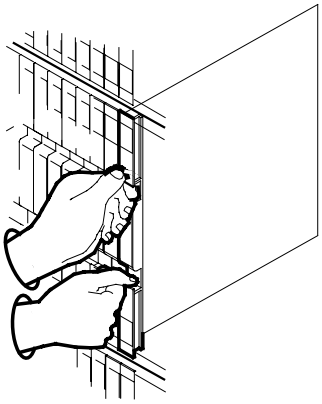
10

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

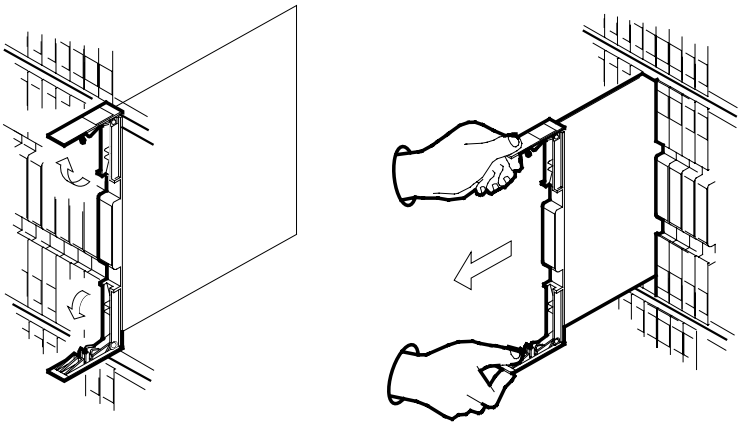
Unseat the MX73 card in slot 11 if working in unit 0 or in slot 17 if working in unit 1. Unseat the MX75 card in slot 10 if working in unit 0 or in slot 18 if working in unit 1.

11 Locate the card to be removed on the appropriate shelf as shown in the following figures.





12 Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

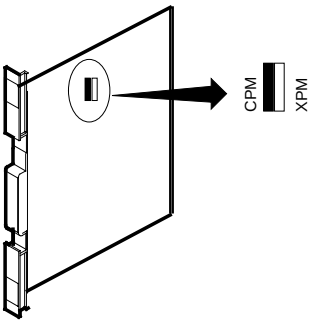


13 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

14

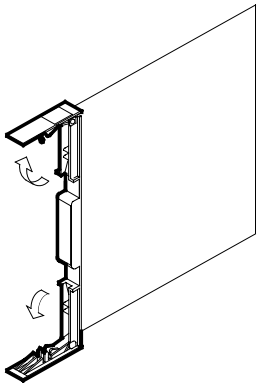
CAUTION
Ensure proper switch setting
During maintenance or upgrade activity, the switch setting on this card must be set for the correct application prior to inserting this card into the inactive unit. If the switch is not set correctly, then the active unit becomes SysB when the card is inserted.

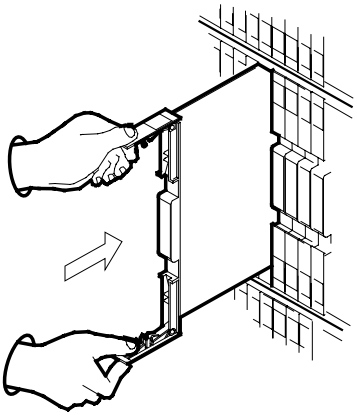
Set the S1 switch to CPM on the replacement card.



15 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

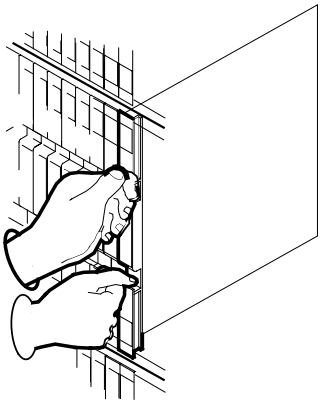
NTMX77
in an MCRM-S RCC2 (continued)





16 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

17 Close the locking levers.



18 Reseat the MX73 card in slot 11 if working in unit 0 or in slot 17 if working in unit 1. Reseat the MX75 card in slot 10 if working in unit 0 or in slot 18 if working in unit 1.

19 Power up the unit as follows:

- Ensure that the power converter (MX72) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.
- Set POWER switch to the ON position.

20 Use the following information to determine where to proceed.

If the FSP is equipped with	Do
fuses	Step 21
circuit breakers	Step 22

NTMX77
in an MCRM-S RCC2 (continued)

21 Press and hold the RESET button for one second. Both the converter FAIL LED and FRAME FAIL lamp on the frame supervisory panel (FSP) will be ON. Go to Step 23.

22 Press the RESET button while setting the circuit breaker to the ON position. Both the converter FAIL LED and FRAME FAIL lamp on the Frame Supervisory Panel (FSP) will be ON. Go to Step 23.

At the MAP terminal

23 Load the inactive RCC2 unit by typing the following string:

```
>loadpm unit rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit busied in Step 7.

24 Use the following information to determine where to proceed.

If load	Do
passed	Step 25
failed	Step 26

25 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 33
other	Step 26

26 Test the inactive unit by typing the following string:

```
> TST UNIT rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit loaded in Step 23

27 Use the following information to determine where to proceed.

If TST	Do
passed	Step 28
failed	Step 34

NTMX77 in an MCRM-S RCC2 (end)

28 Return the inactive RCC2 unit to service by typing the following string:

```
> RTS UNIT rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit tested in Step 26

29 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 30
failed	Step 34

30 Remove the sign from the active RCC2 unit.

31 Send any faulty cards for repair according to local procedure.

32 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 35.

33 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

34 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

35 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

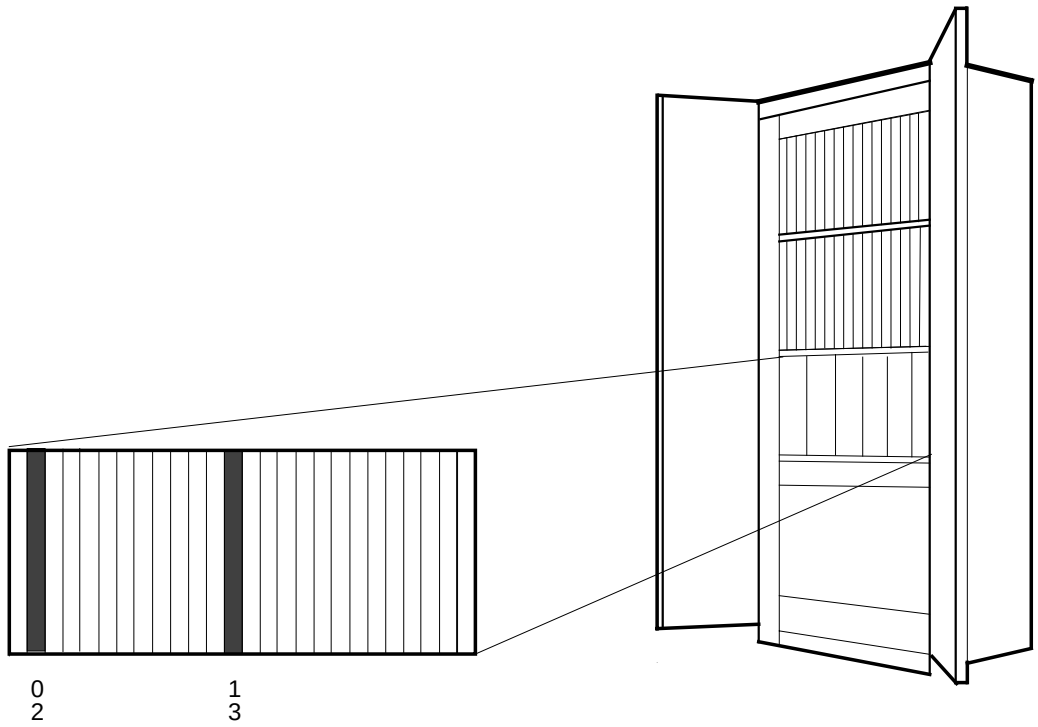
NTMX79 in an MCRM-S EXT

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NTMX79	AA	DS60 Extender	MCRM-S EXT

See the following figure for NTMX79 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



Note: Positions 02 and 13 are provisioned depending on the customer applications.

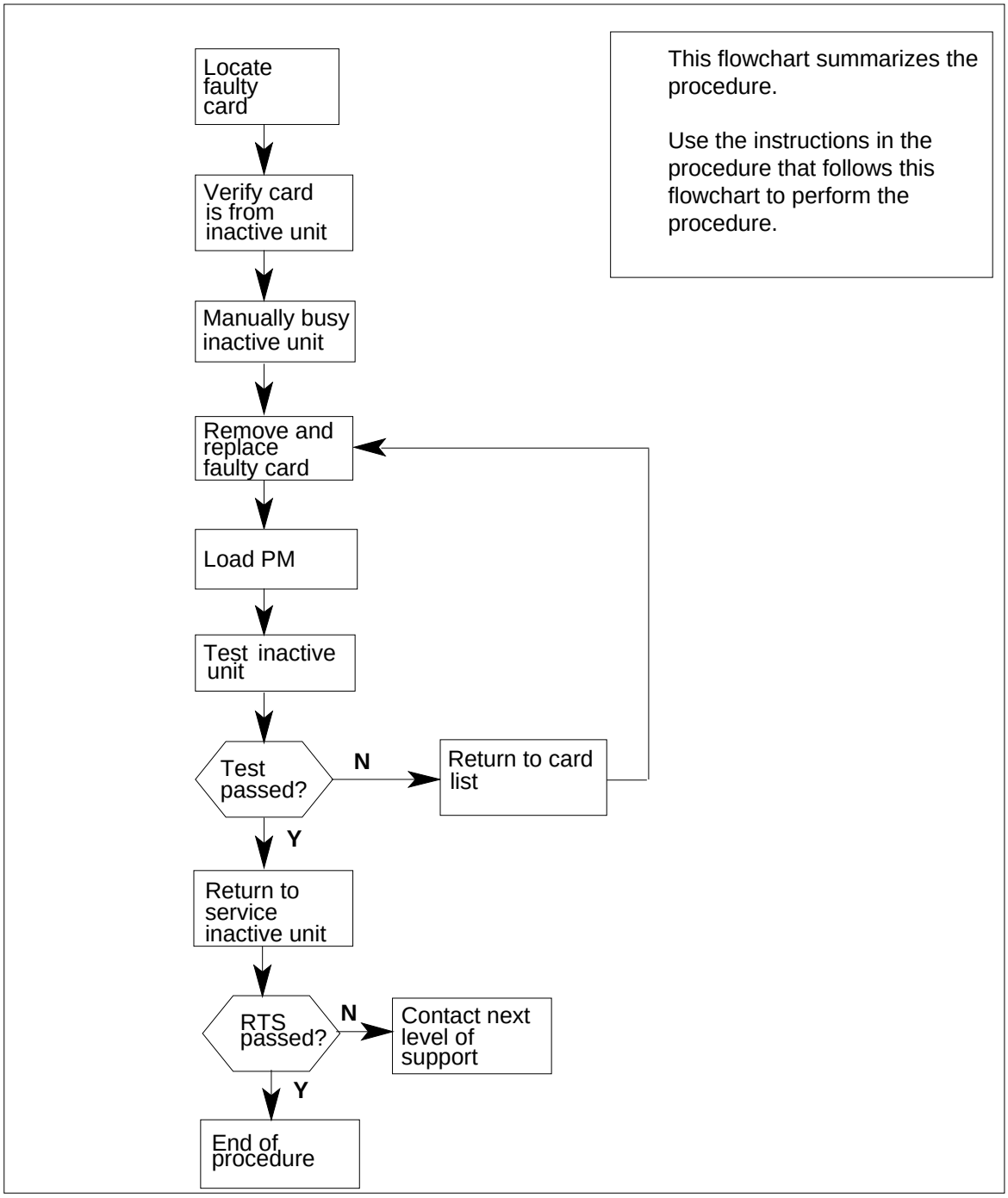
NTMX79
in an MCRM-S EXT (continued)

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTMX79
in an MCRM-S EXT (continued)

Summary of card replacement procedure for an NTMX79 card in an MCRM-S EXT



NTMX79 in an MCRM-S EXT (continued)

Replacing an NTMX79 in an MCRM-S EXT

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the RCC2 by typing the following string:

```
>MAPCI;MTC;PM;POST RCC2 rcc2_no
```

and pressing the Enter key.

where

rcc2_no
is the number of the RCC2 with the faulty card

4 Determine from the MAP display if the card that is to be removed is on the inactive unit.

If faulty card is on	Do
active unit	Step 5
inactive unit	Step 6

5 Switch (SwAct) the processing activity to the inactive unit. To perform a SwAct, type the following command:

```
> SWACT
```

and pressing the Enter key.

Answer the prompt by typing *YES*.

At the EXT shelf

6 Put a sign on the active unit bearing the words *"Active unit - Do not touch."*

At the MAP terminal

7 Busy the inactive PM unit by typing the following string:

```
> bsy unit unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the faulty RCC2 unit.

At the RCC2 shelf

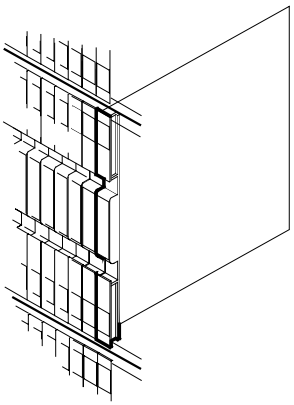
8

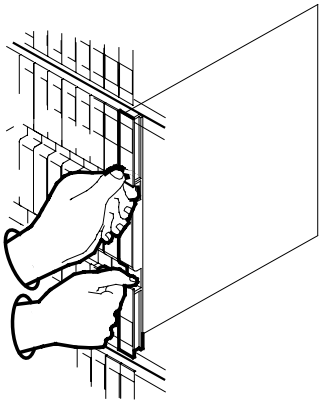
CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

9 Power down the NTMX79 card.

10 Locate the card to be removed on the appropriate shelf as shown in the following figures.



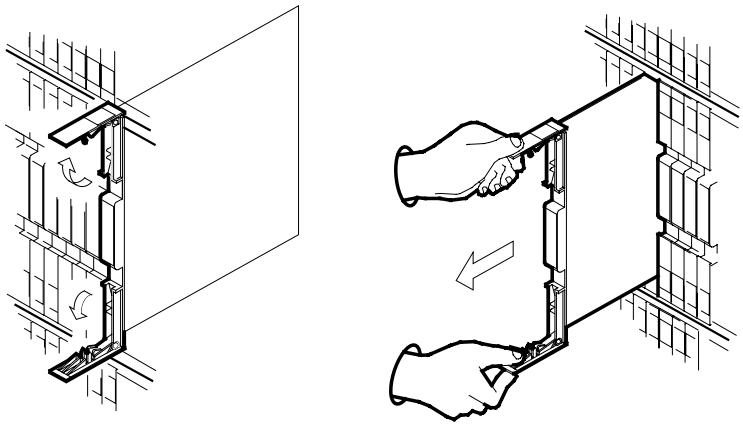


NTMX79
in an MCRM-S EXT (continued)

11

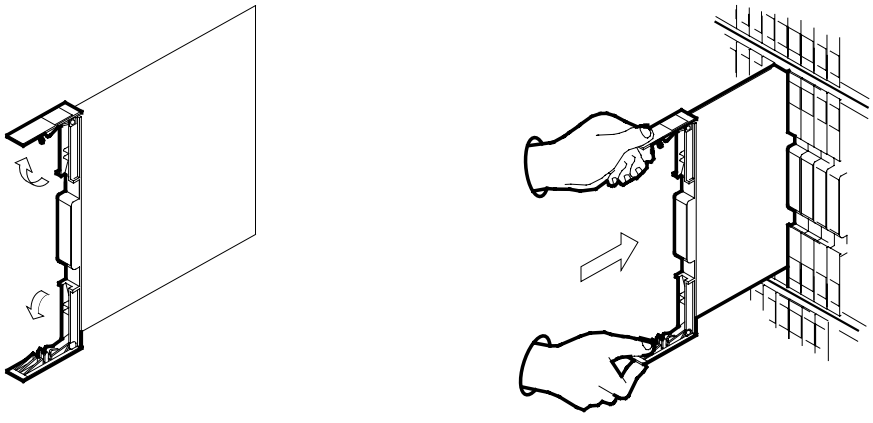
CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



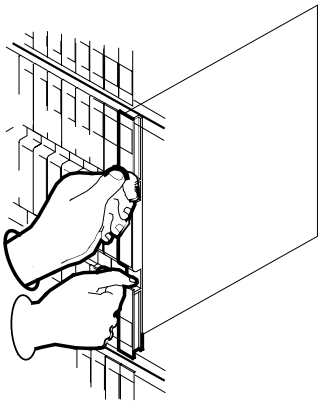
12 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

13 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.



14 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

15 Close the locking levers.



At the MAP terminal

16 Load the inactive RCC2 unit by typing the following string:

`>LOADPM UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the inactive EXT unit.

17 Use the following information to determine where to proceed.

If load	Do
passed	Step 18
failed	Step 27

18 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 26
other	Step 19

19 Test the INACTIVE unit by typing the following string:

`> TST UNIT unit_no`

and pressing the Enter key.

where

unit_no
is the number of the inactive EXT unit.

NTMX79 in an MCRM-S EXT (end)

20 Use the following information to determine where to proceed.

If TST	Do
passed	Step 21
failed	Step 26

21 Return the INACTIVE RCC2 unit to service by typing the following string:

```
> RTS UNIT unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the inactive EXT unit.

22 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 23
failed	Step 27

23 Remove the sign from the active RCC2 unit.

24 Send any faulty cards for repair according to local procedure.

25 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

Go to Step 28.

26 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

27 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

28 You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

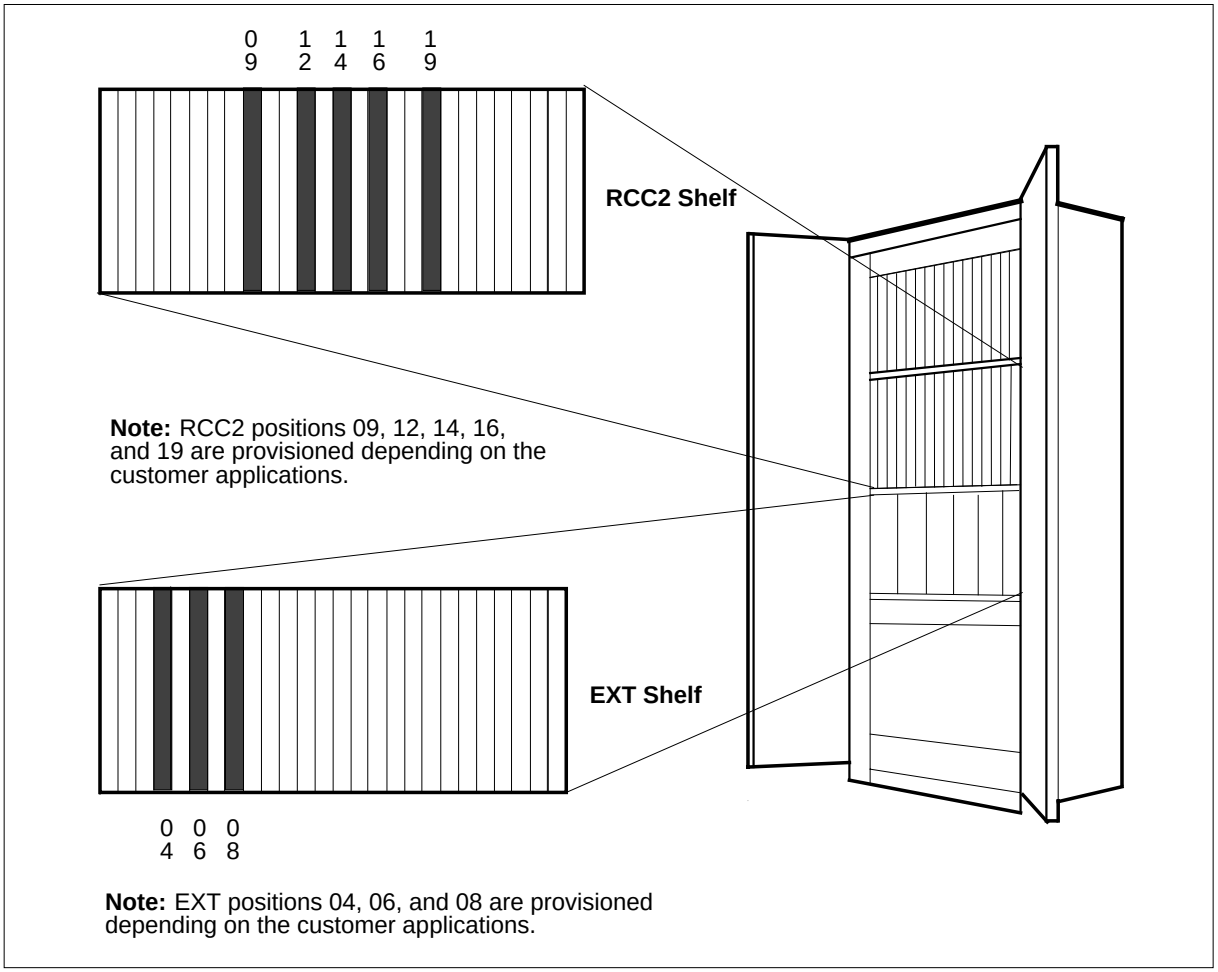
NTMX81 in an MCRM-S EXT or RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NTMX81	AA	Dual DS-1 Interface	MCRM-S EXT or RCC2

See the following figure for NTMX81 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



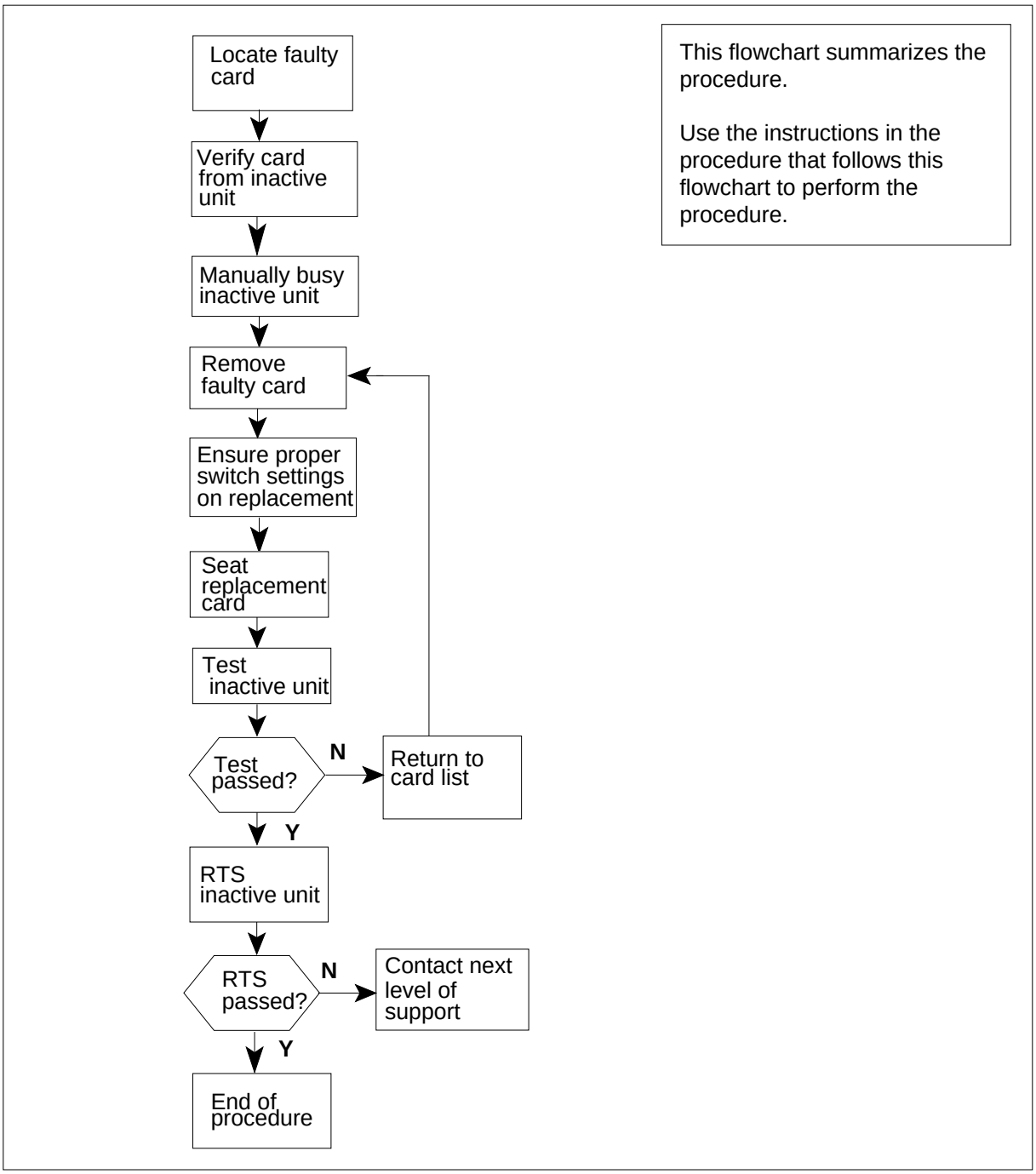
NTMX81
in an MCRM-S EXT or RCC2 (continued)

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTMX81
in an MCRM-S EXT or RCC2 (continued)

Summary of card replacement procedure for an NTMX81 card in an MCRM-S EXT or RCC2



NTMX81 in an MCRM-S EXT or RCC2 (continued)

Replacing an NTMX81 in an MCRM-S EXT or RCC2

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the Remote Cluster Controller 2 (RCC2) by typing the following string:

```
> MAPCI;MTC;PM;POST RCC2 rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit to be posted (0 or 1)

Example of a MAP response

NTMX81
in an MCRM-S EXT or RCC2 (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .   1RCC2     .      .       .      .
RMM                SysB   ManB   OffL   CBsy     ISTb    InSv
 0 Quit   PM          0      0      2      0        2      25
 2 Post_  RCC2        0      0      0      0        1       1
 3 ListSet
 4        RCC2   0  ISTb Links_00S: CSide 1,Pside 1
 5 Trnsl  Unit0:    Inact  InSv
 6 Tst    Unit1:    Act  InSv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Determine from the MAP display if the card that is to be removed is on the inactive unit.

If faulty card is on	Do
active unit	Step 5
inactive unit	Step 6

5 Switch (SwAct) the processing activity to the inactive unit. To perform a SwAct, type the following command:

> SWACT

and pressing the Enter key.

Answer the prompt by typing *YES*.

At the EXT shelf or RCC2 shelf

6 Put a sign on the active unit bearing the words *"Active unit - Do not touch."*

7 Display the C-side links associated with the DS-1 card by typing the following string:

> trnsl c

and pressing the Enter key.

Example of a MAP response

NTMX81
in an MCRM-S EXT or RCC2 (continued)

```
LINK 0    LTC  0    0;CAP     MS:STATUS OK   MSGCOND   OPN
LINK 1    LTC  0    1;CAP      S:STATUS SBsy
LINK 2    LTC  0    2;CAP     MS:STATUS OK   MSGCOND   OPN
LINK 3    LTC  0    3;CAP      S:STATUS OK
LINK 4    LTC  0    4;CAP      S:STATUS OK
LINK 5    LTC  0    5;CAP      S:STATUS SBsy
```

8 Use the following information to determine where to proceed.

If C-side links are	Do
faulty	Step 11
not faulty	Step 9

9 Display the P-side links associated with the DS-1 card by typing the following string:

`> trnslP`

and pressing the Enter key.

Example of a MAP response

```
LINK 0    RCC2 0    5         27;CAP    MS:STATUS OK   MSGCOND   OPN
LINK 1    RCC2 1    5         27;CAP    MS:STATUS SBsy MSGCOND   CLS
LINK 2    RCC2 0    7         47;CAP    MS:STATUS OK
LINK 3    RCC2 1    7         47;CAP    MS:STATUS OK
LINK 4    RCC2 0    5         50;CAP    MS:STATUS OK   MSGCOND   OPN
LINK 5    RCC2 1    5         50;CAP    MS:STATUS SBsy MSGCOND   CLS
```

10 Use the following information to determine where to proceed.

If P-side links are	Do
faulty	Step 13
not faulty	Step 36

11 Busy the inactive PM unit by typing the following string:

`> bsy unit rcc2_unit_no`

and pressing the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit (0 or 1)

12 Post the host PM by typing the following string:

`>POST host_pm host_pm_no`

and pressing the Enter key.

Allow 15 minutes for messaging to clear between the CC and the RCC2.

where

host_pm
is either a Line Group Controller (LGC) with or without ISDN ora Line Trunk Controller (LTC) with or without ISDN.

host_pm_no
is the number of either an LGC or LTC.

Example of a MAP response

NTMX81
in an MCRM-S EXT or RCC2 (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .   1RCC2     .      .       .      .
RMM                SysB   ManB   OffL   CBsy     ISTb    InSv
 0 Quit   PM          0      0      1      0        4      12
 2 Post_  LTC(I)      0      0      2      0        2       9
 3 ListSet
 4        LTC(I) 1  ISTb Links_00S: CSide 1,Pside 1
 5 Trnsl  Unit0:    Act  InSv
 6 Tst    Unit1:    Inact InSv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16
17 Perform
18
```

At the MAP terminal

13 Manual busy the links connected to the faulty card by typing the following string:

> *bsy link* link_no

and pressing the Enter key.

where

link_no
is the number of the links associated with the faulty MX81 card from Step 9.

Note: Each NTMX81 card has two links associated with it. Therefore, each link must be manually busied. Possible link number pairs are as follows: 0, 1; 2, 3; 4, 5; or 6, 7.

At the EXT or RCC2 shelf

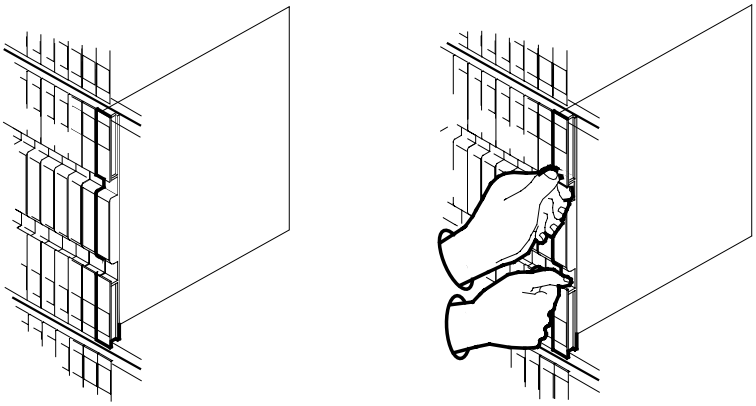
14

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

NTMX81
in an MCRM-S EXT or RCC2 (continued)

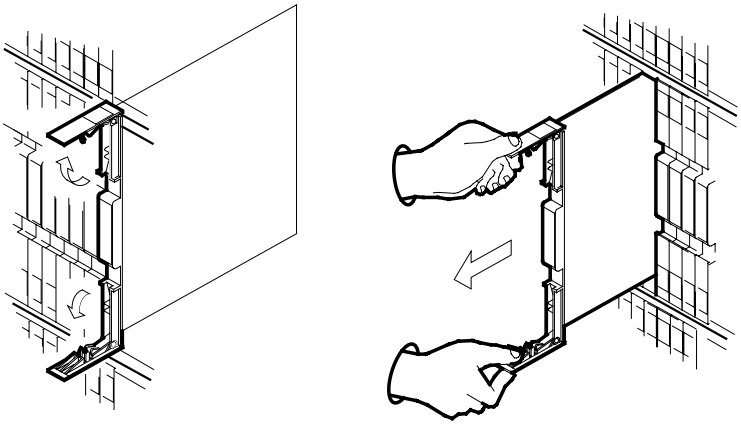
15 Locate the card to be removed on the appropriate shelf as shown in the following figures.



16

CAUTION
Equipment damage
When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

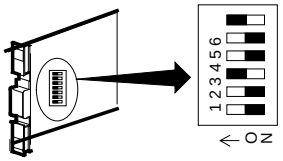


17 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

18 Set the DS-1 transmitter equalization switches according to the following information:

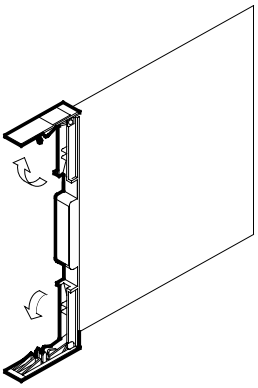
NTMX81
in an MCRM-S EXT or RCC2 (continued)

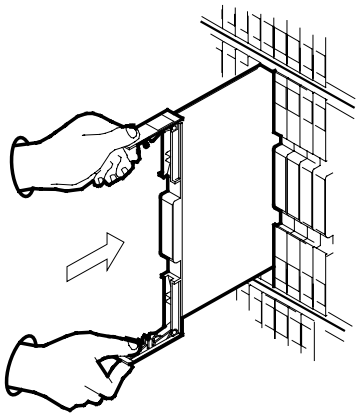
Distance to Cross-Connect (Feet)	LEN2 (S3/S6)	LEN1 (S2/S5)	LEN0 (S1/S4)
0-133	ON	OFF	OFF
133–266	OFF	ON	ON
266–399	OFF	ON	OFF
399–533	OFF	OFF	ON
533–655	OFF	OFF	OFF



Note: S1 – S3 belong to even port, and S4 – S6 belong to an odd port

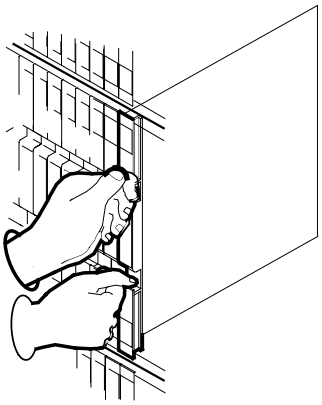
19 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.





20 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

21 Close the locking levers.



22 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 35
other	Step 23

At the MAP terminal

23 Return all busied network links to service by typing the following string:

>RTS LINK link_no

and pressing the Enter key.

where

link_no
is the number of the link man busied in Step 13.

This step must be performed for each link that is manually busied.

24 Use the following information to determine where to proceed.

If C-side links	Do
passed	Step 26
failed	Step 36

25 Use the following information to determine where to proceed.

If P-side links	Do
passed	Step 37
failed	Step 36

26 Post the inactive RCC2 in which the NTMX81 card is located by typing the following string:

> *post rcc2* rcc2_no

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit associated with the faulty card

27 Return the INACTIVE RCC2 unit to service by typing the following string:

> *RTS UNIT* rcc2_unit_no

and pressing the Enter key.

where

NTMX81
in an MCRM-S EXT or RCC2 (continued)

rcc2_unit_no
is the number of the RCC2 unit posted in Step 26.

28 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 29
failed	Step 36

29 Test the RCC2 by typing the following string:

```
> TST UNIT  rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit returned to service in Step 27

30 Use the following information to determine where to proceed.

If TST	Do
passed	Step 31
failed	Step 35

31 Return the inactive RCC2 unit to service by typing the following string:

```
> RTS UNIT unit_no
```

and pressing the Enter key.

where

unit_no
is the number of the inactive EXT unit.

32 Use the following information to determine where to proceed.

If	Do
If RTS	*Do*
passed	Step 33
failed	Step 36

33 Send any faulty cards for repair according to local procedure.

34 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

NTMX81
in an MCRM-S EXT or RCC2 (end)

Go to Step 37.

35 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

36 Obtain further assistance in replacing this card by contacting the personnel responsible for a higher level of support.

37 You have completed this procedure. Remove the sign from the active unit and return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NTMX83 in an MCRM-S EXT or RCC2

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Cardname	Shelf/frame name
NTMX83	AA	Filler Packet	MCRM-S EXT or RCC2

Since it is a filler card, a procedure to replace the NTMX83 card in a Meridian Cabinet Remote Module-SONET (MCRM-S) Extension (EXT) shelf or Remote Cluster Controller 2 (RCC2) is not necessary. See the following figure for NTMX83 card positions in either the MCRM-S EXT shelf or RCC2 shelf.

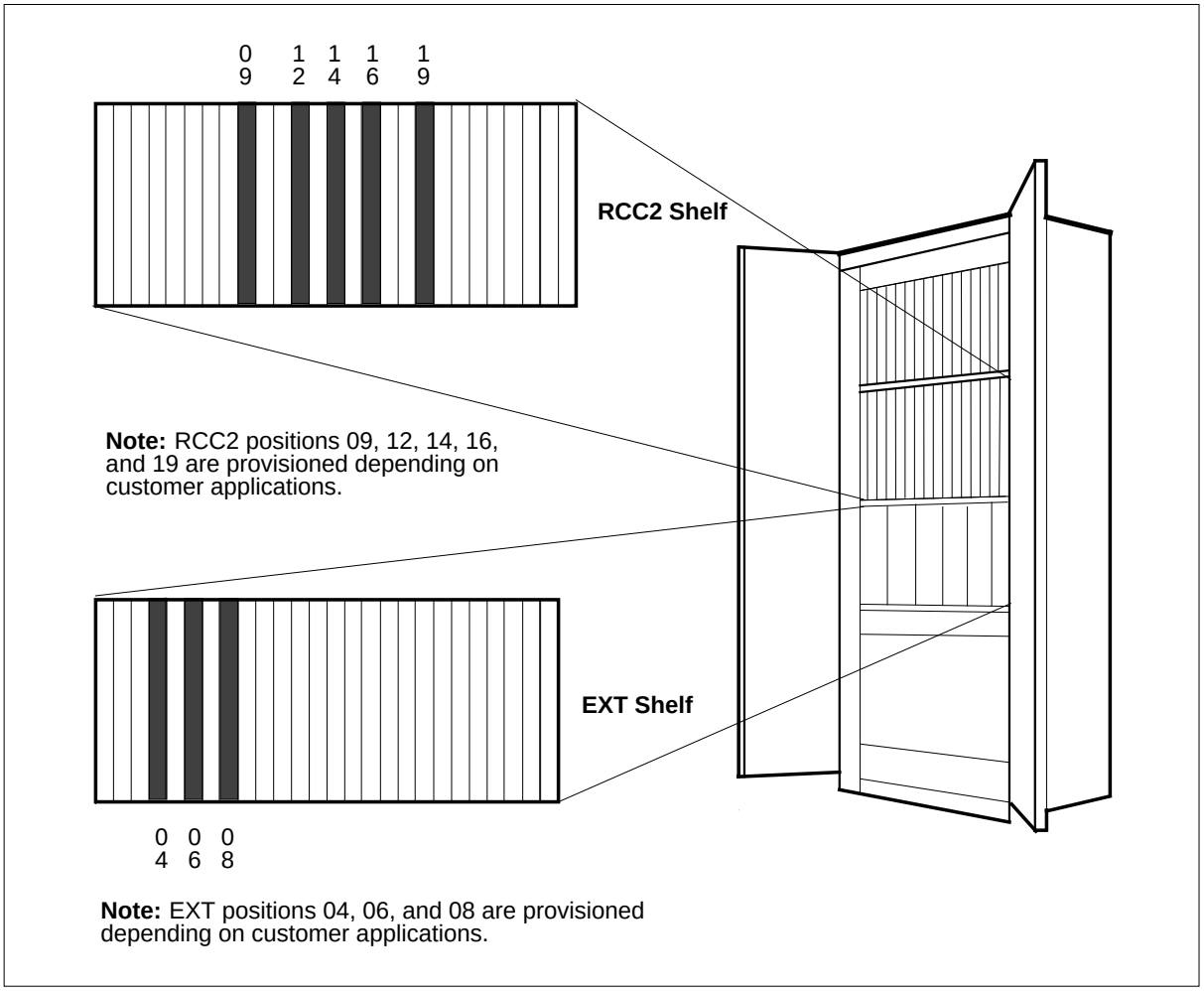
NTMX87
in an MCRM-S EXT or RCC2 shelf

Application

Use this procedure to replace the cards in the shelves or frames identified in the following table.

PEC	Suffixes	Cardname	Shelf/frame name
NTMX87	AA	Quad PCM carrier printed circuit pack	MCRM-S EXT or RCC2 shelf

See the following figure for NTMX87 card positions in the Meridian Cabinet Remote Module-SONET (MCRM-S) RMM.



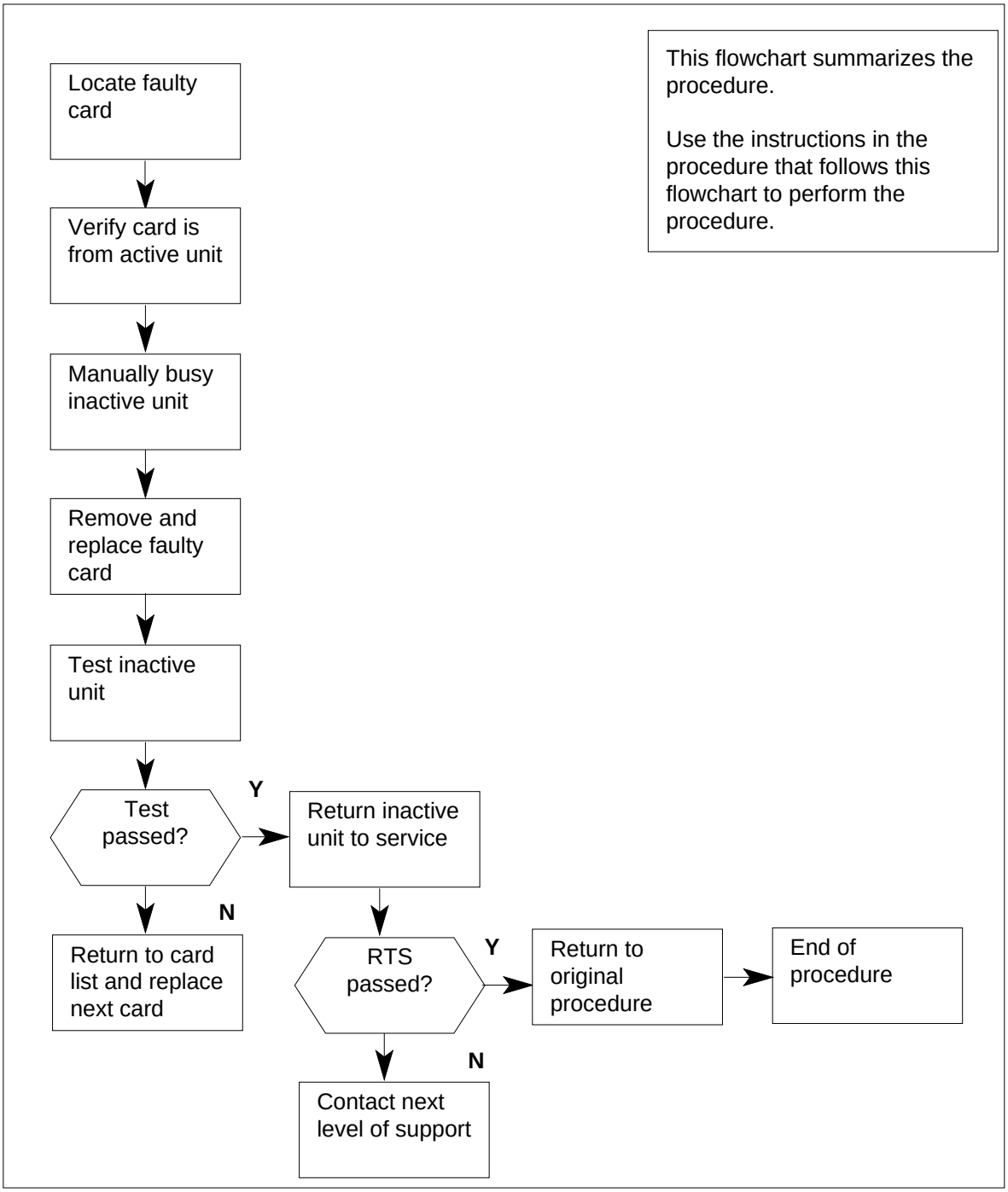
NTMX87
in an MCRM-S EXT or RCC2 shelf (continued)

Action

The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NTMX87
in an MCRM-S EXT or RCC2 shelf (continued)

Summary of card replacement procedure for an NTMX87 card in an MCRM-S EXT or RCC2 shelf



NTMX87 in an MCRM-S EXT or RCC2 shelf (continued)

Replacing an NTMX87 in an MCRM-S EXT or RCC2 shelf

At your current location

1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or have been directed to this procedure by your maintenance support group.

2

CAUTION
Loss of service
When replacing a card in the RCC2, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Ensure that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal

3 Set the MAP terminal to the peripheral module (PM) level and post the RCC2 by typing the following string:

```
> MAPCI;MTC;PM;POST RCC2 rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit to be posted (0 or 1)

Example of a MAP response

NTMX87
in an MCRM-S EXT or RCC2 shelf (continued)

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .   1RCC2     .      .       .      .
RMM                SysB   ManB   OffL   CBsy     ISTb   InSv
 0 Quit   PM          0      0      2      0        2     25
 2 Post_  RCC2        0      0      0      0        1      1
 3 ListSet
 4        RCC2   0  ISTb Links_00S: CSide 1,Pside 1
 5 Trnsl  Unit0:    Inact  InSv
 6 Tst    Unit1:    Act  InSv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

4 Determine from the MAP display if the card that is to be removed is on the inactive unit.

If faulty card is on	Do
active unit	Step 5
inactive unit	Step 6

5 Switch (SwAct) the processing activity to the inactive unit. To perform a SwAct, type the following command:

```
> SWACT
```

and pressing the Enter key.

Answer the prompt by typing *YES*.

At the EXT shelf RCE shelf

6 Put a sign on the active unit bearing the words *"Active unit - Do not touch."*

At the MAP terminal

7 Display the C-side links associated with the DS-1 card by typing the following string:

```
> trnsl  c
```

and pressing the Enter key.

Example of a MAP response

NTMX87
in an MCRM-S EXT or RCC2 shelf (continued)

```
LINK 0    LTC  0    0;CAP     MS:STATUS OK   MSGCOND   OPN
LINK 1    LTC  0    1;CAP      S:STATUS SBsy
LINK 2    LTC  0    2;CAP     MS:STATUS OK   MSGCOND   OPN
LINK 3    LTC  0    3;CAP      S:STATUS OK
LINK 4    LTC  0    4;CAP      S:STATUS OK
LINK 5    LTC  0    5;CAP      S:STATUS SBsy
```

8 Use the following information to determine where to proceed.

If C-side links are	Do
faulty	Step 11
not faulty	Step 9

9 Display the P-side links associated with the DS-1 card by typing the following string:

`> trnslP`

and pressing the Enter key.

Example of a MAP response

```
LINK 0    RCC2 0    5         27;CAP    MS:STATUS OK   MSGCOND   OPN
LINK 1    RCC2 1    5         27;CAP    MS:STATUS SBsy MSGCOND   CLS
LINK 2    RCC2 0    7         47;CAP    MS:STATUS OK
LINK 3    RCC2 1    7         47;CAP    MS:STATUS OK
LINK 4    RCC2 0    5         50;CAP    MS:STATUS OK   MSGCOND   OPN
LINK 5    RCC2 1    5         50;CAP    MS:STATUS SBsy MSGCOND   CLS
```

10 Use the following information to determine where to proceed.

If P-side links are	Do
faulty	Step 13
not faulty	Step 33

11 Busy the inactive PM unit by typing the following string:

`> bsy unit rcc2_unit_no`

and pressing the Enter key.

where

rcc2_unit_no
is the number of the inactive RCC2 unit (0 or 1)

12 Post the host PM by typing the following string:

`>POST host_pm host_pm_no`

and pressing the Enter key.

Allow 15 minutes for messaging to clear between the CC and the RCC2.

where

host_pm
is either a line group controller, a line group controller with ISDN, a line trunk controller, or a line trunk controller withISDN.

host_pm_no
is the number of either a line group controller, line groupcontroller with ISDN, a line trunk controller, or a line trunkcontroller with ISDN.

NTMX87
in an MCRM-S EXT or RCC2 shelf (continued)

Example of a MAP response

```
   CM     MS     IOD    Net    PM     CCS    Lns    Trks    Ext
    .      .      .      .   1RCC2     .      .       .      .
RMM                SysB   ManB   OffL   CBsy      ISTb    InSv
 0 Quit   PM          0      0      1      0         4      12
 2 Post_   LTC(I)     0      0      2      0         2       9
 3 ListSet
 4        LTC(I) 1  ISTb Links_00S: CSide 1,Pside 1
 5 Trnsl  Unit0: Act  InSv
 6 Tst    Unit1: Inact InSv
 7 Bsy
 8 Rts
 9 Offl
10 LoadPM
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16
17 Perform
18
```

At the MAP terminal

13 Manual busy the links connected to the faulty card by typing the following string:

`> bsy link link_no`

and pressing the Enter key.

where

link_no
is the number of the links associated with the faulty MX87 card.

Note: Each NTMX87 card has two links associated with it. Therefore, each link must be manually busied. Possible link number pairs are as follows: 0, 1; 2, 3; 4, 5; or 6, 7.

At the EXT or RCC2 shelf

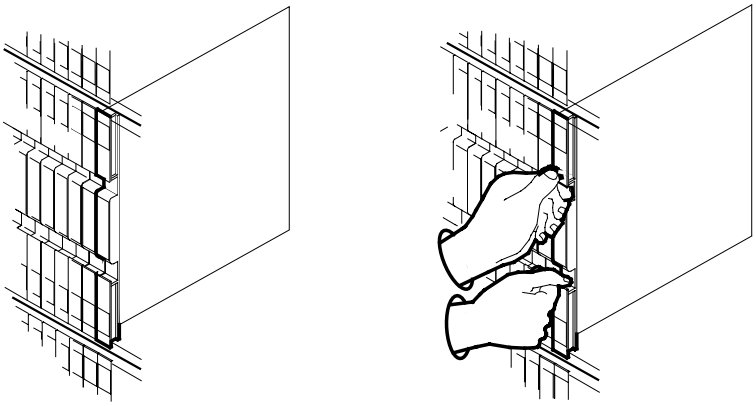
14

CAUTION
Static electricity damage
Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the left side of the frame supervisory panel of the RCC2. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

NTMX87
in an MCRM-S EXT or RCC2 shelf (continued)

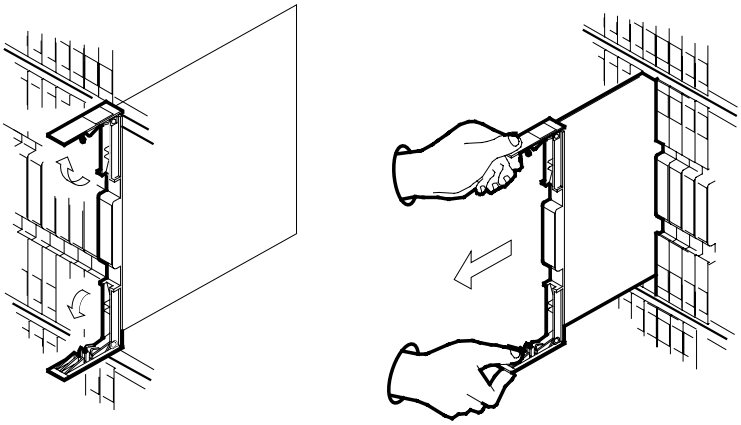
15 Locate the card to be removed on the appropriate shelf as shown in the following figures.



16

> **CAUTION**
> **Equipment damage**
> When inserting or removing a card, do not apply direct pressure to the components or force the cards into the slots.

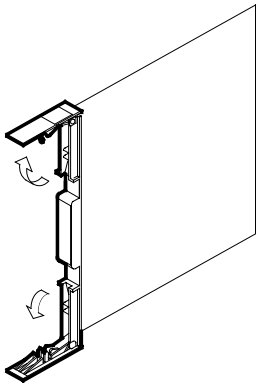
Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

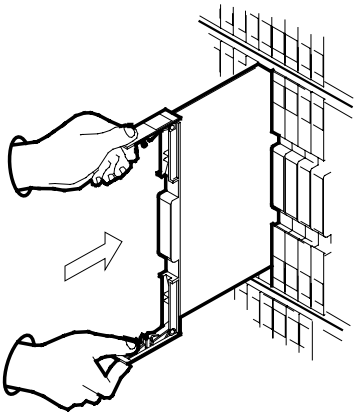


17 Ensure that the replacement card has the same PEC, including suffix, as the card you just removed.

18 Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.

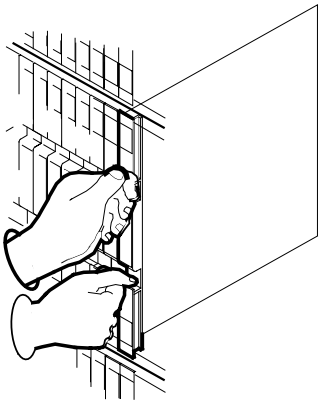
NTMX87
in an MCRM-S EXT or RCC2 shelf (continued)





19 Using your fingers or thumbs, push on the upper and lower edges of the faceplate to ensure that the card is fully seated in the shelf.

20 Close the locking levers.



21 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	Step 31
other	Step 22

At the MAP terminal

22 Return all busied network links to service by typing the following string:

`>RTS LINK link_no`

and pressing the Enter key.

where

link_no
is the number of the link man busied in Step 13.

This step must be performed for each link that is manually busied.

23 Use the following information to determine where to proceed.

If RTS	Do
for C-side links passed	Step 24
for C-side links failed	Step 32
for P-side links passed	Step 33
for P-side links failed	Step 32

24 Post the inactive RCC2 in which the NTMX87 card is located by typing the following string:

```
> post rcc2 rcc2_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit associated with the faulty card

25 Return the inactive RCC2 unit to service by typing the following string:

```
> RTS UNIT rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit posted in Step 24.

26 Use the following information to determine where to proceed.

If RTS	Do
passed	Step 27
failed	Step 32

27 Test the RCC2 by typing the following string:

```
> TST UNIT  rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no
is the number of the RCC2 unit returned to service in Step 27

NTMX87 in an MCRM-S EXT or RCC2 shelf (end)

28 Use the following information to determine where to proceed.

If TST	Do
passed	Step 33
failed	Step 32

29 Send any faulty cards for repair according to local procedure.

30 Record the following items in office records:

- date the card was replaced
- serial number of the card
- symptoms that prompted replacement of the card

31 Return to the alarm clearing procedure or other procedure you were following that directed you to this procedure. If necessary, go to the point where a faulty card list was produced, identify the next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

32 Obtain further assistance by contacting the next higher level of support.

33 You have completed this procedure. Remove the sign from the active unit and return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

Meridian SuperNode

Commercial Systems

Card Replacement Procedures

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 the 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 numerique de la classe A respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

YEAR 2000 READINESS DISCLOSURE

This information was originally published prior to October 19,1998. The foregoing legend applies retroactively in accordance with the U.S. Year 2000 Information and Readiness Act and on an ongoing basis.

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