

Critical Release Notice

Publication number: 297-8021-547
Publication release: Standard 17.04

The content of this customer NTP supports the
SN07 (DMS) software release.

Bookmarks used in this NTP highlight the changes between the NA015 baseline and the current release. The bookmarks provided are color-coded to identify release-specific content changes. NTP volumes that do not contain bookmarks indicate that the NA015 baseline remains unchanged and is valid for the current release.

Bookmark Color Legend

Black: Applies to content for the NA015 baseline that is valid through the current release.

Red: Applies to new or modified content for NA017 that is valid through the current release.

Blue: Applies to new or modified content for NA018 (SN05 DMS) that is valid through the current release.

Green: Applies to new or modified content for SN06 (DMS) that is valid through the current release.

Purple: Applies to new or modified content for SN07 (DMS) that is valid through the current release.

Attention!

Adobe® Acrobat® Reader™ 5.0 or higher is required to view bookmarks in color.

Publication History

September 2004

Standard release 17.04 for software release SN07 (DMS). This release is current for the SN07 (DMS) software release, although no changes have been made for SN07 (DMS) features.

Volume 2

Modified procedure - Bus interface cards in an LCD

Modified procedure - NTB71 in an LCME

Modified procedure - NT9X30 in an LPP LIS

Volume 3

Modified procedure - NT2X70 in an XPM

Volumes 5

All of the changes below are due to CR Q00855532:

Modified procedure - NT6X40 in an SMA

Modified procedure - NT6X40 in an SMA-MVI-20

Modified procedure - NT6X40 in an SMA2

Modified procedure - NT6X40 in an SMS

Modified procedure - NT6X40 in an SMU

March 2004

Standard release 17.03 for software release SN06 (DMS). Updates made for this release are shown below:

Volume 1

Modified card replacement procedure: Power converter cards in a SuperNode SE 16k ENET - Card NT9X30AB is Manufacture Discontinued and is replaced by new card NT9X30AC (Note - there is a bookmark for each changed reference).

Volume 2

No changes

Volume 3

Modified card replacement procedure: Power converter cards in trunk and service modules.

Volumes 4 - 7

No changes

September 2003

Standard release 17.02 for software release SN06 (DMS). Updates made for this release are shown below:

Volume 1

Modified card replacement procedure: Power converter cards in a Supernode SE CM/SLM.

Volume 2

Modified card replacement procedure: NT6X30 in LCE-type frames.

Volumes 3 - 7

No changes

June 2003

Preliminary release 17.01 for software release SN06 (DMS). Updates for this release are shown below:

Volume 1

No changes

Volume 2

No changes

Volume 3

Added new card replacement procedure: SPM NTLX99BA STM-1 for DMS Spectrum Peripheral Module.

Volumes 4 - 7

No changes

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DMS-100 Family

North American DMS-100

Card Replacement Procedures

Volume 5 of 7

LET0015 and up Standard 14.02 May 2001

DMS-100 Family

North American DMS-100

Card Replacement Procedures

Volume 5 of 7

Publication number: 297-8021-547

Product release: LET0015 and up

Document release: Standard 14.02

Date: May 2001

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1 XPM card replacement procedures (continued)

This chapter provides card replacement procedures for XMS-based peripheral modules (XPM).

NT6X40 in an SMA

Application

Use this procedure to replace an NT6X40 card in a Subscriber Carrier Module-100 Access (SMA) as identified in the following table.

ATTENTION

Replacement restrictions apply to certain versions of the NT6X40 card. Carefully read the caution and note following the equipment chart before removing or installing any cards.

PEC	Suffixes	Name
NT6X40	AA, AC, AD	DS30 C-side interface card
NT6X40	CA, FA, FB, FC	DS512 link controller card
NT6X40	DA, GA	DS512 link paddle board



WARNING

Possible service disruption or loss of diagnostic functionality when installing or replacing NT6X40 cards versions AA, AC, AD, CA, DA, FA, FB, FC or GA

NT6X40AA, AC, AD, CA, DA, FA, FB, FC or GA cards must not be mismatched with other versions between the two units of an XPM if table LTCINV is datafilled with interface card types of NT6X40AD or NT6X40FB. For example, you cannot have an AC version of the card in unit 0 and an AD version in unit 1. A PM777 log is generated citing the mismatch and the XPM is put in an ISTb state. For more information read the following notes.

Note: The NT6X40AD, NT6X40FB, and NT6X40FC cards provide enhanced diagnostic capabilities. If table LTCINV datafill is set to the NT6X40AC or NT6X40FA version of the card, cards can be mismatched but the new diagnostics capabilities will not be initiated. The CM will treat the interface as NT6X40AC/NT6X40FA regardless of the card installed.

NT6X40
in an SMA (continued)

For more information see the section on datafilling table LTCINV in the data schema section of the *Translations Guide*.

Common procedures

The following common procedures are referenced:

- “Locating a faulty card in an SMA”
- “Manually busying SMA C-side links”
- replacing a card
- returning a card

Do not go to a common procedure unless directed to do so in the step-action procedure.

Action

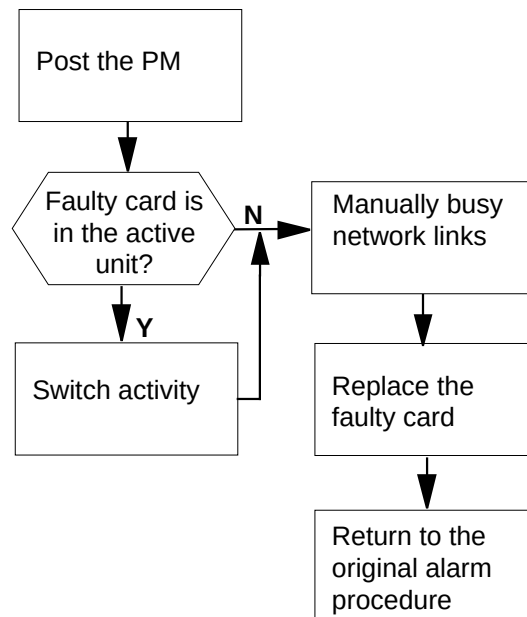
The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT6X40 in an SMA (continued)

Summary of Replacing NT6X40 SMA

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.



NT6X40 in an SMA (continued)

Replacing an NT6X40 SMA

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."

4



CAUTION

Loss of service

When replacing a card in the SMA, ensure the unit in which you are replacing the card is *inactive* and the mate unit is *active*.

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

At the MAP terminal

- 5 Access the peripheral module (PM) level of the MAP display and post the SMA with the faulty card by typing

```
>MAPCI;MTC;PM;POST SMA sma_no
```

and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response:

```
SMA   SysB   ManB   Offl   CBsy   ISTb   InSv
PM      3      0      1      0      2      13
SMA      0      0      0      0      1      7
```

```
SMA 0 ISTb Links_00S: CSide 0, PSide 0
Unit0: Act InSv
Unit1: Inact ISTb
```

NT6X40 in an SMA (continued)

6	Determine the state and activity of the XPM unit in which the card you replacing is provisioned.
If the state of the PM unit is	
ISTb, InSv, SysB, or CBSy, and active	
step 7	
ISTb, InSv, SysB, or CBSy, and inactive	
step 11	
ManB	
step 11	
OffL	
step 37	
7	From the MAP display, determine the state of the mate PM unit.
If the SMA unit is	
ISTb or InSv	
step 8	
any other state	
step 40	
8	Switch activity by typing >SWACT and pressing the Enter key. A confirmation prompt for the SWACT command is displayed at the MAP terminal.
If SWACT	
can continue at this time	
step 9	
cannot continue at this time	
step 42	
9	Confirm the command by typing >YES and pressing the Enter key. Note: A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both PM units before proceeding to the next step.
If the MAP response is	
SWACT passed	
step 11	

NT6X40 in an SMA (continued)

	If the MAP response is	Do
	SWACT failed Rea- son: XPM SWACTback	step 10
	SWACT refused by SWACT Controller	step 10
- 10** The inactive unit could not establish two-way communication with the central control (CC) and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit.
Go to step 40.
- 11** A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both PM units before proceeding to the next step.
- 12** Manually busy all C-side links associated with the inactive PM unit you are working on using the procedure "Manually busying SMA C-side links" in this document. When you have completed the procedure, return to this point.

At the equipment frame

- 13** Hang a sign on the active unit bearing the words: *Active unit-Do not touch*. This sign should not be attached by magnets or tape.
- 14** Determine the suffix of the faulty card.

If you are replacing an	Do
DA, GA	step 15
AA, AC, AD, CA, FA, FB, or FC	step 28

At the front of the shelf

15



DANGER

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Unseat the NT6X40 card in the inactive unit.

NT6X40 in an SMA (continued)

At the backplane of the shelf

16



DANGER

Risk of electrocution

Voltage is present on the backplane. Remove all jewelry before continuing with this procedure. Do not touch pins or terminals except as instructed.

Locate the circuit card to be replaced.

Note: NT6X40 circuit cards are located in slot 22.

17

Label each connector to the NT6X40 card.

18



DANGER

Avoid contaminating the fiber tip surface

Do not touch the tip of the fiber. Dirt or oil from the skin transferred to the fiber tip surface degrades fiber performance.



DANGER

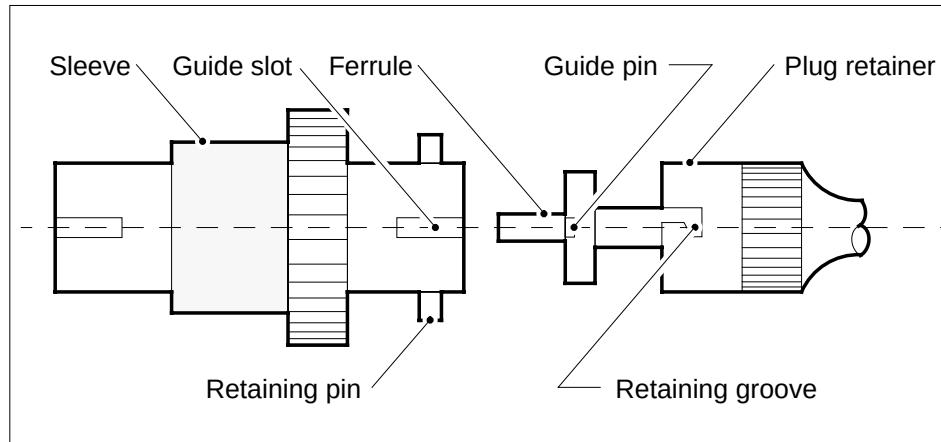
Fiber cable may become damaged

Take care when handling fiber cables. Do not crimp or bend fiber cables to a radius of less than 25 mm (1 in.).

Disconnect the fiber optic cables by performing the following steps:

- a Twist the plug retainer to unlock the retaining pin from the retaining groove
- b Rotate the plug retainer so the retaining pin enters the guide slot.
- c Gently pull on the plug retainers, moving the guide pin along the slot to remove the ferrule from the sleeve.
- d Fit dust caps to the open ends of the fiber links.

NT6X40 in an SMA (continued)



19

**DANGER****Protect backplane pins**

Do not allow screws to drop onto or touch the backplane pins. When removing and replacing the screws for the card, the backplane pins above and below must be protected to prevent shorting out. Use of a magnetic screw or nut driver is recommended.

Protect exposed backplane pins in one of the following ways:

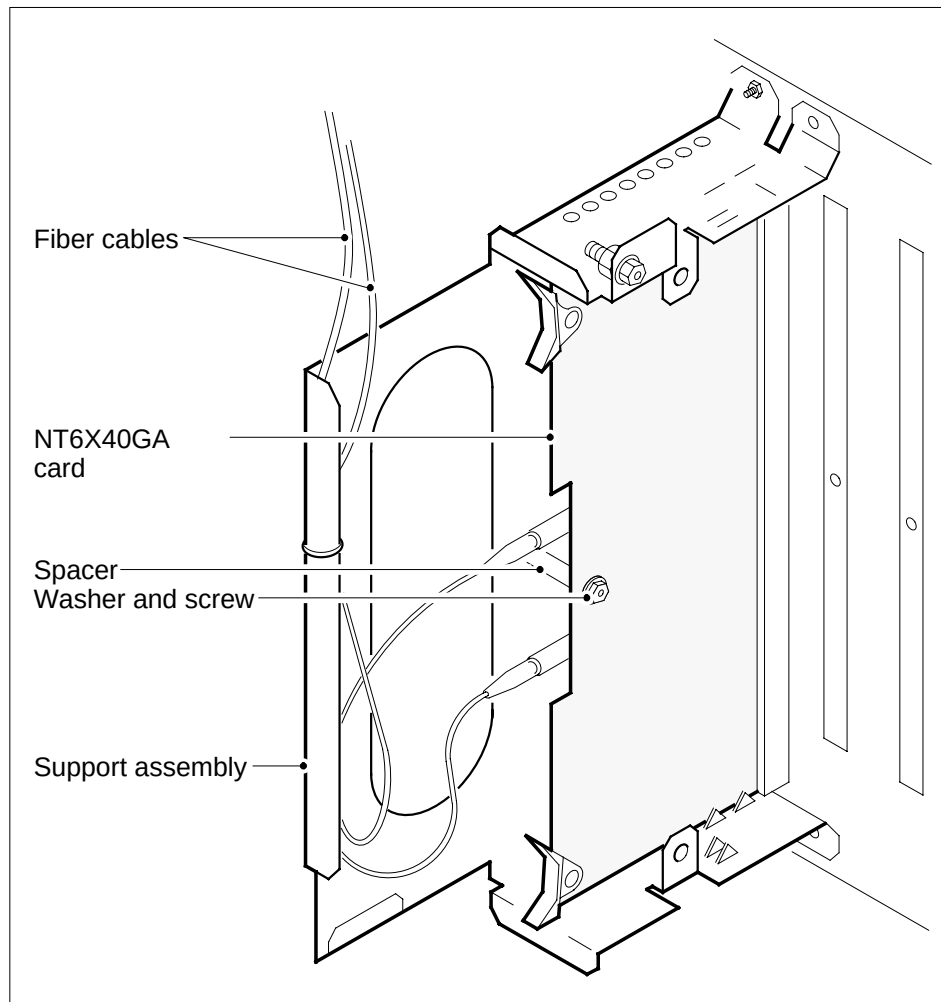
- Wrap electrical tape around a group of pins. Do not bend the pins.
- Cover the pins with NOMEX paper.

20

Remove the screw that holds the card to the support assembly by performing the following steps:

- a** Locate the screw positioned half-way down the outer edge of the card.
- b** Remove the washer holding the screw in place.
- c** Remove the screw and the spacer located between the card and the support assembly.

NT6X40 in an SMA (continued)



- 21 Using the levers located at the top and bottom of the 6X40 card, remove the card from the support assembly by firmly pulling horizontally until the connector pin socket on the card has cleared the connector pins on the backplane.
- 22 Place the card just removed in an electrostatic discharge protective container.
Note: If the card you are replacing has switches, ensure the switches on the replacement card have the same settings.
- 23 Line up the replacement card with the slots in the support assembly.
- 24 Using the levers located at the top and bottom of the 6X40 card, firmly press the connector pin socket on the card onto the connector pins on the backplane.
- 25 Secure the card to the support assembly by performing the following steps:

NT6X40 in an SMA (continued)

- a Locate the screw hole positioned half-way down the outer edge of the card.
 - b Position the spacer at the screw hole between the card and the support assembly.
 - c Insert the screw, moving it in the direction of the support assembly, through the spacer to the outer surface of the support assembly.
 - d Fasten the washer to hold the screw in place.
- 26** Reconnect the fiber optic cables by performing the following steps. See the illustration in step 18.
- a Remove the dust caps from the ends of the fiber links.
 - b Gently insert the ferrule into the sleeve so the guide pin enters the guide slot.
 - c Rotate the plug retainer so the retaining pin enters the retaining groove.
 - d Push the connectors together and twist the plug retainer to lock the retaining pin into the retaining groove.

At the front of the shelf

27



DANGER

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Reseat the NT6X40 card unseated in step 15. Go to step 29.

- 28** Perform the common replacing a card procedure in this document. When you have completed the procedure, return to this point.

At the MAP terminal

- 29** The next action depends on the type of network in the office.

If you are working on	Do
JNET	step 30
ENET	step 32

- 30** Return to service one of the network links by typing
>RTS plane_no link_no
 and pressing the Enter key.
where

NT6X40 in an SMA (continued)

plane_no

is the number of the plane (0 or 1) for the link

link_no

is the link number (0 to 63)

If the link	Do

returned to service and there are more manual-busy links	step 31

returned to service and there are no more manual-busy links	step 33

did not return to service	step 40

31 Repeat step 30 for each manually busy C-side link. When you have successfully returned all C-side links to service, go to step 33.

32 Return the network link to service by typing

>RTS plane_no LINK link_no

and pressing the Enter key.

where

plane_no

is the number of the plane (0 or 1) for the link

link_no

is the link number (0 to 3)

Example of a MAP response:

Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 submitted.Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 passed.

If the link	Do

returned to service	step 33

did not return to service	step 40

33 Post the SMA you are working on by typing

>PM;POST SMA sma_no

and pressing the Enter key.

where

sma_no

is the SMA number (0 to 255)

34 Determine the status of the XPM unit containing the NT6X40 circuit card you replaced by typing

>QUERYPM

and pressing the Enter key.

NT6X40 in an SMA (end)

PM Type: SMA PM No.: 0 PM Int. No.:11 Node_No.: 192
 PMs Equipped: 139 Loadname: XSC07BH
 WARM SWACT is supported and available.
 SMA 0 is included in the REX schedule.
 REX on SMS 0 has not been performed.
 Node Status: {OK, FALSE}
 Unit 0 Act, Status: {OK, FALSE}
 Unit 1 Inact, Status: {OK, FALSE}
 Site Flr RPos Bay_id Shf Description Slot EqPEC
 HOST 01 E31 LTE 01 18 SMA : 000 6X02AA

	If the inactive unit status is	Do
	InSv	step 35
	anything else	step 40
35	The next action depends on your reason for performing this procedure.	
	If you were	Do
	directed to this procedure from a maintenance procedure	step 36
	not directed to this procedure from a maintenance procedure	step 39
36	Return to the maintenance procedure that sent you to this procedure and continue as directed.	
37	Consult office personnel to determine why the component is offline. Continue as directed by office personnel.	
38	Remove the sign from the active SMA unit.	
39	Go to the common returning a card procedure in this document. Go to step 41.	
40	For further assistance, contact the personnel responsible for the next level of support.	
41	You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.	
42	For further assistance with switch of activity, contact the personnel responsible for the next level of support.	
	Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.	

NT6X40 in an SMA-MVI-20

Application

Use this procedure to replace an NT6X40 card in a Subscriber Carrier Module-100 Access (SMA) as identified in the following table.

ATTENTION

Replacement restrictions apply to certain versions of the NT6X40 card. Carefully read the caution and note following the equipment chart before removing or installing any cards.

PEC	Suffixes	Name
NT6X40	AA, AC, AD	DS30 C-side interface card
NT6X40	CA, FA, FB, FC	DS512 link controller card
NT6X40	DA, GA	DS512 link paddle board



WARNING

Possible service disruption or loss of diagnostic functionality when installing or replacing NT6X40 cards versions AA, AC, AD, CA, DA, FA, FB, FC or GA
NT6X40AA, AC, AD, CA, DA, FA, FB, FC or GA cards must not be mismatched with other versions between the two units of an XPM if table LTCINV is datafilled with interface card types of NT6X40AD or NT6X40FB. For example, you cannot have an AC version of the card in unit 0 and an AD version in unit 1. A PM777 log is generated citing the mismatch and the XPM is put in an ISTb state. For more information read the following notes.

Note: The NT6X40AD, NT6X40FB, and NT6X40FC cards provide enhanced diagnostic capabilities. If table LTCINV datafill is set to the NT6X40AC or NT6X40FA version of the card, cards can be mismatched but the new diagnostics capabilities will not be initiated. The CM will treat the interface as NT6X40AC/NT6X40FA regardless of the card installed.

NT6X40 **in an SMA-MVI-20** (continued)

For more information see the section on datafilling table LTCINV in the data schema section of the *Translations Guide*.

Common procedures

The following common procedures are referenced:

- “Locating a faulty card in an SMA”
- “Manually busying SMA C-side links”
- replacing a card
- returning a card

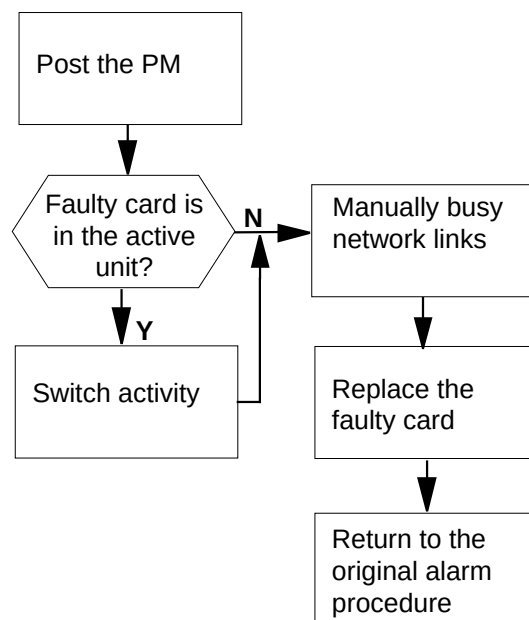
Do not go to a common procedure unless directed to do so in the step-action procedure.

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.

NT6X40 in an SMA-MVI-20 (continued)

Summary of Replacing NT6X40 SMA



This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

NT6X40 in an SMA-MVI-20 (continued)

Replacing an NT6X40 SMA

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."

4



CAUTION

Loss of service

When replacing a card in the SMA, ensure the unit in which you are replacing the card is *inactive* and the mate unit is *active*.

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

At the MAP terminal

- 5 Access the peripheral module (PM) level of the MAP display and post the SMA with the faulty card by typing

```
>MAPCI;MTC;PM;POST SMA sma_no
```

and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response:

```
SMA   SysB   ManB   Offl   CBsy   ISTb   InSv
PM      3      0      1      0      2      13
SMA      0      0      0      0      1      7
```

```
SMA 0 ISTb Links_00S: CSide 0, PSide 0
Unit0: Act InSv
Unit1: Inact ISTb
```

NT6X40

in an SMA-MVI-20 (continued)

6	Determine the state and activity of the XPM unit in which the card you replacing is provisioned.										
	<table border="1"> <tr> <th>If the state of the PM unit is</th> <th>Do</th> </tr> <tr> <td>ISTb, InSv, SysB, or CBSy, and active</td> <td>step 7</td> </tr> <tr> <td>ISTb, InSv, SysB, or CBSy, and inactive</td> <td>step 12</td> </tr> <tr> <td>ManB</td> <td>step 12</td> </tr> <tr> <td>OffL</td> <td>step 38</td> </tr> </table>	If the state of the PM unit is	Do	ISTb, InSv, SysB, or CBSy, and active	step 7	ISTb, InSv, SysB, or CBSy, and inactive	step 12	ManB	step 12	OffL	step 38
If the state of the PM unit is	Do										
ISTb, InSv, SysB, or CBSy, and active	step 7										
ISTb, InSv, SysB, or CBSy, and inactive	step 12										
ManB	step 12										
OffL	step 38										
7	From the MAP display, determine the state of the mate PM unit.										
	<table border="1"> <tr> <th>If the SMA unit is</th> <th>Do</th> </tr> <tr> <td>ISTb or InSv</td> <td>step 8</td> </tr> <tr> <td>any other state</td> <td>step 41</td> </tr> </table>	If the SMA unit is	Do	ISTb or InSv	step 8	any other state	step 41				
If the SMA unit is	Do										
ISTb or InSv	step 8										
any other state	step 41										
8	Switch activity by typing >SWACT and pressing the Enter key. A confirmation prompt for the SWACT command is displayed at the MAP terminal.										
	<table border="1"> <tr> <th>If SWACT</th> <th>Do</th> </tr> <tr> <td>cannot continue at this time</td> <td>step 9</td> </tr> <tr> <td>can continue at this time</td> <td>step 10</td> </tr> </table>	If SWACT	Do	cannot continue at this time	step 9	can continue at this time	step 10				
If SWACT	Do										
cannot continue at this time	step 9										
can continue at this time	step 10										
9	Reject the prompt to SWACT of the units by typing >NO and pressing the Enter key. The system discontinues the SWACT. Return to step 8 during a period of low traffic.										
10	Confirm the command by typing >YES and pressing the Enter key. Note: A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag										

NT6X40 in an SMA-MVI-20 (continued)

disappears from the status lines for both PM units before proceeding to the next step.

If the MAP response is	Do
SWACT passed	step 12
SWACT failed Rea- son: XPM SWACTback	step 11
SWACT refused by SWACT Controller	step 11

- 11** The inactive unit could not establish two-way communication with the central control (CC) and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit.

Go to step 41.

- 12** A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both PM units before proceeding to the next step.
- 13** Manually busy all C-side links associated with the inactive PM unit you are working on using the procedure "Manually busy SMA C-side links" in this document. When you have completed the procedure, return to this point.

At the equipment frame

- 14** Hang a sign on the active unit bearing the words: *Active unit-Do not touch*. This sign should not be attached by magnets or tape.
- 15** Determine the suffix of the faulty card.

If you are replacing an	Do
DA, GA	step 16
AA, AC, AD, CA, FA, FB, or FC	step 29

NT6X40 in an SMA-MVI-20 (continued)

At the front of the shelf

16



DANGER

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Unseat the NT6X40 card in the inactive unit.

At the backplane of the shelf

17



DANGER

Risk of electrocution

Voltage is present on the backplane. Remove all jewelry before continuing with this procedure. Do not touch pins or terminals except as instructed.

Locate the circuit card to be replaced.

Note: NT6X40 circuit cards are located in slot 22.

18

Label each connector to the NT6X40 card.

19



DANGER

Avoid contaminating the fiber tip surface

Do not touch the tip of the fiber. Dirt or oil from the skin transferred to the fiber tip surface degrades fiber performance.



DANGER

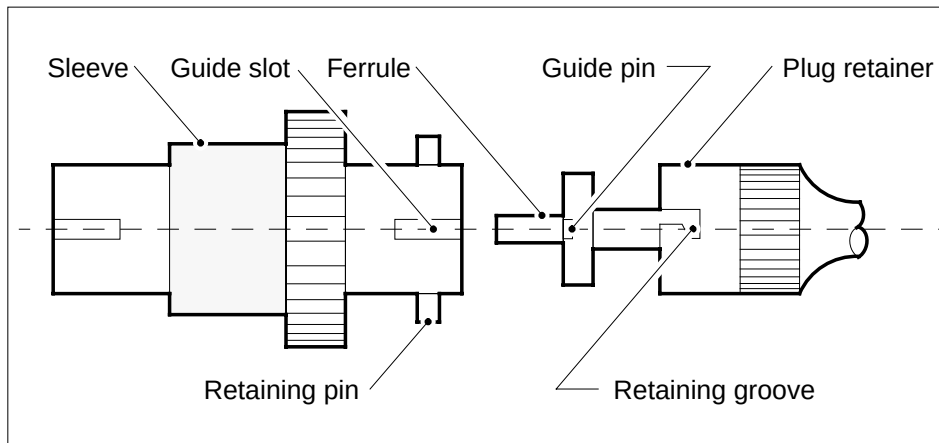
Fiber cable may become damaged

Take care when handling fiber cables. Do not crimp or bend fiber cables to a radius of less than 25 mm (1 in.).

NT6X40 in an SMA-MVI-20 (continued)

Disconnect the fiber optic cables by performing the following steps:

- a Twist the plug retainer to unlock the retaining pin from the retaining groove
- b Rotate the plug retainer so the retaining pin enters the guide slot.
- c Gently pull on the plug retainers, moving the guide pin along the slot to remove the ferrule from the sleeve.
- d Fit dust caps to the open ends of the fiber links.



20



DANGER

Protect backplane pins

Do not allow screws to drop onto or touch the backplane pins. When removing and replacing the screws for the card, the backplane pins above and below must be protected to prevent shorting out. Use of a magnetic screw or nut driver is recommended.

Protect exposed backplane pins in one of the following ways:

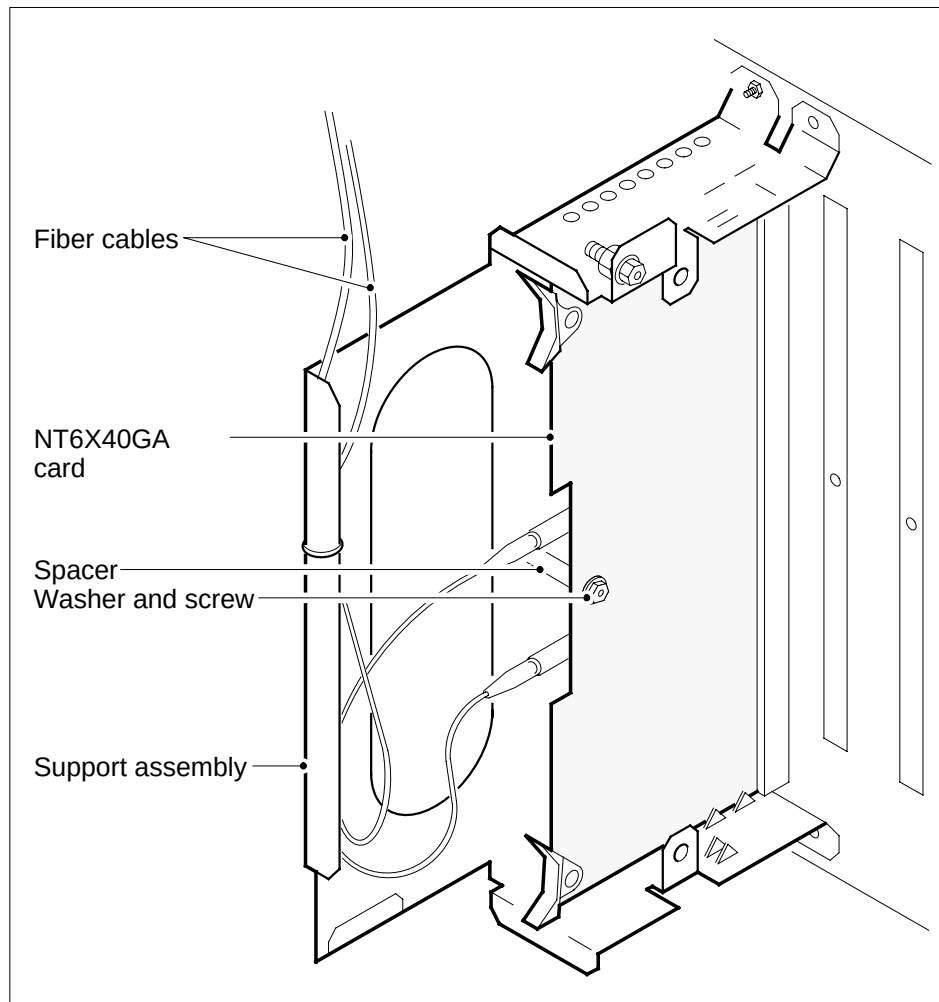
- Wrap electrical tape around a group of pins. Do not bend the pins.
- Cover the pins with NOMEX paper.

21

Remove the screw that holds the card to the support assembly by performing the following steps:

- a Locate the screw positioned half-way down the outer edge of the card.
- b Remove the washer holding the screw in place.
- c Remove the screw and the spacer located between the card and the support assembly.

NT6X40 in an SMA-MVI-20 (continued)



- 22 Using the levers located at the top and bottom of the 6X40 card, remove the card from the support assembly by firmly pulling horizontally until the connector pin socket on the card has cleared the connector pins on the backplane.
- 23 Place the card just removed in an electrostatic discharge protective container.
Note: If the card you are replacing has switches, ensure the switches on the replacement card have the same settings.
- 24 Line up the replacement card with the slots in the support assembly.
- 25 Using the levers located at the top and bottom of the 6X40 card, firmly press the connector pin socket on the card onto the connector pins on the backplane.
- 26 Secure the card to the support assembly by performing the following steps:

NT6X40 in an SMA-MVI-20 (continued)

- a Locate the screw hole positioned half-way down the outer edge of the card.
 - b Position the spacer at the screw hole between the card and the support assembly.
 - c Insert the screw, moving it in the direction of the support assembly, through the spacer to the outer surface of the support assembly.
 - d Fasten the washer to hold the screw in place.
- 27 Reconnect the fiber optic cables by performing the following steps. See the illustration in step 19.
- a Remove the dust caps from the ends of the fiber links.
 - b Gently insert the ferrule into the sleeve so the guide pin enters the guide slot.
 - c Rotate the plug retainer so the retaining pin enters the retaining groove.
 - d Push the connectors together and twist the plug retainer to lock the retaining pin into the retaining groove.

At the front of the shelf

28



DANGER

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Reseat the NT6X40 card unseated in step 16. Go to step 30.

- 29 Perform the common replacing a card procedure in this document. When you have completed the procedure, return to this point.

At the MAP terminal

- 30 The next action depends on the type of network in the office.

If you are working on	Do
JNET	step 31
ENET	step 33

- 31 Return to service one of the network links by typing
>RTS plane_no link_no
 and pressing the Enter key.
where

NT6X40

in an SMA-MVI-20 (continued)

plane_no

is the number of the plane (0 or 1) for the link

link_no

is the link number (0 to 63)

If the link	Do
returned to service and there are more manual-busy links	step 32
returned to service and there are no more manual-busy links	step 34
did not return to service	step 41

- 32** Repeat step 31 for each manually busy C-side link. When you have successfully returned all C-side links to service, go to step 34.

- 33** Return the network link to service by typing

>RTS plane_no LINK link_no

and pressing the Enter key.

where

plane_no

is the number of the plane (0 or 1) for the link

link_no

is the link number (0 to 3)

Example of a MAP response:

Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 submitted.Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 passed.

If the link	Do
returned to service	step 34
did not return to service	step 41

- 34** Post the SMA you are working on by typing

>PM;POST SMA sma_no

and pressing the Enter key.

where

sma_no

is the SMA number (0 to 255)

- 35** Determine the status of the XPM unit containing the NT6X40 circuit card you replaced by typing

>QUERYPM

and pressing the Enter key.

NT6X40 in an SMA-MVI-20 (end)

PM Type: SMA PM No.: 0 PM Int. No.:11 Node_No.: 192
 PMs Equipped: 139 Loadname: XSC07BH
 WARM SWACT is supported and available.
 SMA 0 is included in the REX schedule.
 REX on SMS 0 has not been performed.
 Node Status: {OK, FALSE}
 Unit 0 Act, Status: {OK, FALSE}
 Unit 1 Inact, Status: {OK, FALSE}
 Site Flr RPos Bay_id Shf Description Slot EqPEC
 HOST 01 E31 LTE 01 18 SMA : 000 6X02AA

	If the inactive unit status is	Do
	InSv	step 36
	anything else	step 41
36	The next action depends on your reason for performing this procedure.	
	If you were	Do
	directed to this procedure from a maintenance procedure	step 37
	not directed to this procedure from a maintenance procedure	step 40
37	Return to the maintenance procedure that sent you to this procedure and continue as directed.	
38	Consult office personnel to determine why the component is offline. Continue as directed by office personnel.	
39	Remove the sign from the active SMA unit.	
40	Go to the common returning a card procedure in this document. Go to step 42.	
41	For further assistance, contact the personnel responsible for the next level of support.	
42	You have completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.	

NT6X40 in an SMA2

Application

ATTENTION

Replacement restrictions apply to certain versions of the NT6X40 card. Carefully read the caution and note following the equipment chart before removing or installing any cards.



WARNING

Possible service disruption or loss of diagnostic functionality when installing or replacing NT6X40 cards versions AA, AC, AD, CA, DA, FA, FB, FC or GA. NT6X40AA, AC, AD, CA, DA, FA, FB, FC or GA cards must not be mismatched with other versions between the two units of an XPM if table LTCINV is datafilled with interface card types of NT6X40AD or NT6X40FB. For example, you cannot have an AC version of the card in unit 0 and an AD version in unit 1. A PM777 log is generated citing the mismatch and the XPM is put in an ISTb state. For more information read the following notes.

Note: The NT6X40AD, NT6X40FB, and NT6X40FC cards provide enhanced diagnostic capabilities. If table LTCINV datafill is set to the NT6X40AC or NT6X40FA version of the card, cards can be mismatched but the new diagnostics capabilities will not be initiated. The CM will treat the interface as NT6X40AC/NT6X40FA regardless of the card installed. For more information see the section on datafilling table LTCINV in the data schema section of the *Translations Guide*.

NT6X40
in an SMA2 (continued)

Use this procedure to replace an NT6X40 card in an SMA2.

PEC	Suffixes	Name
NT6X40	AA, AC, AD	DS30 Network Interface
NT6X40	CA, FA, FB, FC	DS512 Network Interface
NT6X40	DA, GA	DS512 Network Interface Paddleboard

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA2”
- “Manually busying SMA2 C-side links”
- replacing a card
- returning a card

Do not go to a common procedure unless directed to do so in the step-action procedure.

Action

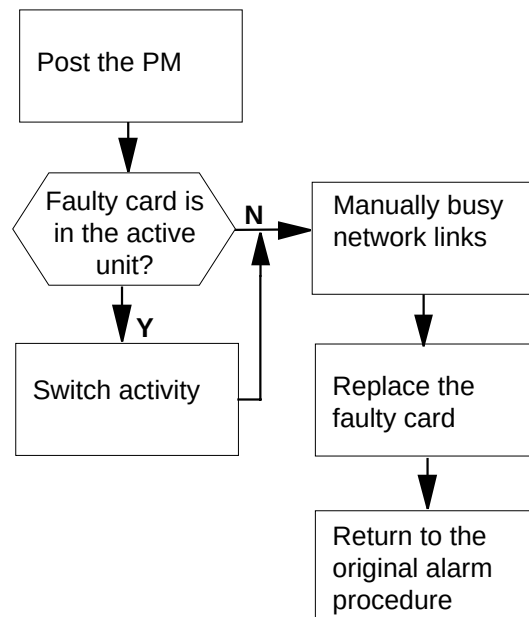
The following flowchart is only a summary of the procedure. To replace the card, use the instructions in the step-action procedure that follows the flowchart.

NT6X40 in an SMA2 (continued)

Summary of card replacement procedure for an NT6X40 card in an SMA2

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.



NT6X40 in an SMA2 (continued)

Replacing an NT6X40 card in an SMA2

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA2."

4



CAUTION

Loss of service

When replacing a card in the SMA2, ensure the unit in which you are replacing the card is *inactive* and the mate unit is *active*.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA2 by typing

```
>MAPCI;MTC;PM;POST SMA2 sma2_no
```

and pressing the Enter key.

where

sma2_no

is the number of the SMA2 being posted

Example of a MAP response:

SMA2	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA2	0	0	0	0	1	7

```
SMA2 0 ISTb Links_00S: CSide 0, PSide 0
Unit0: Act InSv
Unit1: Inact ISTb
```

NT6X40 in an SMA2 (continued)

6	Determine the state and activity of the SMA2 unit in which the card you are replacing is provisioned.
If the state of the SMA2 unit is	
Do	
ISTb, InSv, SysB, or CBSy, and active	step 7
ISTb, InSv, SysB, or CBSy, and inactive	step 12
ManB	step 12
OffL	step 38
7	From the MAP display, determine the state of the mate SMA2 unit.
If the SMA2 unit is	
Do	
ISTb or InSv	step 8
any other state	step 41
8	SWACT the units by typing >SWACT and pressing the Enter key. A confirmation prompt for the SWACT command is displayed at the MAP terminal.
If SWACT	
Do	
cannot continue at this time	step 9
can continue at this time	step 10
9	Reject the prompt to SWACT of the units by typing >NO and pressing the Enter key. The system discontinues the SWACT. Return to step 8 during a period of low traffic.
10	Confirm the system prompt by typing >YES and pressing the Enter key.

NT6X40 in an SMA2 (continued)

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 12
SWACT failed Rea- son: XPM SWACTback	step 11
SWACT refused by SWACT Controller	step 11

- 11 The inactive unit could not establish two-way communication with the central control (CC) and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit.
Go to step 41.
- 12 A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both PM units before proceeding to the next step.
- 13 Manually busy all C-side links associated with the inactive PM unit you are working on using the procedure "Manually busying SMA2 C-side links" in this document. When you have completed the procedure, return to this point.

At the frame or cabinet

- 14 Hang a sign on the active unit bearing the words: *Active unit-Do not touch*. This sign should not be attached by magnets or tape.
- 15 Determine the suffix of the faulty card.

If the faulty card suffix is	Do
DA, GA	step 16
AA, AC, AD, CA, FA, FB, or FC	step 29

NT6X40 in an SMA2 (continued)

At the front shelf of the frame or cabinet

16



WARNING

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 modular supervisory panel (MSP). This protects the equipment against damage caused by static electricity.

Unseat the NT6X40 card in the inactive unit.

At the backplane of the frame or cabinet

17



DANGER

Risk of electrocution

Voltage is present on the backplane. Remove all jewelry before continuing with this procedure. Do not touch pins or terminals except as instructed.

Locate the circuit card to be replaced.

Note: NT6X40 circuit cards are located in slot 9 of unit 0, and slot 19 of unit 1.

18

Label each connector to the NT6X40 card.

19



WARNING

Avoid contaminating the fiber tip surface

Do not touch the tip of the fiber. Dirt or oil from the skin transferred to the fiber tip surface degrades fiber performance.



WARNING

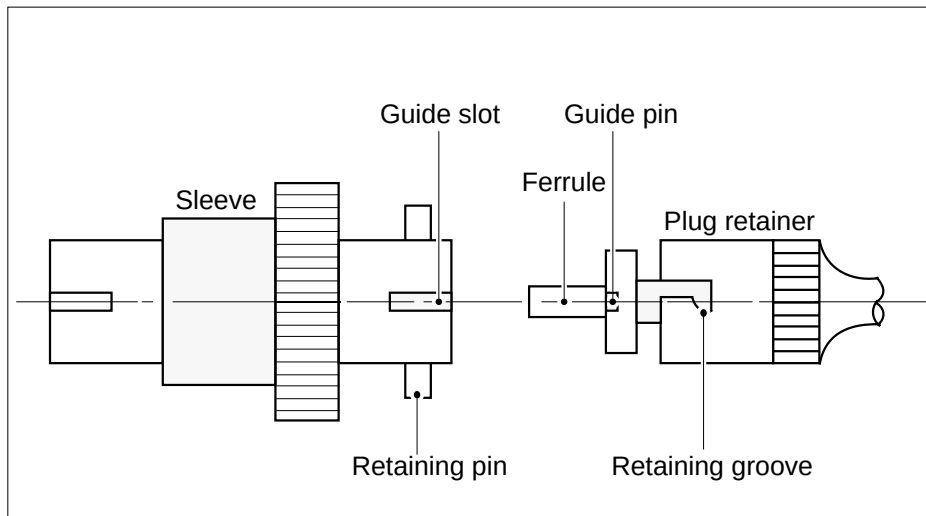
Fiber cable may become damaged

Take care when handling fiber cables. Do not crimp or bend fiber cables to a radius of less than 25 mm (1 in.).

NT6X40 in an SMA2 (continued)

Disconnect the fiber optic cables by performing the following steps:

- a Twist the plug retainer to unlock the retaining pin from the retaining groove.
- b Rotate the plug retainer so the retaining pin enters the guide slot.
- c Gently pull on the plug retainer, moving the guide pin along the slot to remove the ferrule from the sleeve.
- d Fit dust caps to the open ends of the fiber links.



20



WARNING

Protect backplane pins

Do not allow screws to drop onto or touch the backplane pins. When removing and replacing the screws for the card, the backplane pins above and below must be protected to prevent shorting out. Use of a magnetic screw or nut driver is recommended.

Protect exposed back plane pins in one of the following ways:

- Wrap electrical tape around a group of pins. Do not bend the pins.
- Cover the pins with NOMEX paper.

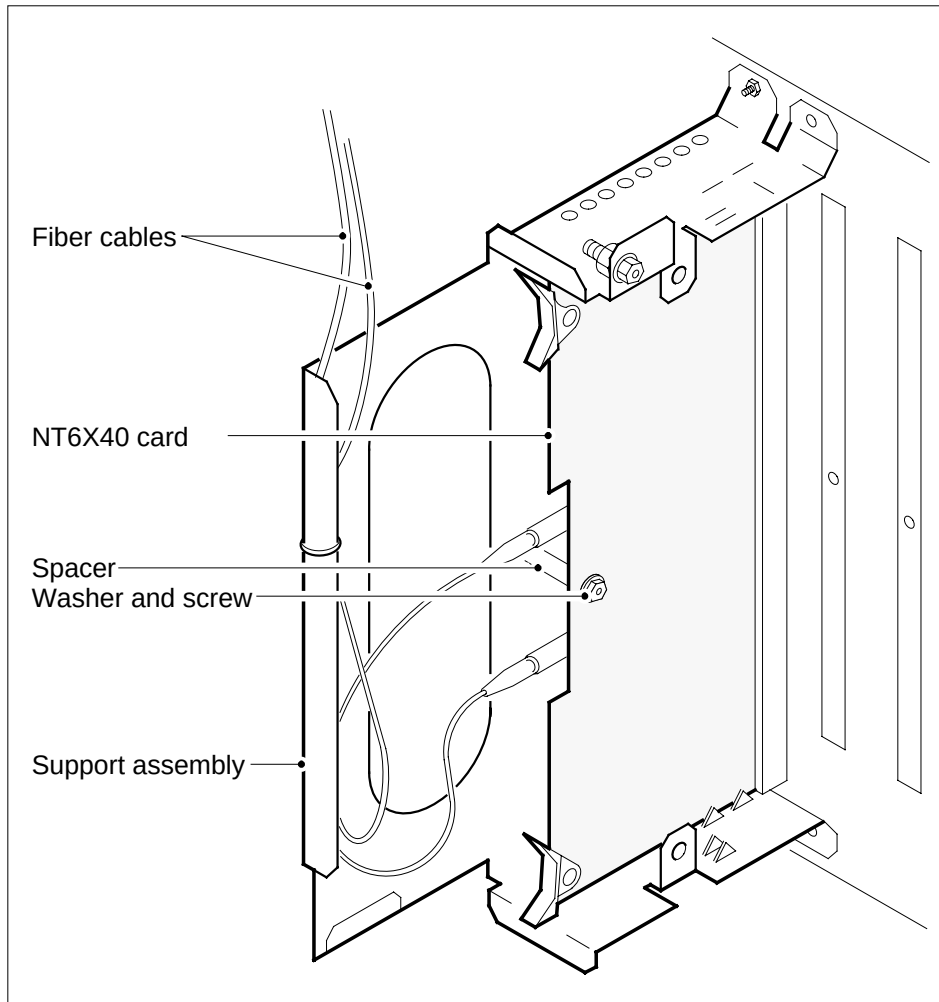
21

Remove the screw that holds the card to the support assembly by performing the following steps:

- a Locate the screw positioned halfway down the outer edge of the card.
- b Remove the washer holding the screw in place.

NT6X40 in an SMA2 (continued)

- c Remove the screw and the spacer located between the card and the support assembly.



- 22 Remove the card from the support assembly by firmly pulling horizontally until the connector pin socket on the card has cleared the connector pins on the backplane.
- 23 Place the card just removed in an electrostatic discharge protective container.
Note: If the card you are replacing has switches, ensure the switches on the replacement card have the same settings.
- 24 Line up the replacement card with the slots in the support assembly.
- 25 Using the levers located at the top and bottom of the 6X40 card, firmly press the connector pin socket on the card onto the connector pins on the backplane.
- 26 Secure the card to the support assembly by performing the following steps:

NT6X40 in an SMA2 (continued)

- a Locate the screw hole positioned halfway down the outer edge of the card.
 - b Position the spacer at the screw hole between the card and the support assembly.
 - c Insert the screw, moving it in the direction of the support assembly, through the spacer to the outer surface of the support assembly.
 - d Fasten the washer to hold the screw in place.
- 27 Reconnect the two fiber-optic cables by performing the following steps. See the illustration in step 19.
- a Remove the dust caps from the ends of the fiber links.
 - b Gently insert the ferrule into the sleeve so the guide pin enters the guide slot.
 - c Rotate the plug retainer so the retaining pin enters the retaining groove.
 - d Push the connectors together and twist the plug retainer to lock the retaining pin into the retaining groove.

At the front shelf of the frame or cabinet

28

**WARNING****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 modular supervisory panel (MSP). This protects the equipment against damage caused by static electricity.

Reseat the NT6X40 card unseated in step 16. Go to step 30.

- 29 Perform the common replacing a card procedure in this document. When you have completed the procedure, return to this point.

At the MAP terminal

- 30 The next action depends on the type of network in the office.

If you are working on	Do
JNET	step 31
ENET	step 33

- 31 Return to service one of the network links by typing
>RTS plane_no link_no
 and pressing the Enter key.
where

NT6X40 in an SMA2 (continued)

plane_no

is the number of the plane (0 or 1) for the link

link_no

is the link number (0 to 63)

	If the link	Do
	returned to service and there are more manual-busy links	step 32
	returned to service and there are no more manual-busy links	step 34
	did not return to service	step 41
32	Repeat step 31 for each manually busy C-side link. When you have successfully returned all C-side links to service, go to step 34.	
33	Return the network link to service by typing >RTS plane_no LINK link_no and pressing the Enter key. <i>where</i> plane_no is the number of the plane (0 or 1) for the link link_no is the link number (0 to 3) <i>Example of a MAP response:</i> Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 submitted.Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 passed.	
	If the link	Do
	returned to service	step 34
	did not return to service	step 41
34	Post the SMA2 you are working on by typing >PM;POST SMA2 sma2_no and pressing the Enter key. <i>where</i> sma2_no is the SMA2 number (0 to 255)	
35	Determine the status of the SMA2 unit containing the NT6X40 card you replaced by typing >QUERYPM and pressing the Enter key.	

NT6X40 in an SMA2 (end)

PM Type: SMA2 PM No.: 0 PM Int. No.:11 Node_No.: 192
 PMs Equipped: 139 Loadname: XM281AZ
 WARM SWACT is supported and available.
 SMA2 0 is included in the REX schedule.
 REX on SMS 0 has not been performed.
 Node Status: {OK, FALSE}
 Unit 0 Act, Status: {OK, FALSE}
 Unit 1 Inact, Status: {OK, FALSE}
 Site Flr RPos Bay_id Shf Description Slot EqPEC
 HOST 01 E31 CMVI 01 18 SMA2 : 000 6X02AA

	If the inactive unit status is	Do
	InSv	step 36
	anything else	step 41
36	The next action depends on your reason for performing this procedure.	
	If you were	Do
	directed to this procedure from a maintenance procedure	step 37
	not directed to this procedure from a maintenance procedure	step 39
37	Return to the maintenance procedure that sent you to this procedure and continue as directed.	
38	Consult office personnel to determine why the component is offline. Continue as directed by office personnel.	
39	Remove the sign from the active SMA2 unit.	
40	Go to the procedure in this document for returning a card for repair or replacement. Go to step 42.	
41	For further assistance, contact the personnel responsible for the next level of support.	
42	You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.	

NT6X40 in an SMS

Application

Use this procedure to replace the following cards in a Subscriber Carrier Module (SMS) as identified in the following table.

PEC	Suffixes	Name
NT6X40	AA, AC, AD	DS30 C-side interface card
NT6X40	CA, FA, FB, FC	DS512 link controller card
NT6X40	DA, GA	DS512 link paddle board

Note: The NT6X40AD, NT6X40FB, and NT6X40FC cards provide enhanced diagnostic capabilities. If table LTCINV datafill is set to the NT6X40AC or NT6X40FA version of the card, cards can be mismatched but the new diagnostics capabilities will not be initiated. The CM will treat the interface as NT6X40AC/NT6X40FA regardless of the card installed. For more information see the section on datafilling table LTCINV in the data schema section of the *Translations Guide*.

ATTENTION

There is an enhanced diagnostics test for NT6X18AA and NT6XAB cards. This NT6X18 card may be good. See the description of the NT6X18 line card in the “Star Remote Hub hardware” chapter in this manual for information on enhanced diagnostics.

NT6X40
in an SMS (continued)

**CAUTION**

Possible service disruption or loss of diagnostic functionality when installing or replacing NT6X40 cards version AA, AC, AD, CA, DA, FA, FB, FC or GA.

NT6X40AA, AC, AD, CA, DA, FA, FB, FC or GA cards must not be mismatched with other versions between the two units of an XPM if table LTCINV is datafilled with interface card types of NT6X40AD or NT6X40FB. A PM777 log is generated citing the mismatch and the XPM is put in an ISTb state. For example, you can not have an AC version of the card in unit 0 and an AD version in unit 1. For more information read the following notes.

Common procedures

The following common procedures are referenced:

- “Manually busying SMS C-side links”
- replacing a card
- returning a card

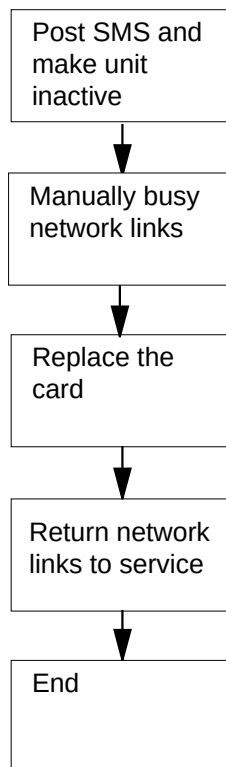
Do not go to a common procedure unless directed to do so in the step-action procedure.

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.

NT6X40 in an SMS (continued)

Summary of Replacing NT6X40 in a SMS



This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

NT6X40 in an SMS (continued)

Replacing an NT6X40 in a SMS

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 SMS, ensure the unit in which you are replacing the card is *inactive* and the mate unit is *active*.

Obtain an NT6X40 replacement circuit card. Ensure the replacement circuit card has the same product engineering code (PEC), including suffix, as the circuit card being removed.

At the MAP terminal

- 3 Access the peripheral module (PM) level of the MAP display and post the SMS with the faulty card by typing

>MAPCI;MTC;PM;POST SMS sms_no

and pressing the Enter key.

where

sms_no

is the PM number (0 to 255)

Example of a MAP response:

SMS		SysB	ManB	OffL	CBsy	ISTb	InSv
0 Quit	PM	0	0	2	0	2	25
2 Post_	SMS	0	0	0	0	1	1
3 ListSet							
4	SMS 0	ISTb	Links_00S:	CSide	1,	PSide	1
5 TRNSL	Unit0:	Inact	ISTb				
6 TST	Unit1:	Act	InSv				
7 BSY							
8 RTS							
9 OffL							
10 LoadPM_							
11 Disp_							
12 Next_							

- 4 Determine the location of the SMS containing the NT6X40 circuit card you are replacing by typing

>QUERYPM

NT6X40 in an SMS (continued)

and pressing the Enter key.

Example of a MAP response:

```
QueryPM
PM Type: SMS PM No.: 0 PM Int. No.:11 Node_No.: 192
PMs Equipped: 139 Loadname: NSS05BC
WARM SWACT is supported and available.
SMS 0 is included in the REX schedule.
REX on SMS 0 has not been performed.
Node Status: {OK, FALSE}
Unit 0 Act, Status: {OK, FALSE}
Unit 1 Inact, Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 E31 SME 01 18 SMS : 000 6X02AA
```

- 5 Determine the state and activity of the XPM unit in which the card you replacing is provisioned.

If the state of the PM unit is	Do
ISTb, InSv, SysB, or CBSy, and active	step 6
ISTb, InSv, SysB, or CBSy, and inactive	step 9
ManB	step 9
OffL	step 33

- 6 From the MAP display, determine the state of the mate PM unit.

If the SMS unit is	Do
ISTb or InSv	step 7
any other state	step 35

- 7 Switch activity by typing

>SWACT

and pressing the Enter key.

Example of a MAP response:

NT6X40 in an SMS (continued)

SMS 0 A Warm SwAct will be performed after
 data sync of active terminals.
Please confirm ("YES", "Y", "NO", or "N"):

If	Do
you are prompted to confirm a warm SWACT	step 8
the system rejects the SWACT	step 34

8 Confirm the command by typing

>YES

and pressing the Enter key.

Example of a MAP response:

```
Unit0:   Inact SysB  Mtce
Unit1:   Act   ISTb
```

SMS 0 SwAct Passed

Note: A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both PM units before proceeding to the next step.

If the MAP response is	Do
SWACT passed	step 9
anything else	step 35

9 A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both PM units before proceeding to the next step.

10 Manually busy all C-side links associated with the inactive PM unit you are working on using the procedure "Manually busying SMS C-side links" in this document. When you have completed the procedure, return to this point.

At the cabinet

11 Place a sign on the active unit bearing the words *Active unit-Do not touch*. This sign should not be attached by magnets or tape.

If you are replacing an	Do
DA, GA	step 12
AA, AC, AD, C A , FA, FB, or FC	step 24

NT6X40 in an SMS (continued)

At the front of the shelf

12



DANGER

Static electricity damage

Wear a wrist strap connected to the wrist-strap grounding point of the modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

Unseat the NT6X40 card in the inactive unit.

At the back plane of the shelf

13



DANGER

Risk of electrocution

Voltage is present on the back plane. Remove all jewelry before continuing with this procedure. Do not touch pins or terminals except as instructed.

Locate the circuit card to be replaced.

Note: NT6X40 circuit cards are located in slot 9 of unit 0, and slot 19 of unit 1.

14

Label each connector to the circuit card.

15



DANGER

Avoid contaminating the fiber tip surface

Do not touch the tip of the fiber. Dirt or oil from the skin transferred to the fiber tip surface degrades fiber performance.



DANGER

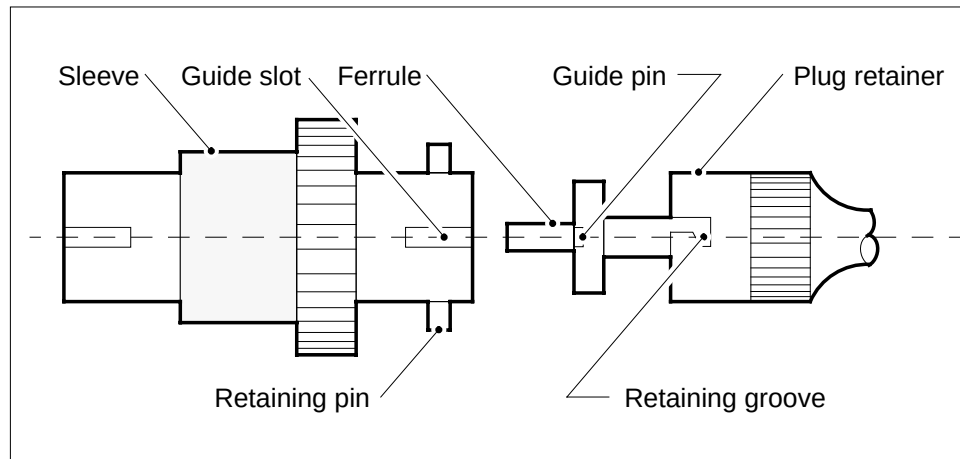
Fiber cable may become damaged

Take care when handling fiber cables. Do not crimp or bend fiber cables to a radius of less than 25 mm (1 in.).

NT6X40 in an SMS (continued)

Disconnect the fiber optic cables.

- a Twist the plug retainer to unlock the retaining pin from the retaining groove
- b Rotate the plug retainer so the retaining pin enters the guide slot.
- c Gently pull on the plug retainers, moving the guide pin along the slot to remove the ferrule from the sleeve.
- d Fit dust caps to the open ends of the fiber links.



16



DANGER

Protect back plane pins

Do not allow screws to drop onto or touch the back plane pins. When removing and replacing the screws for the card, the back plane pins above and below must be protected to prevent shorting out. Use of a magnetic screw or nut driver is recommended.

Protect exposed back plane pins in one of the following ways:

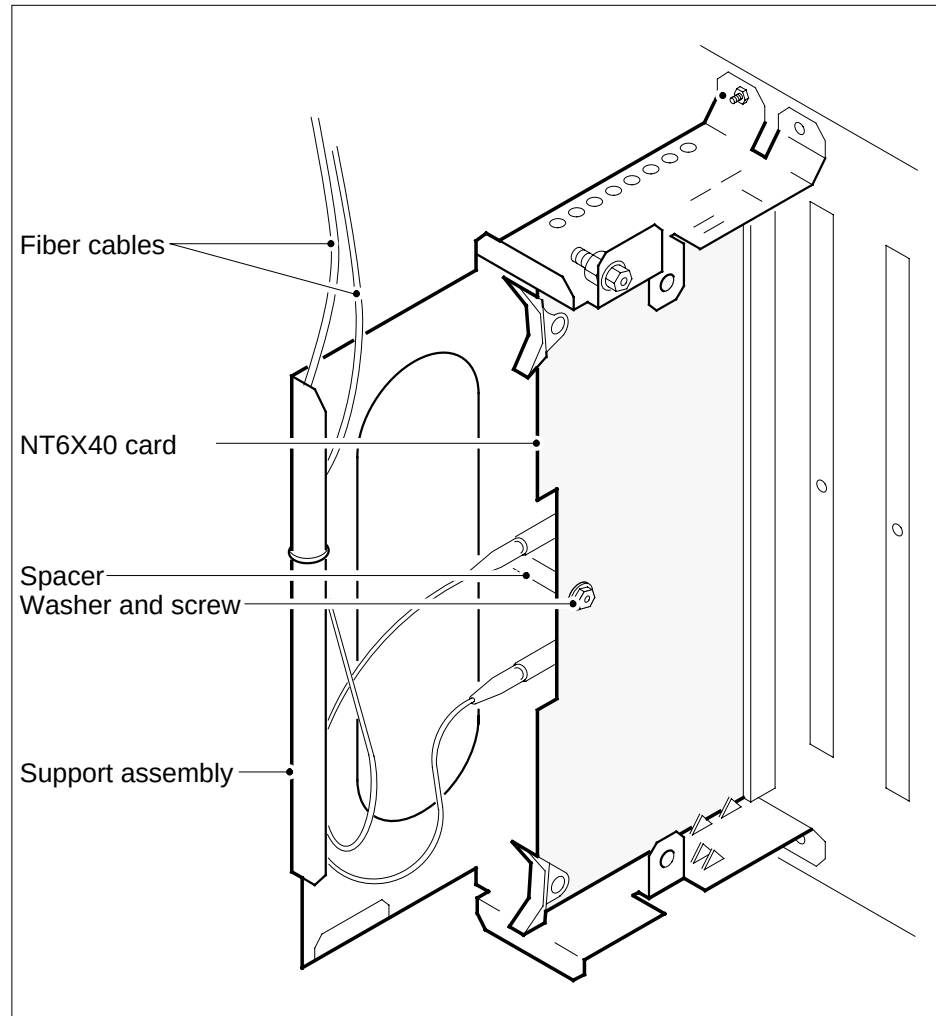
- Wrap electrical tape around a group of pins. Do not bend the pins.
- Cover the pins with NOMEX paper.

17

Remove the screw that holds the circuit card to the support assembly.

- a Locate the screw which is positioned half-way down the outer edge of the circuit card.
- b Remove the washer holding the screw in place.
- c Remove the screw and the spacer located between the circuit card and the support assembly.

NT6X40 in an SMS (continued)



- 18 Open the ejection levers on the 6X40 circuit card. Remove the card by firmly pulling horizontally until the connector pin socket on the card has cleared the connector pins on the backplane.
- 19 Place the circuit card just removed in an electrostatic discharge protective container.

Note: If the circuit card you are replacing has switches, ensure the switches on the replacement circuit card have the same settings.
- 20 Using the levers located at the top and bottom of the 6X40 circuit card firmly press the connector pin socket on the card onto the connector pins on the backplane.
- 21 Secure the circuit card to the support assembly.
 - a Locate the screw hole which is positioned half-way down the outer edge of the card.

NT6X40 in an SMS (continued)

- b Position the spacer at the screw hole between the circuit card and the support assembly.
 - c Insert the screw, moving it in the direction of the support assembly, through the spacer.
 - d Fasten the washer to hold the screw in place.
- 22 Reconnect the fiber optic cables.
 - a Remove the dust caps from the ends of the fiber links.
 - b Gently insert the ferrule into the sleeve so the guide pin enters the guide slot.
 - c Rotate the plug retainer so the retaining pin enters the retaining groove.
 - d Push the connectors together and twist the plug retainer to lock the retaining pin into the retaining groove.

At the front of the shelf

- 23 Reseat the NT6X40 card unseated in step 12. Go to step 25.
- 24 Replace the card using the common replacing a card procedure in this document. When you have completed the procedure, return to this point.

At the MAP terminal

- 25 The next action depends on the type of network in the office.

If you are working on	Do
JNET	step 26
ENET	step 28

- 26 Return to service one of the network links by typing

>RTS plane_no link_no

and pressing the Enter key.

where

plane_no

is the number of the plane (0 or 1) for the link

link_no

is the link number (0 to 63)

If the link	Do
returned to service and there are more manual-busy links	step 27
returned to service and there are no more manual-busy links	step 29

NT6X40

in an SMS (continued)

	If the link	Do
	did not return to service	step 35
27	Repeat step 26 for each manually busy C-side link. When you have successfully returned all C-side links to service, go to step 29.	
28	Return the network link to service by typing >RTS plane_no LINK link_no and pressing the Enter key. <i>where</i> plane_no is the number of the plane (0 or 1) for the link link_no is the link number (0 to 3) <i>Example of a MAP response:</i> Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 submitted. Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 passed.	
	If the link	Do
	returned to service	step 29
	did not return to service	step 35
29	Post the XPM you are working on by typing >PM;POST pm_type pm_no and pressing the Enter key. <i>where</i> pm_type the PM type (DTC, ILGC, LTCI, PDTC, SMS, ...) pm_no is the PM number (0 to 255)	
30	Determine the status of the XPM unit containing the NT6X40 circuit card you replaced by typing >QUERYPM and pressing the Enter key.	

NT6X40 in an SMS (continued)

```

SMS
0 Quit      PM      1      0      15      0      2      121
2 Post_     SMS      0      0      0      0      0      3
3 ListSet
4           SMS      0 InSv  Links_00S: CSide 0 , PSide 0
5 Trnsl_    Unit0:   Inact InSv

6 Tst_      Unit1:   Act   InSv

7 Bsy_      QueryPM
8 RTS_

```

```

PM Type: SMS PM No.: 0 PM Int. No.:11 Node_No.: 192
PMS Equipped: 139 Loadname: NSS05BC
WARM SWACT is supported and available.
SMS 0 is included in the REX schedule.
REX on SMS 0 has not been performed.
Node Status: {OK, FALSE}
Unit 0 Act, Status: {OK, FALSE}
Unit 1 Inact, Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 E31 SME 01 18 SMS : 000 6X02AA

```

	If the inactive unit status is	Do
	InSv	step 31
	anything else	step 35
31	The next action depends on your reason for performing this procedure.	
	If you were	Do
	directed to this procedure from a maintenance procedure	step 32
	not directed to this procedure from a maintenance procedure	step 36
32	Return to the maintenance procedure that sent you to this procedure and continue as directed.	
33	Consult office personnel to determine why the component is offline. Continue as directed by office personnel.	
34	For further assistance with switch of activity, contact the personnel responsible for the next level of support.	
	Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.	
35	For further assistance, contact the personnel responsible for the next level of support.	

NT6X40
in an SMS (end)

- 36 Go to the common returning a card procedure in this document.
- 37 You have completed this procedure.

NT6X40 in an SMU

Application

Use this procedure to replace the following cards in a Subscriber Carrier Module (SMU) as identified in the following table.

PEC	Suffixes	Name
NT6X40	AA, AC, AD	DS30 C-side interface card
NT6X40	CA, FA, FB, FC	DS512 link controller card
NT6X40	DA, GA	DS512 link paddle board

Note: The NT6X40AD, NT6X40FB, and NT6X40FC cards provide enhanced diagnostic capabilities. If table LTCINV datafill is set to the NT6X40AC or NT6X40FA version of the card, cards can be mismatched but the new diagnostics capabilities will not be initiated. The CM will treat the interface as NT6X40AC/NT6X40FA regardless of the card installed. For more information see the section on datafilling table LTCINV in the data schema section of the *Translations Guide*.

ATTENTION

Replacement restrictions apply to certain versions of the NT6X40 cards. Carefully read the caution and note following the equipment chart before removing or installing any cards.



CAUTION

Possible service disruption or loss of diagnostic functionality when installing or replacing NT6X40 cards version AA, AC, AD, CA, DA, FA, FB, FC or GA.

NT6X4AA, AC, AD, CA, DA, FA, FB, FC, or GA cards must not be mismatched with other versions between the two units of an XPM if table LTCINV is datafilled with interface card types of NT6X40AD or NT6X40FB. A PM777 log is generated citing the mismatch and the XPM is put in an ISTb state. For example, you can not have an AC version of the card in unit 0 and an AD version in unit 1. For more information read the following notes.

NT6X40 in a SMU (continued)

Common procedures

The following common procedures are referenced:

- “Manually busying SMU C-side links”
- replacing a card
- returning a card

Do not go to a common procedure unless directed to do so in the step-action procedure.

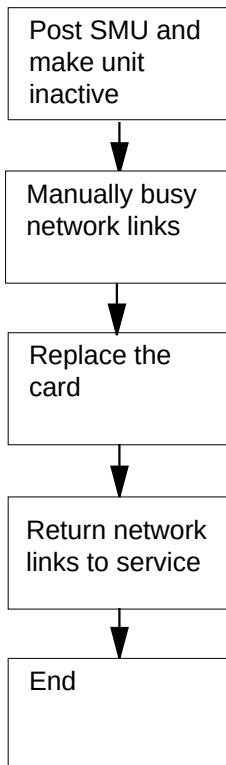
Action

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.

NT6X40
in a SMU (continued)**Summary of Replacing NT6X40 in an SMU**

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.



NT6X40 in a SMU (continued)

Replacing an NT6X40 in a SMU

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 SMU, ensure the unit in which you are replacing the card is *inactive* and the mate unit is *active*.

Obtain an NT6X40 replacement circuit card. Ensure the replacement circuit card has the same product engineering code (PEC), including suffix, as the circuit card being removed.

At the MAP terminal

- 3 Access the peripheral module (PM) level of the MAP display and post the SMU with the faulty card by typing

>MAPCI;MTC;PM;POST SMU smu_no

and pressing the Enter key.

where

smu_no

is the PM number (0 to 255)

Example of a MAP response:

SMU		SysB	ManB	OffL	CBsy	ISTb	InSv
0 Quit	PM	0	0	2	0	2	25
2 Post_	SMU	0	0	0	0	1	1
3 ListSet							
4	SMU 0	ISTb	Links_00S:	CSide	1,	PSide	1
5 TRNSL	Unit0:	Inact	ISTb				
6 TST	Unit1:	Act	InSv				
7 BSY							
8 RTS							
9 OffL							
10 LoadPM_							
11 Disp_							
12 Next_							

- 4 Determine the location of the SMU containing the NT6X40 circuit card you are replacing by typing

>QUERYPM

NT6X40 in a SMU (continued)

and pressing the Enter key.

Example of a MAP response:

```
QueryPM
PM Type: SMU PM No.: 0 PM Int. No.:11 Node_No.: 192
PMs Equipped: 139 Loadname: NSS05BC
WARM SWACT is supported and available.
SMU 0 is included in the REX schedule.
REX on SMU 0 has not been performed.
Node Status: {OK, FALSE}
Unit 0 Act, Status: {OK, FALSE}
Unit 1 Inact, Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 E31 SME 01 18 SMU : 000 6X02AA
```

- 5 Determine the state and activity of the XPM unit in which the card you replacing is provisioned.

If the state of the PM unit is	Do
ISTb, InSv, SysB, or CBSy, and active	step 6
ISTb, InSv, SysB, or CBSy, and inactive	step 9
ManB	step 9
OffL	step 33

- 6 From the MAP display, determine the state of the mate PM unit.

If the SMU unit is	Do
ISTb or InSv	step 7
any other state	step 35

- 7 Switch activity by typing

>SWACT

and pressing the Enter key.

Example of a MAP response:

NT6X40 in a SMU (continued)

SMU 0 A Warm SwAct will be performed after
 data sync of active terminals.
Please confirm ("YES", "Y", "NO", or "N"):

If	Do
you are prompted to confirm a warm SWACT	step 8
the system rejects the SWACT	step 34

- 8 Confirm the command by typing
 >YES

and pressing the Enter key.

Example of a MAP response:

Unit0: Inact SysB Mtce
Unit1: Act ISTb

SMU 0 SwAct Passed

Note: A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both PM units before proceeding to the next step.

If the MAP response is	Do
SWACT passed	step 9
anything else	step 35

- 9 A maintenance flag (Mtce) may appear, indicating that system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both PM units before proceeding to the next step.
- 10 Manually busy all C-side links associated with the inactive PM unit you are working on using the procedure "Manually busying SMU C-side links" in this document. When you have completed the procedure, return to this point.

At the cabinet

- 11 Place a sign on the active unit bearing the words *Active unit-Do not touch*. This sign should not be attached by magnets or tape.

If you are replacing an	Do
DA, GA	step 12
AA, AC, AD, C A , FA, FB, or FC	step 24

NT6X40
in a SMU (continued)

At the front of the shelf**12****DANGER****Static electricity damage**

Wear a wrist strap connected to the wrist-strap grounding point of the modular supervisory panel (MSP) while handling circuit cards. This protects the cards against damage caused by static electricity.

Unseat the NT6X40 card in the inactive unit.

At the back plane of the shelf**13****DANGER****Risk of electrocution**

Voltage is present on the back plane. Remove all jewelry before continuing with this procedure. Do not touch pins or terminals except as instructed.

Locate the circuit card to be replaced.

Note: NT6X40 circuit cards are located in slot 9 of unit 0, and slot 19 of unit 1.

14

Label each connector to the circuit card.

15**DANGER****Avoid contaminating the fiber tip surface**

Do not touch the tip of the fiber. Dirt or oil from the skin transferred to the fiber tip surface degrades fiber performance.

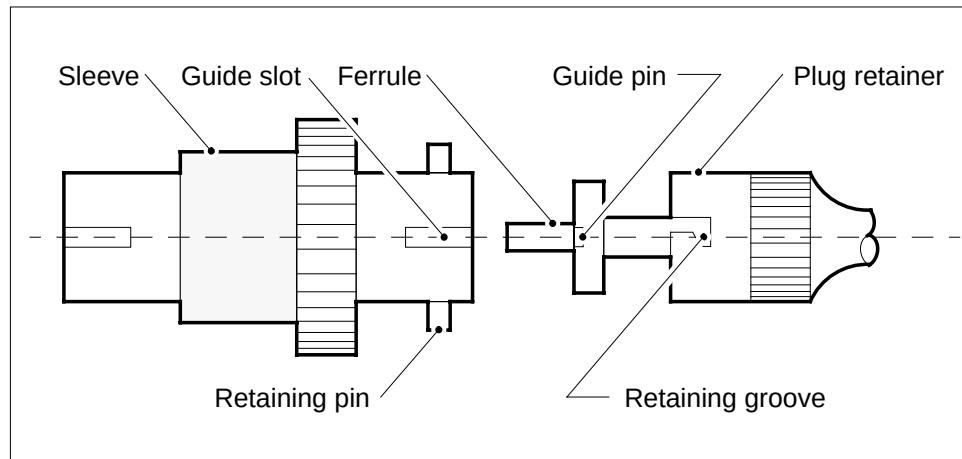
**DANGER****Fiber cable may become damaged**

Take care when handling fiber cables. Do not crimp or bend fiber cables to a radius of less than 25 mm (1 in.).

NT6X40 in a SMU (continued)

Disconnect the fiber optic cables.

- a Twist the plug retainer to unlock the retaining pin from the retaining groove
- b Rotate the plug retainer so the retaining pin enters the guide slot.
- c Gently pull on the plug retainers, moving the guide pin along the slot to remove the ferrule from the sleeve.
- d Fit dust caps to the open ends of the fiber links.



16



DANGER

Protect back plane pins

Do not allow screws to drop onto or touch the back plane pins. When removing and replacing the screws for the card, the back plane pins above and below must be protected to prevent shorting out. Use of a magnetic screw or nut driver is recommended.

Protect exposed back plane pins in one of the following ways:

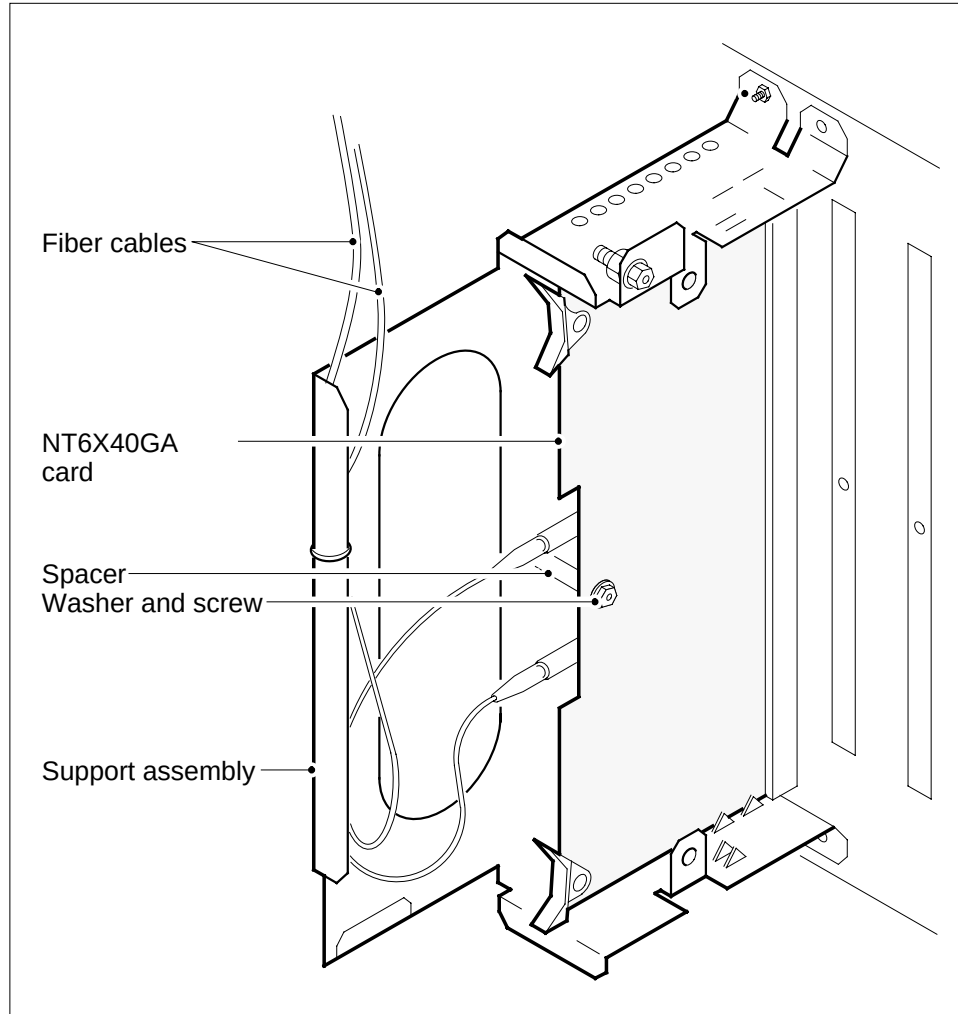
- Wrap electrical tape around a group of pins. Do not bend the pins.
- Cover the pins with NOMEX paper.

17

Remove the screw that holds the circuit card to the support assembly.

- a Locate the screw which is positioned half-way down the outer edge of the circuit card.
- b Remove the washer holding the screw in place.
- c Remove the screw and the spacer located between the circuit card and the support assembly.

NT6X40
in a SMU (continued)



- 18 Open the ejection levers on the 6X40 circuit card. Remove the card by firmly pulling horizontally until the connector pin socket on the card has cleared the connector pins on the backplane.
- 19 Place the circuit card just removed in an electrostatic discharge protective container.

Note: If the circuit card you are replacing has switches, ensure the switches on the replacement circuit card have the same settings.
- 20 Using the levers located at the top and bottom of the 6X40 circuit card firmly press the connector pin socket on the card onto the connector pins on the backplane.
- 21 Secure the circuit card to the support assembly.
 - a Locate the screw hole which is positioned half-way down the outer edge of the card.

NT6X40 in a SMU (continued)

- b** Position the spacer at the screw hole between the circuit card and the support assembly.
 - c** Insert the screw, moving it in the direction of the support assembly, through the spacer.
 - d** Fasten the washer to hold the screw in place.
- 22** Reconnect the fiber optic cables.
 - a** Remove the dust caps from the ends of the fiber links.
 - b** Gently insert the ferrule into the sleeve so the guide pin enters the guide slot.
 - c** Rotate the plug retainer so the retaining pin enters the retaining groove.
 - d** Push the connectors together and twist the plug retainer to lock the retaining pin into the retaining groove.

At the front of the shelf

- 23** Reseat the NT6X40 card unseated in step 12. Go to step 25.
- 24** Replace the card using the common replacing a card procedure in this document. When you have completed the procedure, return to this point.

At the MAP terminal

- 25** The next action depends on the type of network in the office.

If you are working on	Do
JNET	step 26
ENET	step 28

- 26** Return to service one of the network links by typing
>RTS plane_no link_no
and pressing the Enter key.

where

plane_no

is the number of the plane (0 or 1) for the link

link_no

is the link number (0 to 63)

If the link	Do
returned to service and there are more manual-busy links	step 27
returned to service and there are no more manual-busy links	step 29

NT6X40 in a SMU (continued)

	If the link	Do
	did not return to service	step 35
27	Repeat step 26 for each manually busy C-side link. When you have successfully returned all C-side links to service, go to step 29.	
28	Return the network link to service by typing >RTS plane_no LINK link_no and pressing the Enter key. <i>where</i> plane_no is the number of the plane (0 or 1) for the link link_no is the link number (0 to 3) <i>Example of a MAP response:</i>	
Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 submitted. Request to RTS ENET Plane:0 Shelf:00 Slot:32 Link:01 passed.		
	If the link	Do
	returned to service	step 29
	did not return to service	step 35
29	Post the XPM you are working on by typing >PM;POST pm_type pm_no and pressing the Enter key. <i>where</i> pm_type the PM type (DTC, ILGC, LTCI, PDTC, SMU, ...) pm_no is the PM number (0 to 255)	
30	Determine the status of the XPM unit containing the NT6X40 circuit card you replaced by typing >QUERYPM and pressing the Enter key.	

NT6X40 in a SMU (continued)

```

SMU
0 Quit      PM      1      0      15      0      2      121
2 Post_     SMU      0      0      0      0      0      3
3 ListSet
4           SMU      0 InSv Links_00S: CSide 0 , PSide 0
5 Trnsl_     Unit0:  Inact InSv

6 Tst_       Unit1:  Act   InSv

7 Bsy_       QueryPM
8 RTS_

```

```

PM Type: SMU PM No.: 0 PM Int. No.:11 Node_No.: 192
PMS Equipped: 139 Loadname: NSS05BC
WARM SWACT is supported and available.
SMU 0 is included in the REX schedule.
REX on SMU 0 has not been performed.
Node Status: {OK, FALSE}
Unit 0 Act, Status: {OK, FALSE}
Unit 1 Inact, Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
HOST 01 E31 SME 01 18 SMU : 000 6X02AA

```

	If the inactive unit status is	Do
	InSv	step 31
	anything else	step 35
31	The next action depends on your reason for performing this procedure.	
	If you were	Do
	directed to this procedure from a maintenance procedure	step 32
	not directed to this procedure from a maintenance procedure	step 36
32	Return to the maintenance procedure that sent you to this procedure and continue as directed.	
33	Consult office personnel to determine why the component is offline. Continue as directed by office personnel.	
34	For further assistance with switch of activity, contact the personnel responsible for the next level of support.	
	Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.	
35	For further assistance, contact the personnel responsible for the next level of support.	

NT6X40
in a SMU (end)

- 36** Go to the common returning a card procedure in this document.
- 37** You have completed this procedure.

NT6X41 in an SMA

Application

Use this procedure to replace a NT6X41 card in an SMA.

PEC	Suffixes	Name
NT6X41	AA, AC	Speech bus formatter

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card
- returning a card

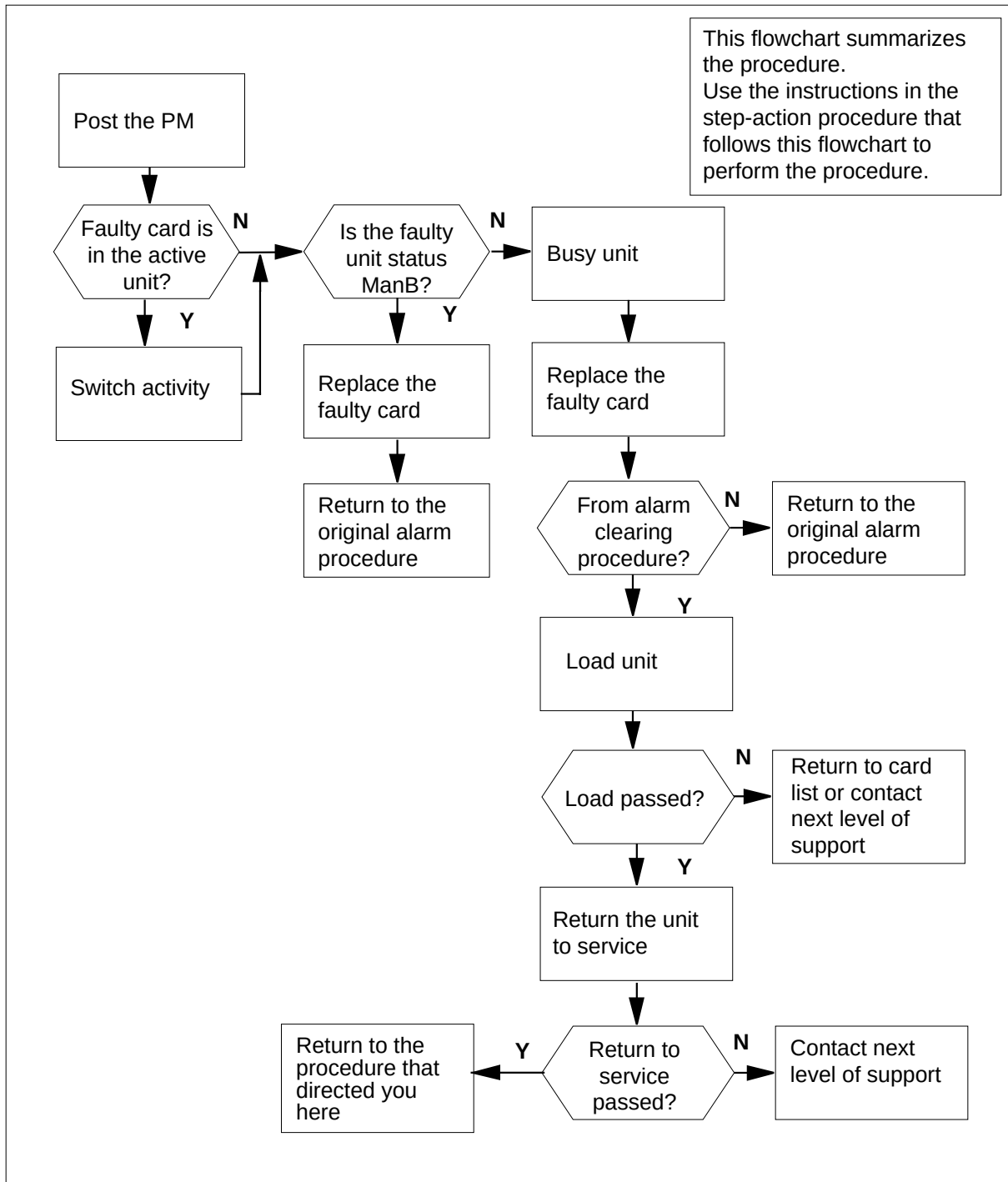
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X41 in an SMA (continued)

Summary of card replacement procedure for an NT6X41 card in an SMA



NT6X41 in an SMA (continued)

Replacing an NT6X41 card in an SMA

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."
- 4



CAUTION

Loss of service

Ensure that you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA by typing
>MAPCI;MTC;PM;POST SMA sma_no
and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response

NT6X41 in an SMA (continued)

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
 Unit0: Act InSv
 Unit1: Inact ISTb

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 10

- 7 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
can continue at this time	step 8
cannot continue at this time	step 22

- 8 Confirm the system prompt by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failed Reason: XPM SWACTback	step 9
SWACT refused by SWACT Controller	step 9

NT6X41 in an SMA (continued)

- 9 The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit.

Go to step 20.

At the equipment frame

- 10 Hang a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 11 Observe the MAP display and determine the state of the inactive unit.

If state is	Do
ManB	step 13
SysB, CBsy, ISTb, or InSv	step 12

- 12 Busy the inactive PM unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the inactive SMA unit (0 or 1)

- 13 Reset the inactive PM unit to inhibit messaging by typing

>PMRESET UNIT unit_no NORUN

and pressing the Enter key.

where

unit_no

is the number of the inactive SMA unit (0 or 1)

NT6X41 in an SMA (continued)

At the equipment frame

14

**WARNING****Static electricity damage**

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Perform the common replacing a card procedure in this document.

15

Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 18
other	step 16

At the MAP terminal

16

Load the inactive SMA unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the busied SMA unit

If load	Do
passed	step 17
failed	step 20

17

Return the inactive SMA unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the SMA unit loaded in step 16

If RTS	Do
passed	step 18

NT6X41 in an SMA (end)

If RTS	Do
failed	step 20

At the equipment frame

- 18** Remove the sign from the active SMA unit.
- 19** Go to the common returning a card procedure in this document.
Go to step 21.
- 20** For further assistance, contact the personnel responsible for the next level of support.
- 21** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 22** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

**NT6X41
in an SMA-MVI-20**

Application

Use this procedure to replace an NT6X41 card in an SMA.

PEC	Suffixes	Name
NT6X41	AA, AC	Speech Bus Formatter

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card

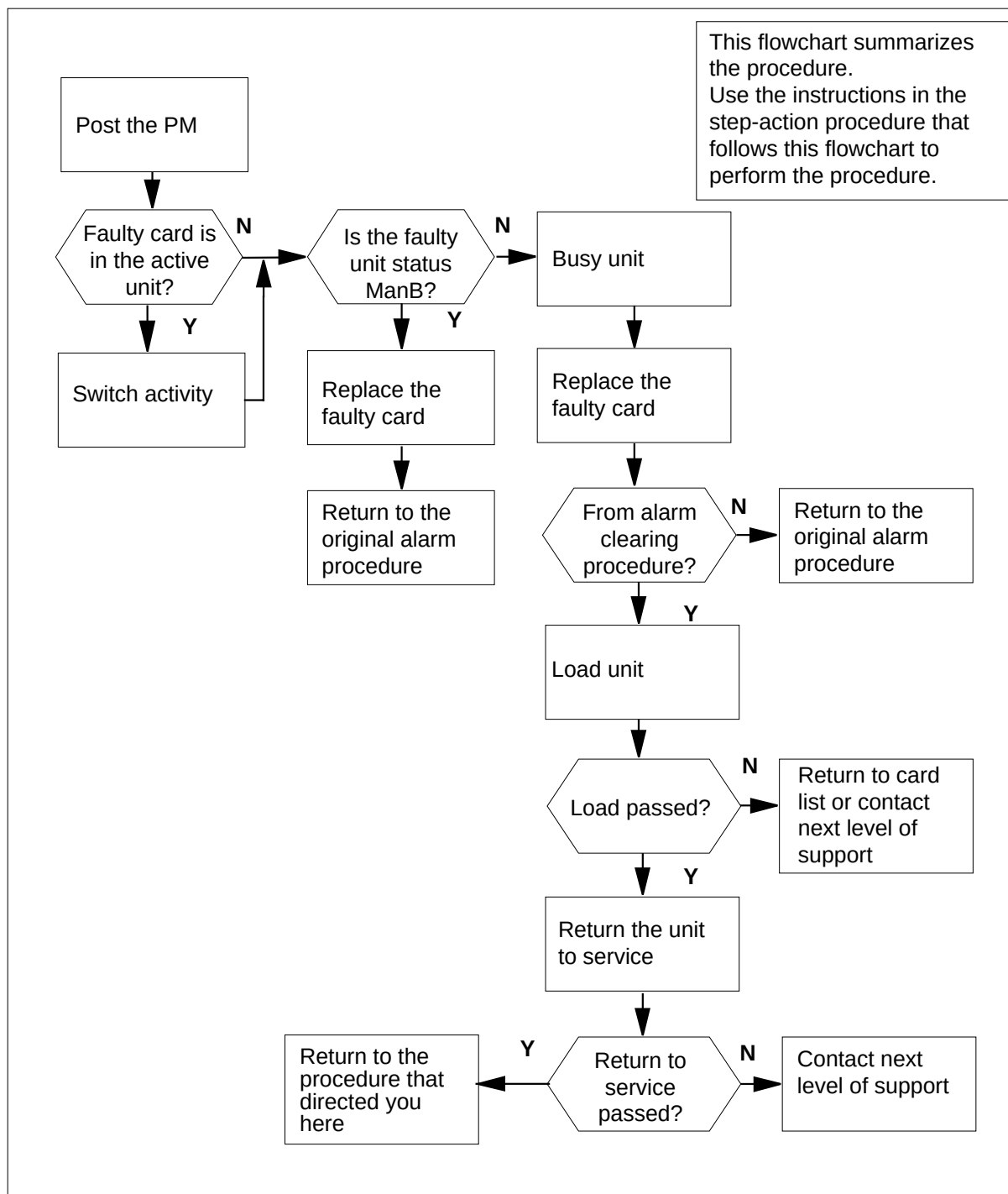
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X41 in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NT6X41 card in an SMA



NT6X41 in an SMA-MVI-20 (continued)

Replacing an NT6X41 card in an SMA

At the equipment frame

- 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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."
- 4



CAUTION

Loss of service

Ensure that you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA by typing
>MAPCI;MTC;PM;POST SMA sma_no
 and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response

NT6X41**in an SMA-MVI-20** (continued)

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
 Unit0: Act InSv
 Unit1: Inact ISTb

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 11

- 7 Perform a SWACT of the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
cannot continue at this time	step 8
can continue at this time	step 9

- 8 Reject the prompt to SWACT the units by typing

>NO

and pressing the Enter key.

The system discontinues the SWACT.

- 9 Confirm the system prompt by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 11

NT6X41 in an SMA-MVI-20 (continued)

	If the message is	Do						
	SWACT failed Rea- son: XPM SWACTback	step 10						
	SWACT refused by SWACT Controller	step 10						
10	The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit. Go to step 22.							
At the equipment frame								
11	Hang a sign on the active unit bearing the words: <i>Active unit—Do not touch</i>. This sign should not be attached by magnets or tape.							
At the MAP terminal								
12	Observe the MAP display and determine the state of the inactive unit. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%; text-align: left;">If state is</th> <th style="width: 60%; text-align: left;">Do</th> </tr> </thead> <tbody> <tr> <td>ManB</td> <td>step 14</td> </tr> <tr> <td>SysB, CBsy, ISTb, or InSv</td> <td>step 13</td> </tr> </tbody> </table>		If state is	Do	ManB	step 14	SysB, CBsy, ISTb, or InSv	step 13
If state is	Do							
ManB	step 14							
SysB, CBsy, ISTb, or InSv	step 13							
13	Busy the inactive PM unit by typing >BSY UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the inactive SMA unit (0 or 1)							
14	Reset the inactive PM unit to inhibit messaging by typing >PMRESET UNIT unit_no NORUN and pressing the Enter key. <i>where</i> unit_no is the number of the inactive SMA unit (0 or 1)							

NT6X41 in an SMA-MVI-20 (continued)

At the equipment frame

15



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

- 16 Perform the common replacing a card procedure in this document.
Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 19
other	step 17

At the MAP terminal

- 17 Load the inactive SMA unit by typing
>LOADPM UNIT unit_no
and pressing the Enter key.

where

unit_no

is the number of the busied SMA unit

If load	Do
passed	step 18
failed	step 22

- 18 Return the inactive SMA unit to service by typing
>RTS UNIT unit_no
and pressing the Enter key.

where

unit_no

is the number of the SMA unit loaded in step 17

If RTS	Do
passed	step 19

NT6X41
in an SMA-MVI-20 (end)

If RTS	Do
failed	step 22

At the equipment frame

- 19** Remove the sign from the active SMA unit.
- 20** Send any faulty cards for repair according to local procedure.
- 21** Note the following in the office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Go to step 23.
- 22** For further assistance, contact the personnel responsible for the next level of support.
- 23** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X41 in an SMS

Application

Use this procedure to replace an NT6X41 card in an SMS.

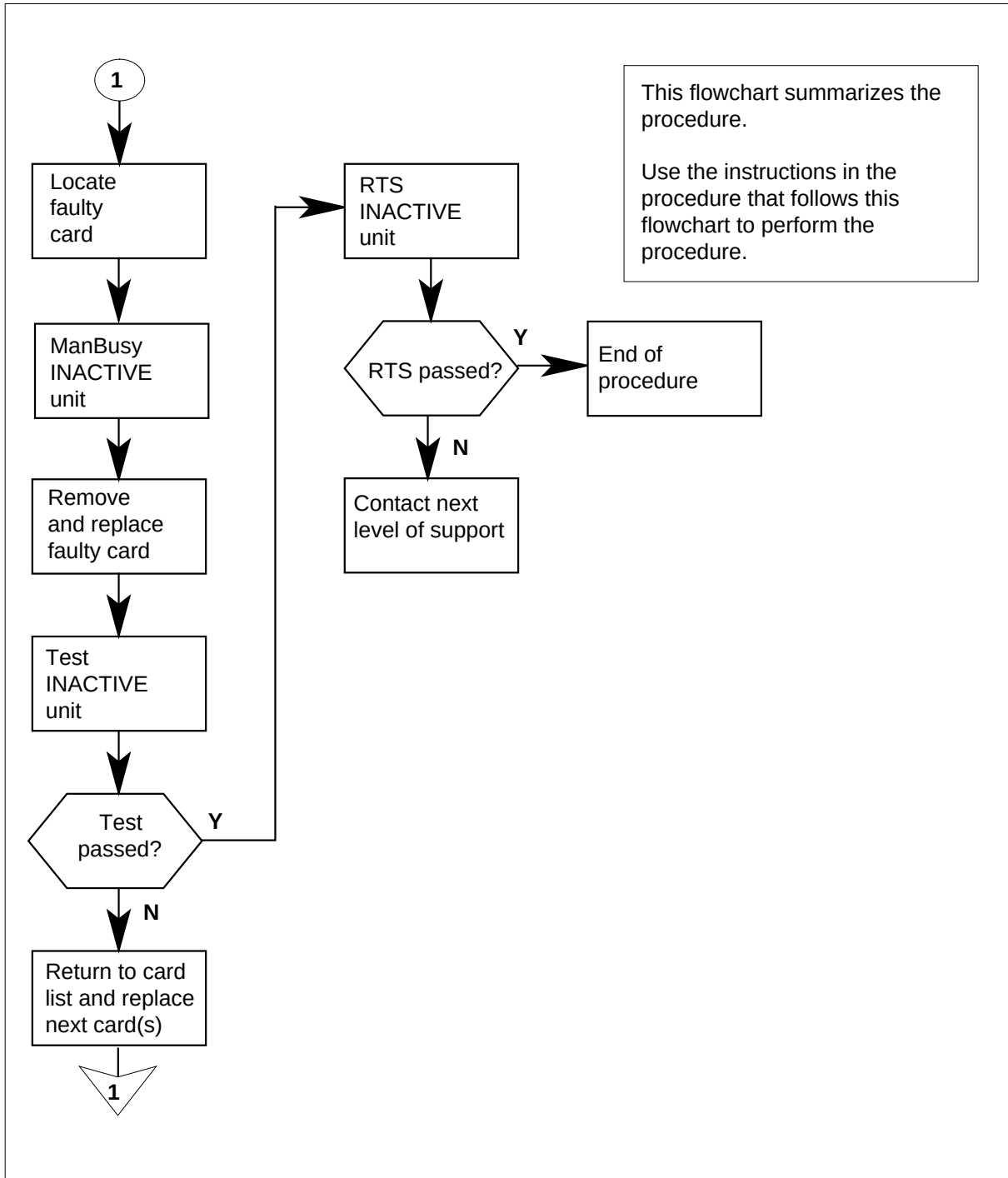
PEC	Suffixes	Name
NT6X41	AA,AB, CA	Speech bus formatter

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.

NT6X41
in an SMS (continued)**Summary of card replacement procedure for an NT6X41 card in an SMS**

NT6X41 in an SMS (continued)

Replacing an NT6X41 card in an SMS

- 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 SMS, ensure the unit where you are replacing the card is inactive and the mate unit is active.

Obtain a replacement card. Verify 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 PM level of the MAP display by typing
>MAPCI;MTC;PM;POST SMS sms_no
and pressing the Enter key.
where
sms_no
 is 0-127 for NT40 and 0-255 for DMS SuperNode

Example of a MAP response

```
SMS 3 INSV LINKS_00S CSIDE 0    PSIDE 0
      Unit0   Act   InSv
      Unit1   Inact  ISTb
```

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 9

NT6X41 in an SMS (continued)

5

**CAUTION****Service disruption: calls may be dropped!**

If you are prompted to confirm a cold SWACT, perform this activity only during a period of low traffic. All calls being handled by this PM, including data calls, will be dropped.

Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

The system determines the type of SWACT it can perform, a warm SWACT or a cold SWACT, and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
cannot continue at this time	step 6
can continue at this time	step 7

6

Do not switch activity of the units. Reject the switch by typing

>NO

and pressing the Enter key.

The system discontinues the switch of activity. Return to step 5 during a period of low traffic.

7

Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 9
SwAct failed	step 8
SwAct failed:Reason: XPM SwActback	step 8

NT6X41

in an SMS (continued)

	If the message is	Do
	SwAct refused by SwAct controller	step 8
8	Return to <i>Alarm Clearing Procedures</i> to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.	

At the frame

- 9 Put a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 10 Busy the inactive PM unit by typing
>bsy UNIT unit_no
and pressing the Enter key.
where
unit_no
is the number of the faulty SMS unit
- 11 Set the PM to the ROM level by typing
>PMRESET UNIT unit_no NORUN
and pressing the Enter key.
where
unit_no
is the number of the faulty SMS unit

At the frame

12



WARNING

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 SMS. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

NT6X41
in an SMS (continued)

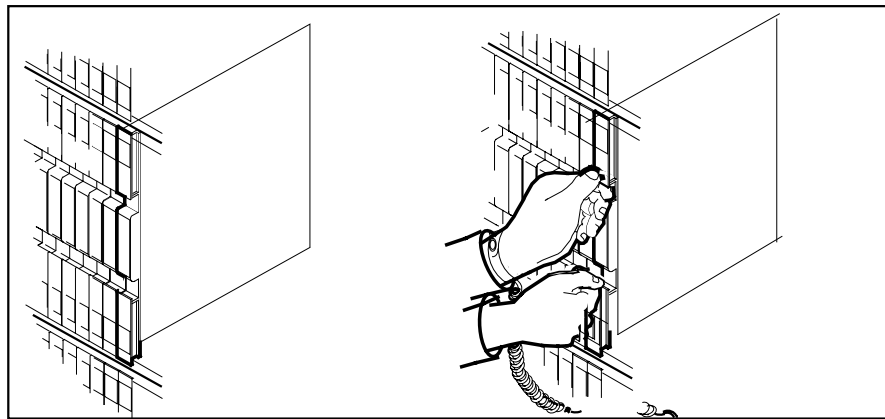
13

**DANGER****Equipment damage**

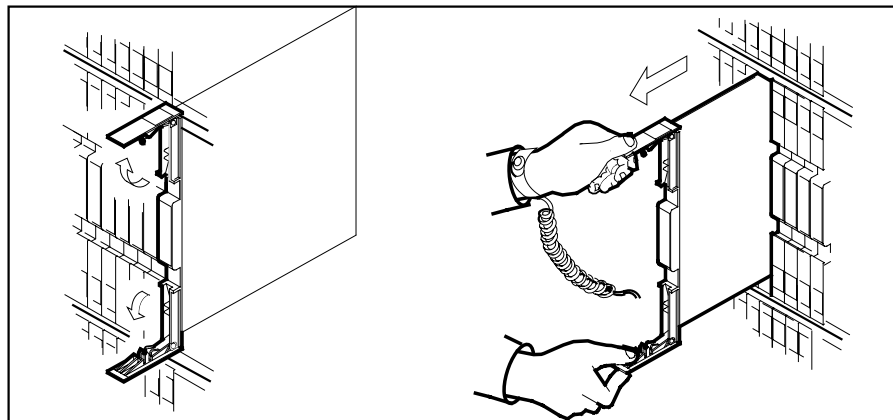
When removing or inserting a card, do not apply direct pressure to the components and do not force the cards into the slots.

Remove the NT6X41 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.



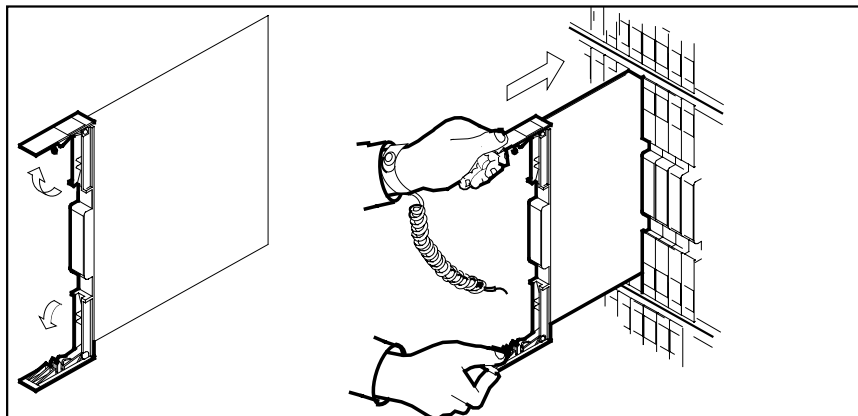
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



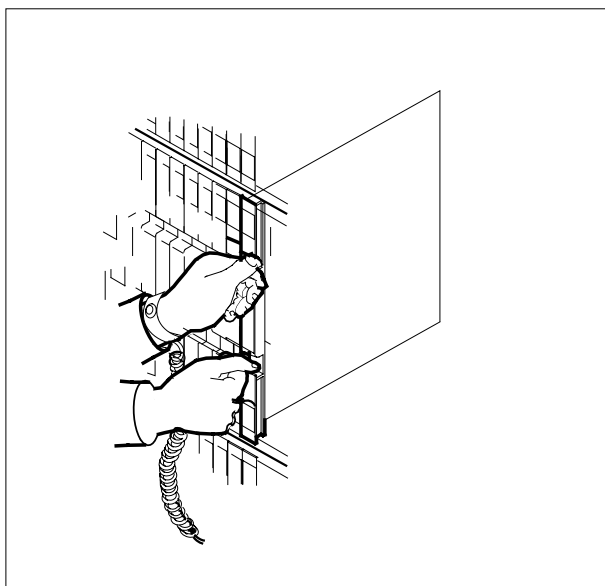
- c** Verify the replacement card has the same PEC, including suffix, as the card you just removed.

NT6X41 in an SMS (continued)

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



- 16** Use the following information to determine where to go next in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 19

NT6X41 in an SMS (continued)

	If you entered this procedure from	Do
	other	step 17
17	Test the inactive unit by typing >TST UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the faulty SMS unit	
	If TST	Do
	passed	step 18
	failed	step 19
18	Return the inactive SMS unit to service by typing >RTS UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the faulty SMS unit	
	If RTS	Do
	passed	step 21
	failed	step 20
19	Return to the <i>Alarm Clearing Procedures</i> that directed you to this procedure. At 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 higher level of support.	
At the frame		
21	Remove the sign from the active SMS unit.	
22	Send any faulty cards for repair using local procedure.	
23	Record the following items in office records according to local policy: • date the card was replaced • serial number of the card • symptoms that prompted replacement of the card	

NT6X41
in an SMS (end)

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

NT6X41
in an SMS-R

Application

Use this procedure to replace the following card in an SMS-R.

PEC	Suffixes	Name
NT6X41	AA, AC	Speech Bus Formatter

Common procedures

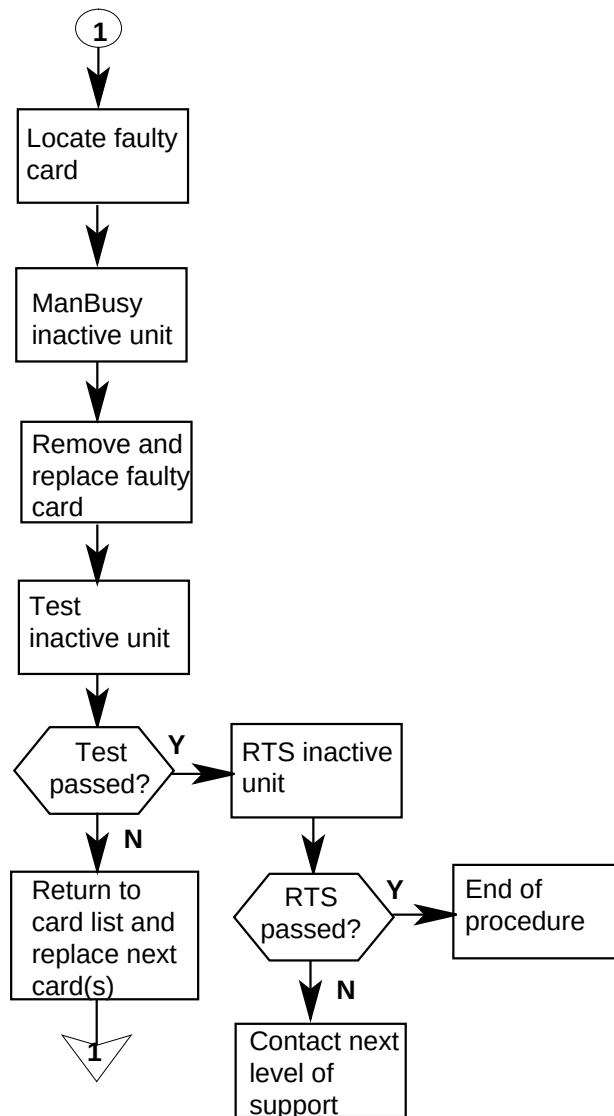
Not applicable

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.

NT6X41 in an SMS-R (continued)

Summary of card replacement procedure for an NT6X41 card in an SMS-R



This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

NT6X41 in an SMS-R (continued)

Replacing an NT6X41 card in an SMS-R

At your Current Location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.

2



CAUTION

Loss of service

When replacing a card in the SMSR, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

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

At the MAP display

- 3 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM;POST SMSR smsr_no

and pressing the Enter key.

where

smsr_no

is the number of the SMSR to be posted

Example of a MAP response

SMSR 3	INSV	LINKS_00S	CSIDE 0	PSIDE 0
Unit0	Act	InSv		
Unit1	InAct	ISTb		

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

NT6X41

in an SMS-R (continued)

The system determines the type of SWACT it can perform and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
can continue at this time	step 6
cannot continue at this time	step 25

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failed Reason: XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 Return to the alarm clearing procedure to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

- 8 Put a sign on the active unit bearing the following words: *"Active unit—Do not touch."*

At the MAP display

- 9 Busy the inactive PM unit by typing

>bsy UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS-R unit

NT6X41
in an SMS-R (continued)**At the frame****10****DANGER****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 SMS-R. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

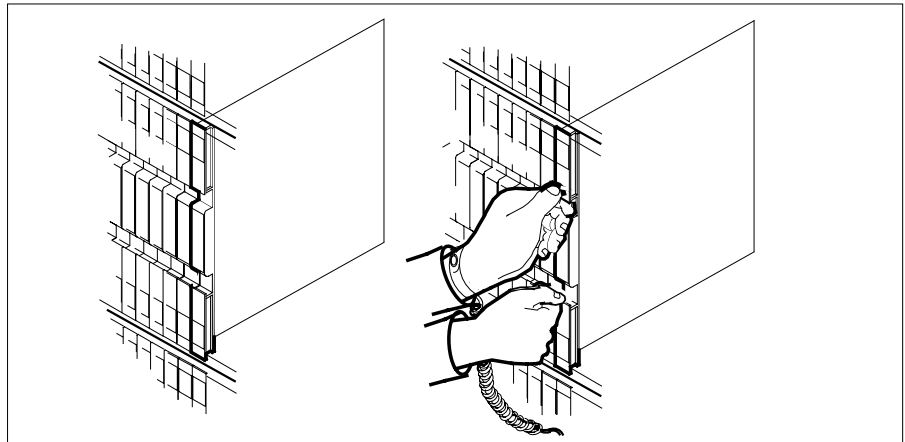
11**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

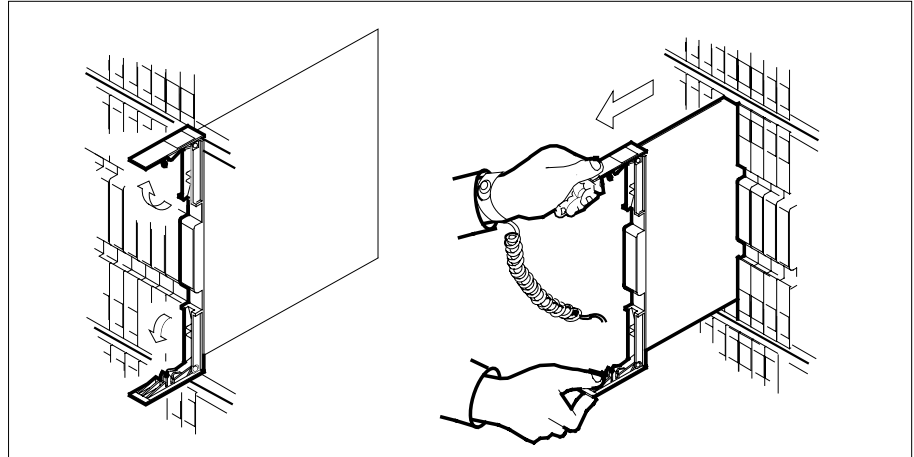
Remove the NT6X41 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.

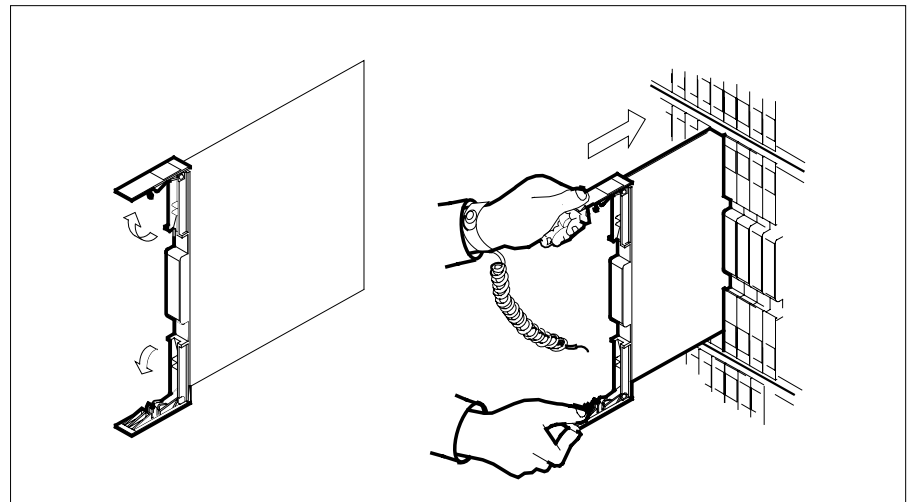
**12**

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

NT6X41 in an SMS-R (continued)

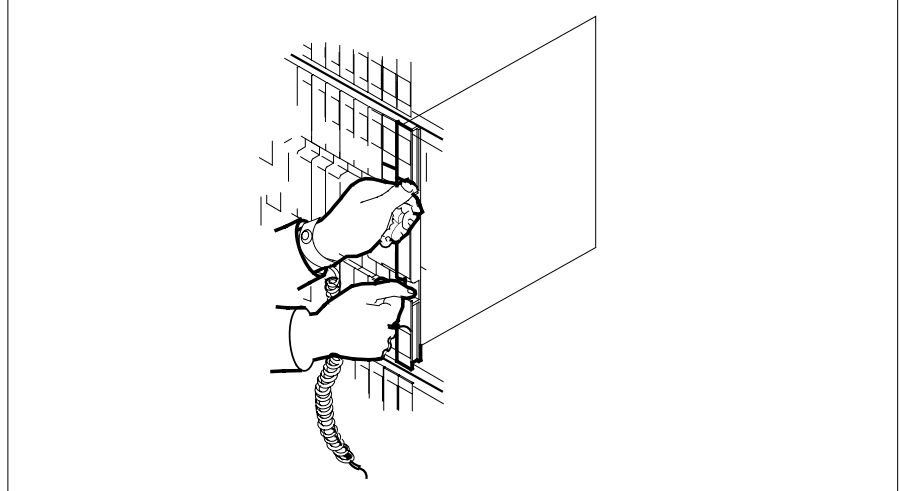


- 13 Verify that the replacement card has the same PEC, including suffix, as the card you just removed.
- 14 Open the locking levers on the replacement card.
 - a Align the card with the slots in the shelf and gently slide the card into the shelf.



- 15 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.

NT6X41 in an SMS-R (continued)



- 16** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 19
other	step 17

At the MAP display

- 17** Test the inactive unit by typing

>TST UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS-R unit

If TST	Do
passes	step 18
fails	step 19

- 18** Return the inactive SMSR unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

NT6X41

in an SMS-R (end)

unit_no
is the number of the faulty SMS-R unit

If RTS	Do
passes	step 21
fails	step 20

19 Return to the *Alarm Clearing Procedures* section of this manual or procedure that directed you to this procedure. At 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 personnel responsible for a higher level of support.

At the frame

21 Remove the sign from the active unit.

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

23 Record the following items in office records in accordance with local policy:

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

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

25 For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

**NT6X41
in an SMU**

Application

Use this procedure to replace the following card in an SMU.

PEC	Suffix	Name
NT6X41	AA, AC	Speech bus formatter

Common procedures

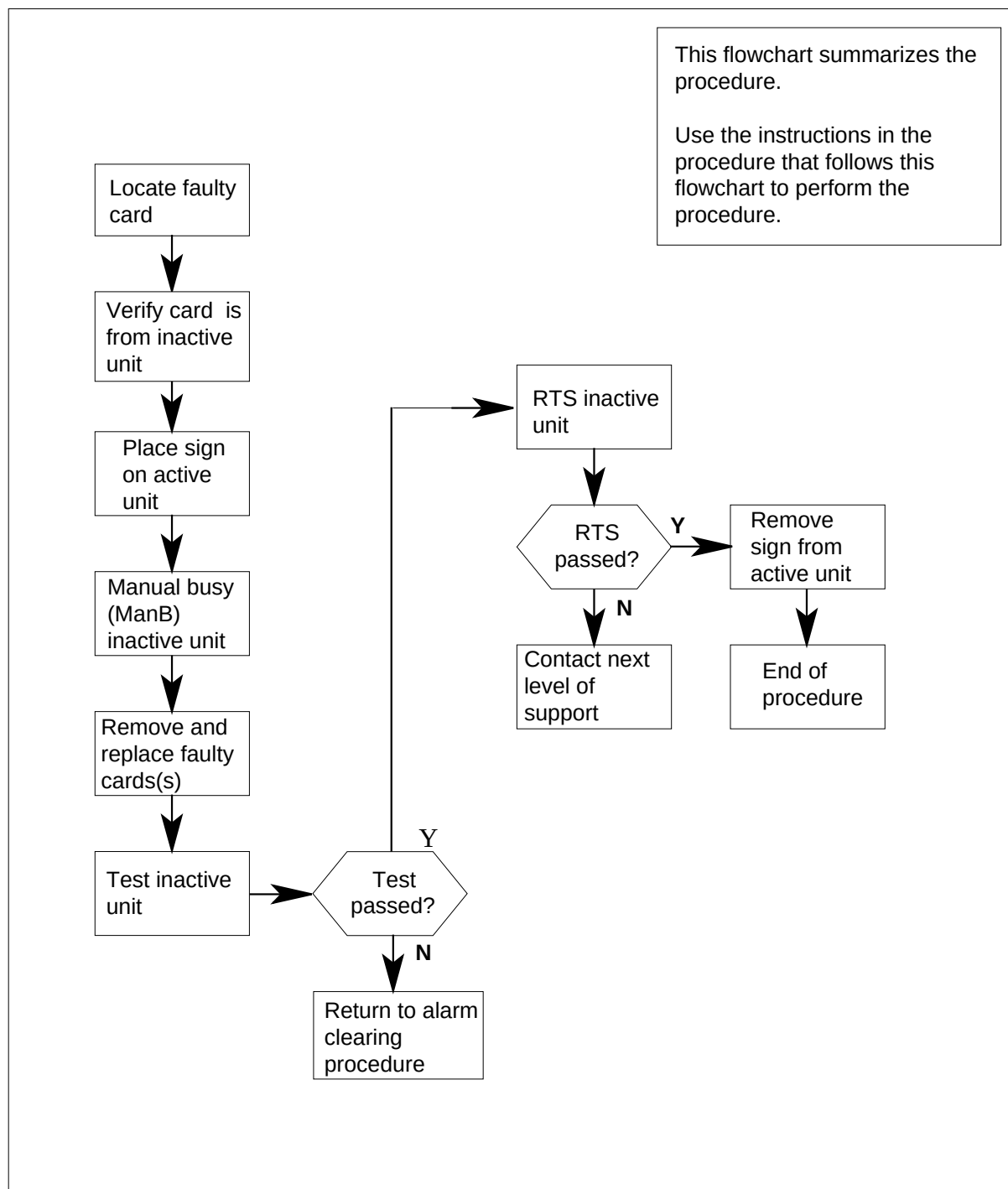
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X41 in an SMU (continued)

Summary of card replacement procedure for an NT6X41 card in an SMU



NT6X41 in an SMU (continued)

Replacing an NT6X41 card in an SMU

At your current location:

- 1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure.
- 2 Get a replacement card. Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.

At the MAP terminal:

3



CAUTION

Loss of service

When replacing a card in the SMU, ensure that the unit where you are replacing the card is inactive and that the mate unit is active.

Access the PM level of the MAP terminal by typing

>MAPCI;MTC;PM;POST SMU smu_no

and pressing the Enter key.

where

smu_no is

the number of the SMU to be posted

Example of a MAP response:

SMU	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMU	0	0	0	0	1	7

SMU 0 ISTb Links_00S: CSide 0, PSide 0

Unit0: Act ISTb

Unit1: Inact InSv

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

NT6X41 in an SMU (continued)

- 5 Switch the activity of the units by typing
>SWACT
 and pressing the Enter key.
 The system determines the type of SwAct it can perform. The system displays a confirmation prompt for the selected SwAct.

If SwAct	Do
can continue at this time	step 6
cannot continue at this time	step 21
- 6 Switch the activity of the unit by typing
>YES
 and pressing the Enter key.
 The system runs a pre-SwAct audit to determine if the inactive unit can accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failed Reason: XPM SwActback	step 7
SwAct refused by SwAct controller	step 7
- 7 Return to the *Alarm Clearing Procedures* to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the SME frame:

 - 8 Put a sign on the active unit bearing the following words: "Active unit—Do not touch."

At the MAP terminal:

 - 9 Busy the inactive SMU unit by typing
>bsy UNIT unit_no
 and pressing the Enter key.
where

NT6X41 in an SMU (continued)

- unit_no** is
the number of the faulty SMU unit
- 10** Set the PM to the ROM level by typing
>PMRESET UNIT unit_no NORUN
and pressing the Enter key.
- unit_no** is
the number of the SMU unit busied in step 9
- 11** Go to the common replacing a card procedure in this document. Then return to step 12 of this procedure.
- 12** Use the following information to determine where to go next in this procedure.
- | If you entered this procedure from | Do |
|------------------------------------|---------|
| alarm clearing procedures | step 15 |
| other | step 13 |
- 13** Test the inactive unit by typing
>TST UNIT unit_no
and pressing the Enter key.
where
unit_no is
the number of the SMU unit busied in step 9
- | If test | Do |
|---------|---------|
| passed | step 14 |
| failed | step 16 |
- 14** Return the inactive SMU unit to service by typing
>RTS UNIT unit_no
and pressing the Enter key.
where
unit_no is
the number of the SMU unit tested in step 13
- | If RTS | Do |
|--------|---------|
| passes | step 18 |
| fails | step 16 |

NT6X41

in an SMU (end)

- 15 Return to the *Alarm Clearing Procedures*. At the point where a faulty card list is initiated, identify the next faulty card on the list. Go to the appropriate card replacement procedure for that card.
- 16 Contact personnel responsible for higher level support and get further help to replace this card.
- 17 Remove the sign from the active SMU unit.
- 18 Send any faulty cards for repair according to local procedure.
- 19 Note the following in the office records:
 - date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- 20 You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 21 For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

**NT6X42
in an SMA**

Application

Use this procedure to replace an NT6X42 card in an SMA.

PEC	Suffixes	Name
NT6X42	AA	Channel Supervision Message

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card
- returning a card

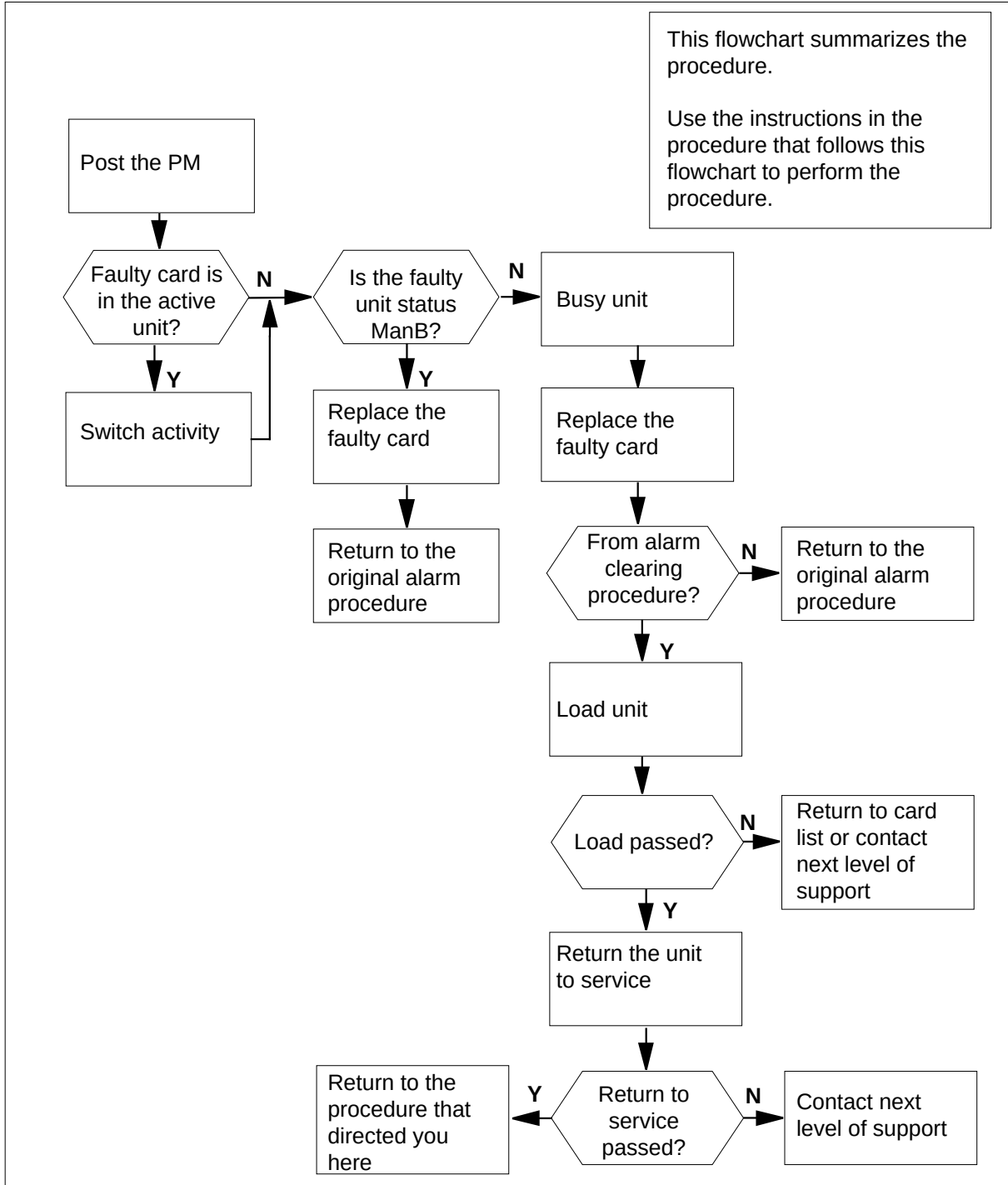
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X42 in an SMA (continued)

Summary of card replacement procedure for an NT6X42 card in an SMA



NT6X42 in an SMA (continued)

Replacing an NT6X42 card in an SMA

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."
- 4



CAUTION

Loss of service

Ensure that you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA by typing
>MAPCI;MTC;PM;POST SMA sma_no
 and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response:

NT6X42 in an SMA (continued)

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
 Unit0: Act InSv
 Unit1: Inact SysB

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 10

- 7 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
can continue at this time	step 8
cannot continue at this time	step 21

- 8 Confirm the system prompt by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failedReason: XPM SWACTback	step 9
SWACT refused by SWACT Controller	step 9

NT6X42 in an SMA (continued)

- 9** The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. All faults on the inactive unit must be cleared before attempting to clear the alarm condition on the active unit.

Go to step 19.

At the equipment frame

- 10** Hang a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 11** Observe the MAP display and determine the state of the inactive unit.

If state is	Do
ManB	step 13
SysB, CBsy, ISTb, or InSv	step 12

- 12**



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Busy the inactive PM unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the inactive SMA unit (0 or 1)

- 13** Perform the common replacing a card procedure in this document.

- 14** Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 17
other	step 15

NT6X42 in an SMA (end)

At the MAP terminal

- 15** Load the inactive SMA unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the busied SMA unit

If load	Do
passed	step 16
failed	step 19

- 16** Return the inactive SMA unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the SMA unit loaded in step 15

If RTS	Do
passed	step 17
failed	step 19

At the equipment frame

- 17** Remove the sign from the active SMA unit.
- 18** Go to the common returning a card procedure in this document.
Go to step 20.
- 19** For further assistance, contact the personnel responsible for the next level of support.
- 20** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 21** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

**NT6X42
in an SMA-MVI-20**

Application

Use this procedure to replace an NT6X42 card in an SMA.

PEC	Suffixes	Name
NT6X42	AA	Channel Supervision Message

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card

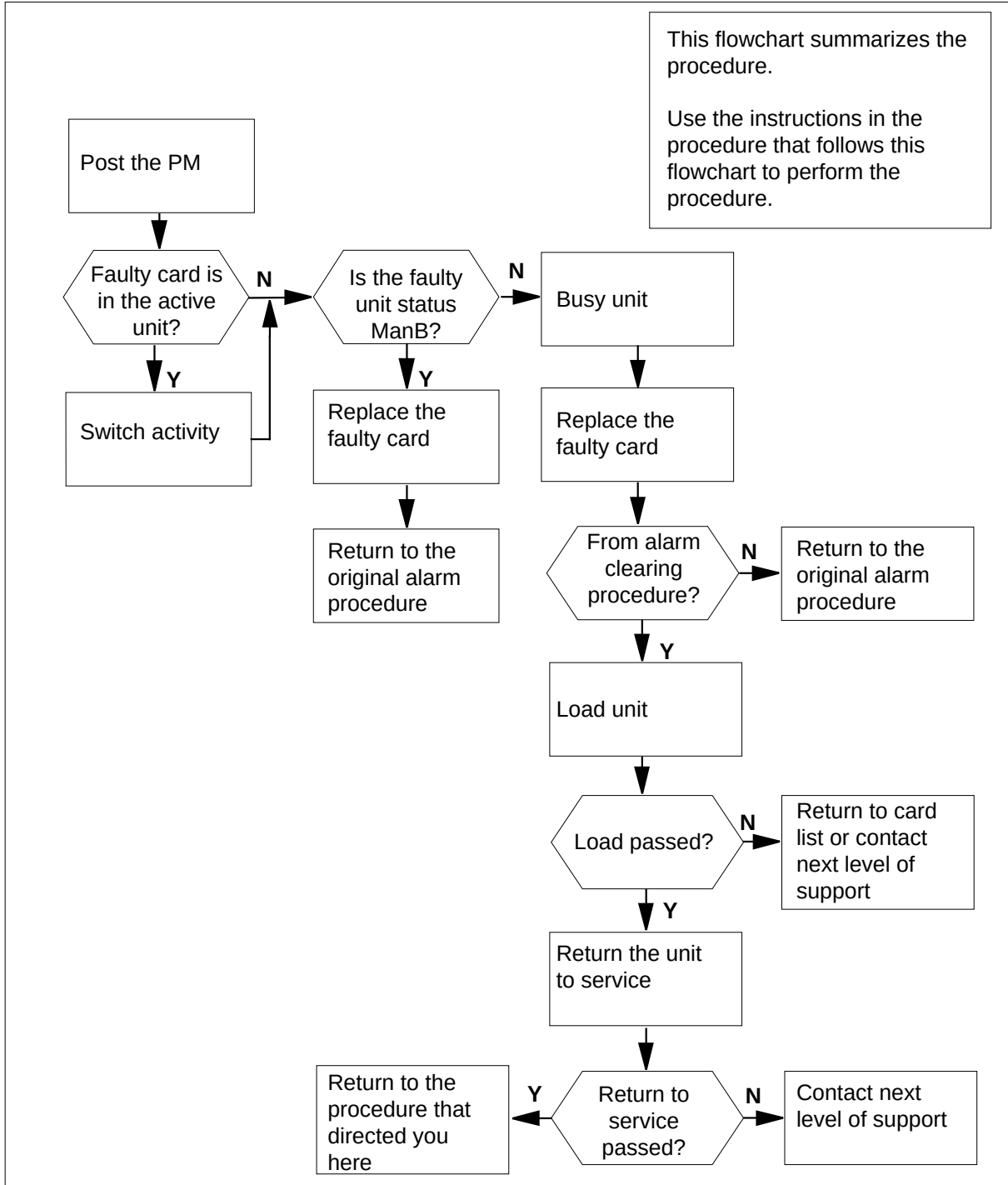
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X42 in an SMA-MVI-20 (continued)

Summary of card replacement procedure for a NT6X42 card in an SMA



NT6X42 in an SMA-MVI-20 (continued)

Replacing a NT6X42 card in an SMA

At the equipment frame

- 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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."
- 4



CAUTION

Loss of service

Ensure that you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA by typing
>MAPCI;MTC;PM;POST SMA sma_no
 and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response:

NT6X42

in an SMA-MVI-20 (continued)

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
Unit0: Act InSv
Unit1: Inact SysB

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 11

- 7 SWACT the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
cannot continue at this time	step 8
can continue at this time	step 9

- 8 Reject the prompt to SWACT the units by typing

>NO

and pressing the Enter key.

The system discontinues the SWACT.

- 9 Confirm the system prompt by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 11

NT6X42 in an SMA-MVI-20 (continued)

	If the message is	Do
	SWACT failedReason: XPM SWACTback	step 10
	SWACT refused by SWACT Controller	step 10
10	The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit. Go to step 22.	

At the equipment frame

- 11** Hang a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 12** Observe the MAP display and determine the state of the inactive unit.

	If state is	Do
	ManB	step 14
	SysB, CBsy, ISTb, or InSv	step 13

13



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Busy the inactive PM unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the inactive SMA unit (0 or 1)

- 14** Perform the common replacing a card procedure in this document.

NT6X42 in an SMA-MVI-20 (continued)

- 15 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 19
other	step 16

At the MAP terminal

- 16 Load the inactive SMA unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the busied SMA unit

If load	Do
passed	step 17
failed	step 22

- 17 Test the inactive SMA unit by typing

>TST UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the SMA unit loaded in step 16

If test	Do
passed	step 18
failed	step 22

- 18 Return the inactive SMA unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the SMA unit tested in step 17

If RTS	Do
passed	step 19

NT6X42
in an SMA-MVI-20 (end)

If RTS

failed

Dostep 22

At the equipment frame

- 19** Remove the sign from the active SMA unit.
- 20** Send any faulty cards for repair according to local procedure.
- 21** Note the following in the office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Go to step 23.
- 22** For further assistance, contact the personnel responsible for the next level of support.
- 23** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X42 in an SMS

Application

Use this procedure to replace an NT6X42 card in an SMS.

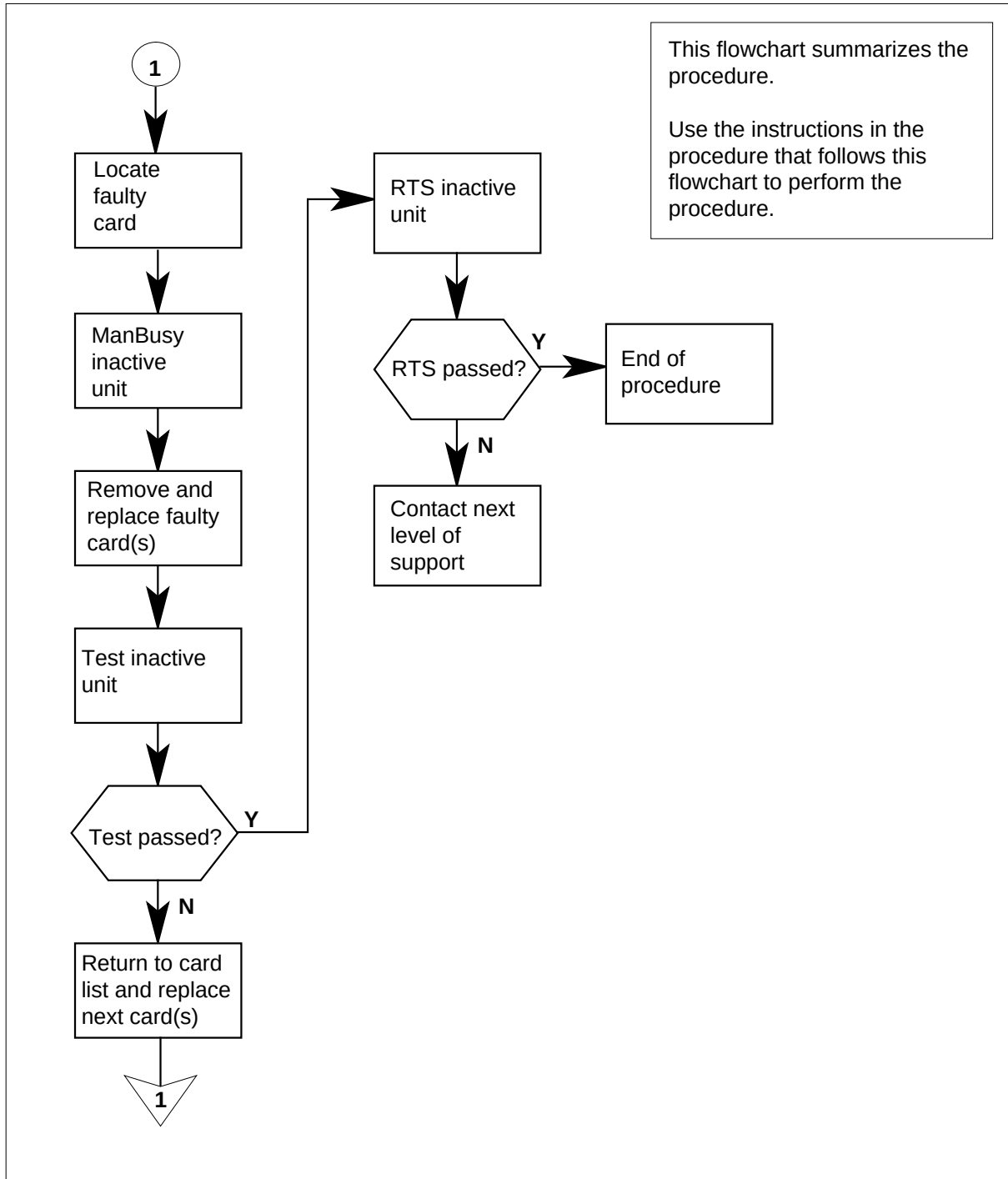
PEC	Suffixes	Name
NT6X42	AA	Channel supervision message

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.

NT6X42
in an SMS (continued)**Summary of card replacement procedure for an NT6X42 card in an SMS**

NT6X42 in an SMS (continued)

Replacing an NT6X42 card in an SMS

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 SMS, ensure the unit where you are replacing the card is inactive and the mate unit is active.

Obtain a replacement card. Verify 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 PM level of the MAP display by typing
>MAPCI;MTC;PM;POST SMS sms_no
 and pressing the Enter key.
 where
 sms_no
 is 0-127 for NT40 and 0-255 for DMS SuperNode

Example of a MAP response

```
SMS 3   INSV   LINKS_00S   CSIDE 0   PSIDE 0
    Unit0      Act      InSv
    Unit1      Inact     ISTb
```

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

If faulty card is on

Do

active unit

step 5

inactive unit

step 8

- 5 Switch the activity of the units by typing
>SWACT

NT6X42 in an SMS (continued)

and pressing the Enter key.

The system determines the type of SWACT it can perform and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
can continue at this time	step 6
cannot continue at this time	step 23

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 8
SWACT failed	step 7
SWACT failed Reason: XPM SWACTback	step 7
SWACT refused by SWACT controller	step 7

- 7 Return to the "SMS alarm clearing procedures" section in this document to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

- 8 Put a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 9 Busy the inactive PM unit by typing

>bsy UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS unit

NT6X42 in an SMS (continued)

At the frame

10



WARNING

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 SMS. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

11



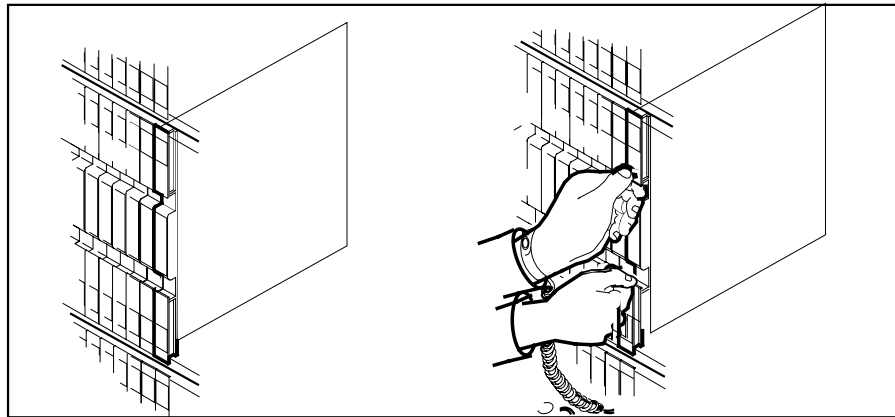
DANGER

Equipment damage

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

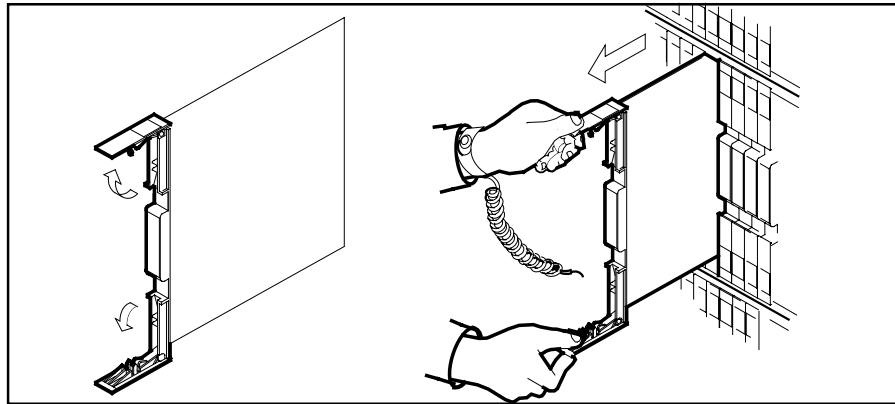
Remove the NT6X42 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.



- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

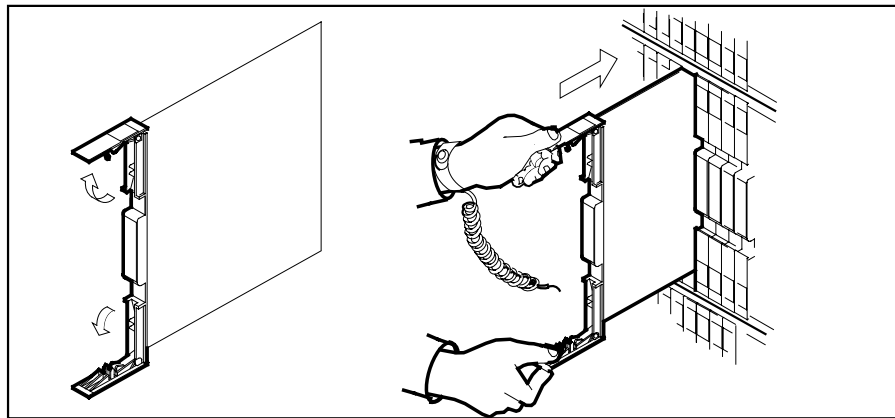
NT6X42
in an SMS (continued)



- c** Verify the replacement card has the same PEC, including suffix, as the card you just removed.

12 Open the locking levers on the replacement card.

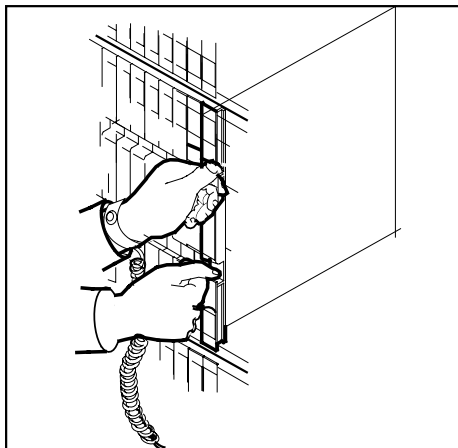
- a** Align the card with the slots in the shelf and gently slide the card into the shelf.



13 Seat and lock the card.

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

NT6X42 in an SMS (continued)



- 14** Use the following information to determine what step to go to next in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 17
other	step 15

- 15** Test the inactive unit by typing
`>TST UNIT unit_no`
and pressing the Enter key.
where
unit_no
is the number of the faulty SMS unit

If TST	Do
passed	step 16
failed	step 17

- 16** Return the inactive SMS unit to service by typing
`>RTS UNIT unit_no`
and pressing the Enter key.
where

NT6X42 in an SMS (end)

unit_no
is the number of the faulty SMS unit

If RTS	Do
passed	step 19
failed	step 18

17 Return to the maintenance procedure that directed you to this procedure. At 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.

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

At the frame

19 Remove the sign from the active SMS unit.

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

21 Note in office records according to local policy:

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

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

23 For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

NT6X42 in an SMS-R

Application

Use this procedure to replace the following card in an SMS-R.

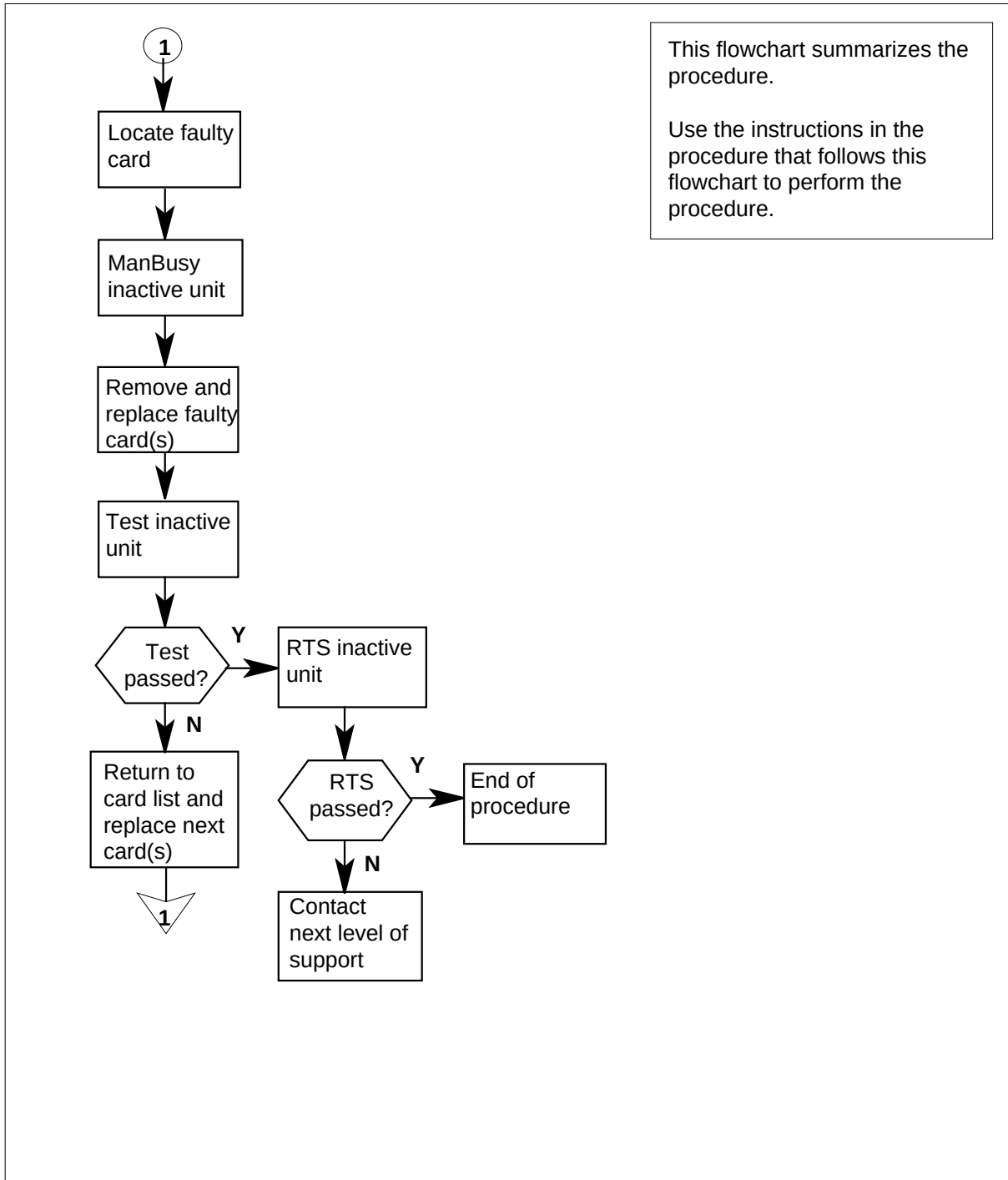
PEC	Suffixes	Name
NT6X42	AA	Channel Supervision Message

Common procedures

Not applicable

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.

NT6X42
in an SMS-R (continued)**Summary of card replacement procedure for an NT6X42 card in an SMS-R**

NT6X42 in an SMS-R (continued)

Replacing an NT6X42 card in an SMS-R

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in the SMS-R, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

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

At the MAP display

- 3 Access the PM level of the MAP display by typing
>MAPCI;MTC;PM;POST SMSR smsr_no
and pressing the Enter key.

where

smsr_no

is the number of the SMS-R to be posted

Example of a MAP response

```
SMSR 3   INSV   LINKS_00S   CSIDE 0   PSIDE 0
      Unit0      Act      InSv
      Unit1      InAct     ISTb
```

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing
>SWACT

NT6X42 in an SMS-R (continued)

and pressing the Enter key.

The system determines the type of SWACT it can perform and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
can continue at this time	step 6
cannot continue at this time	step 23

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failed Reason: XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 Return to the alarm clearing procedure to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

- 8 Put a sign on the active unit with the words: *"Active unit—Do not touch."*

At the MAP

- 9 Busy the inactive PM unit by typing

>bsy UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS-R unit

NT6X42 in an SMS-R (continued)

At the frame

10



WARNING

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 SMS-R. This strap protects the equipment against damage caused by static electricity.

Put on a wrist strap.

11



DANGER

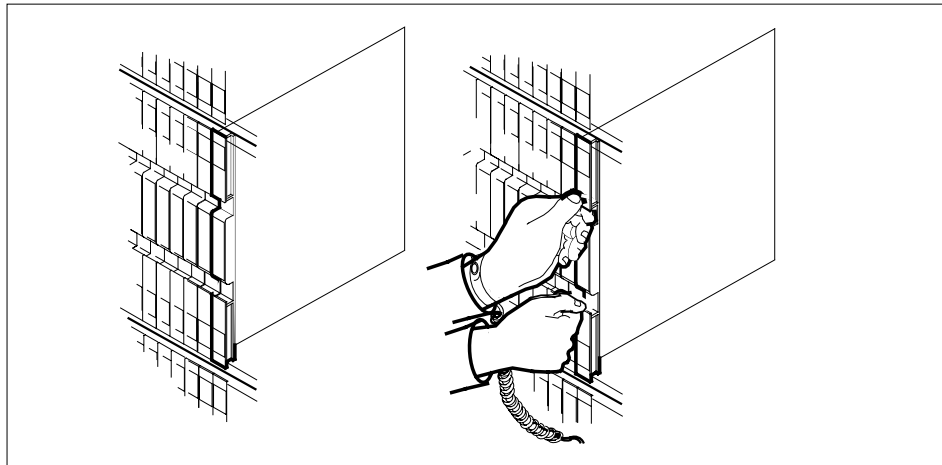
Equipment damage

Take the following precautions when removing or inserting a card:

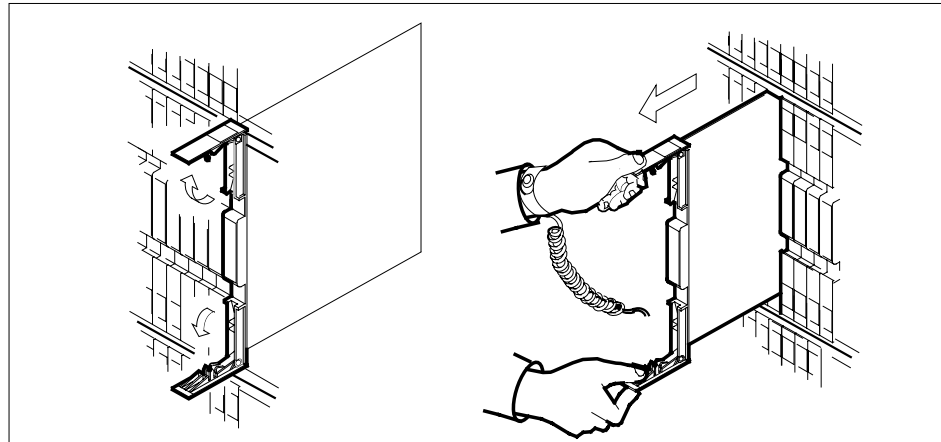
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Remove the NT6X42 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.



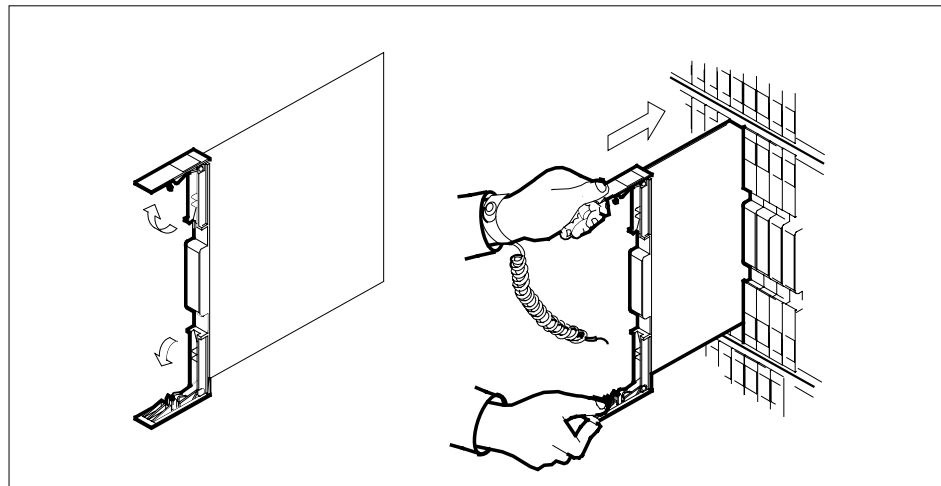
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

NT6X42
in an SMS-R (continued)

- c Verify that the replacement card has the same PEC, including suffix, as the card you just removed.

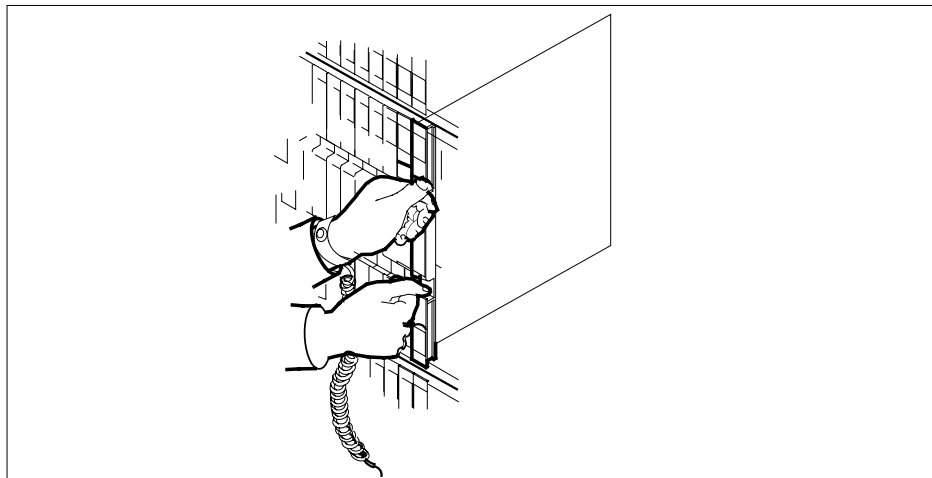
12 Open the locking levers on the replacement card.

- a 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.

NT6X42 in an SMS-R (continued)



- 14** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 17
other	step 15

- 15** Test the inactive unit by typing
>TST UNIT unit_no
and pressing the Enter key.

where

unit_no
is the number of the faulty SMS-R unit

If TST	Do
passes	step 16
fails	step 17

- 16** Return the inactive SMS-R unit to service by typing
>RTS UNIT unit_no
and pressing the Enter key.

where

NT6X42 in an SMS-R (end)

unit_no
is the number of the faulty SMS-R unit

If RTS	Do
passes	step 19
fails	step18

- 17** Return to *Alarm Clearing Procedures* section of this manual or to the procedure that directed you to this procedure. At 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.
- 18** Obtain further assistance in replacing this card by contacting personnel responsible for a higher level of support.

At the frame

- 19** Remove the sign from the active SMS-R unit.
- 20** Send any faulty cards for repair according to local procedure.
- 21** Note in office records according to local policy:
- the date the card was replaced
 - the serial number of the card
 - the symptoms that prompted replacement of the card
- 22** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 23** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

NT6X44 in an RSC

Application

Use this procedure to replace the following card in an RSC RCC.

PEC	Suffixes	Name
NT6X44	AA, EA	Time switch

Common procedures

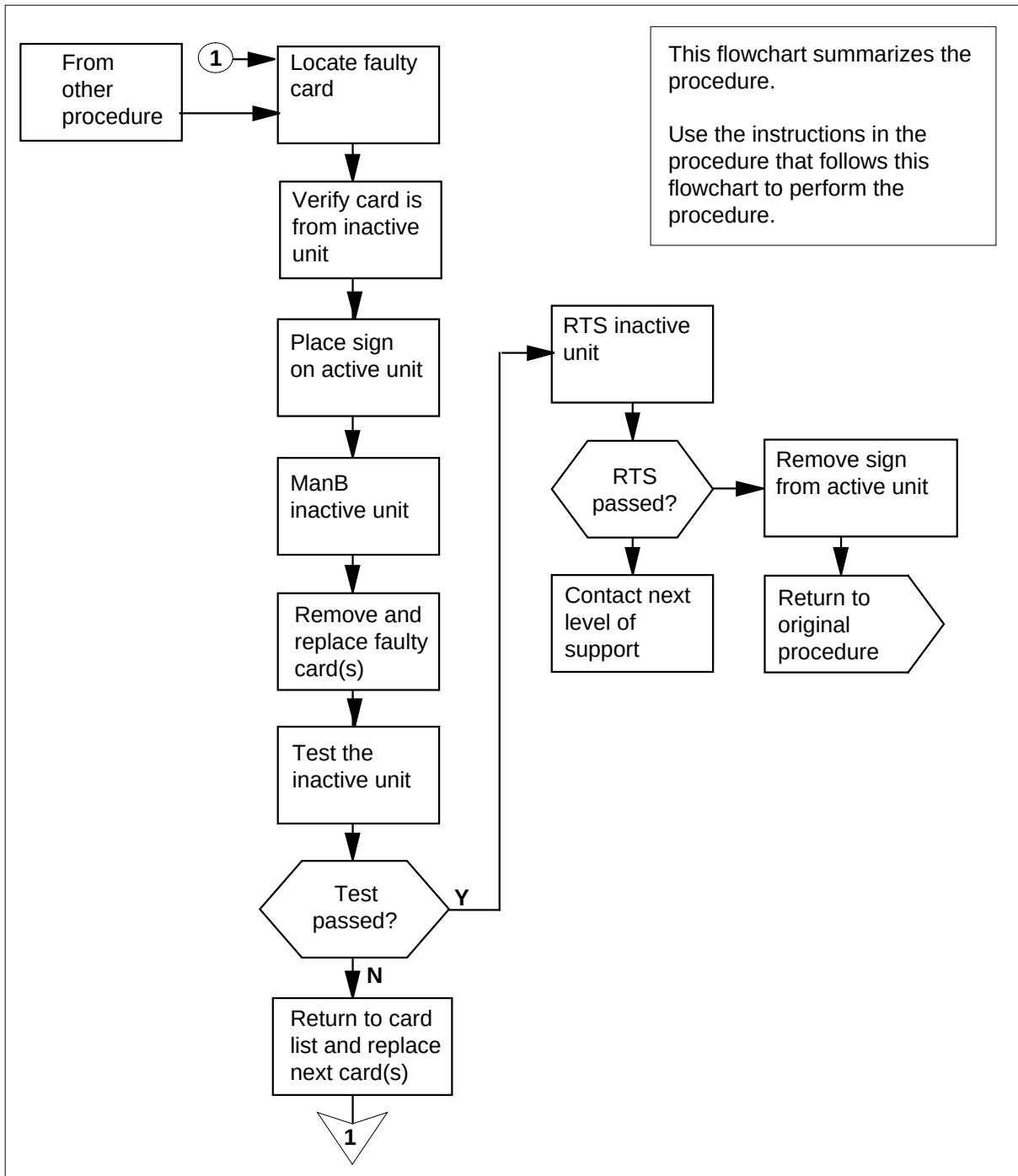
None

Action

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

NT6X44 in an RSC (continued)

Summary of card replacement procedure for an NT6X44 card in an RSC RCC



NT6X44 in an RSC (continued)

Replacing an NT6X44 card in an RCC

At your current location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in the RCC ensure that the unit where 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 equipment code (PEC) including suffix, as the card to be removed.

At the MAP terminal

- 3 Access the PM level and post the RCC by typing
>MAPCI;MTC;PM;POST RCC rcc_unit_no
and pressing the Enter key.
where
rcc_unit_no
is the number of the RCC unit to be busied (0 or 1)
Example of a MAP display:

NT6X44
in an RSC (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	1RCC	.	.	.	.	.
RCC		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit		PM	0	0	2	0	225		
2 Post_		RCC	0	0	0	1	11		
3 ListSet									
4		RCC	0	ISTb	Links_00S:	CSide	0, 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 IRLINK									
17 Perform									
18									

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

At the RCE frame

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

At the MAP terminal

- 6 Busy the inactive RCC unit by typing
>BSY UNIT rcc_unit_no
and pressing the Enter key.
where
rcc_unit_no
is the number of the inactive RCC unit (0 or 1)

NT6X44 in an RSC (continued)

At the RCE frame

7



WARNING

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 RCC. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

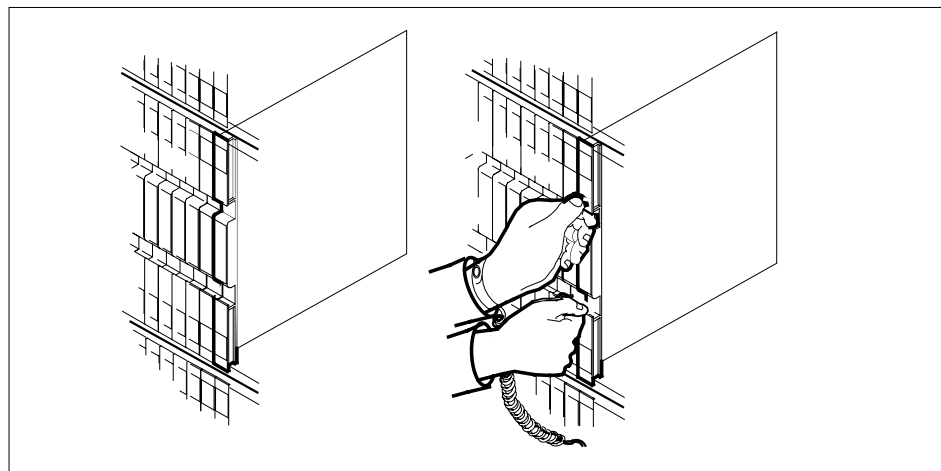
Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

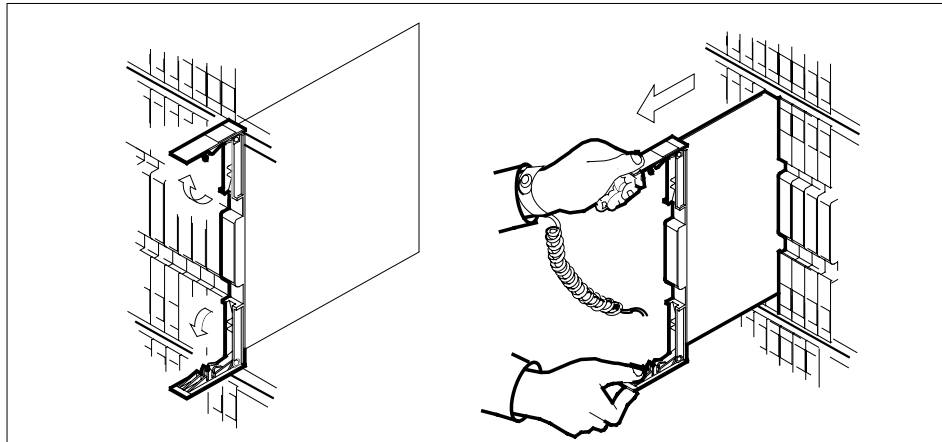
Put on a wrist strap.

8 Remove the NT6X44 card as shown in the following figures.

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

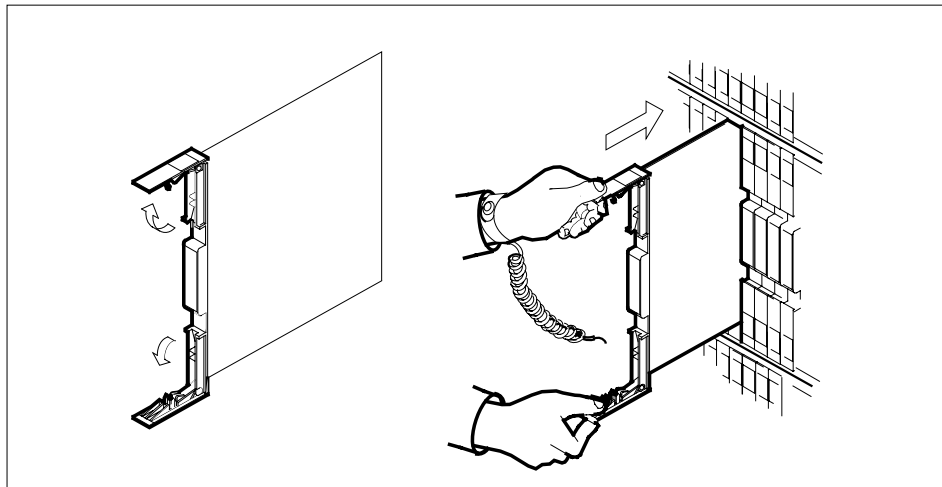


b Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

NT6X44
in an RSC (continued)

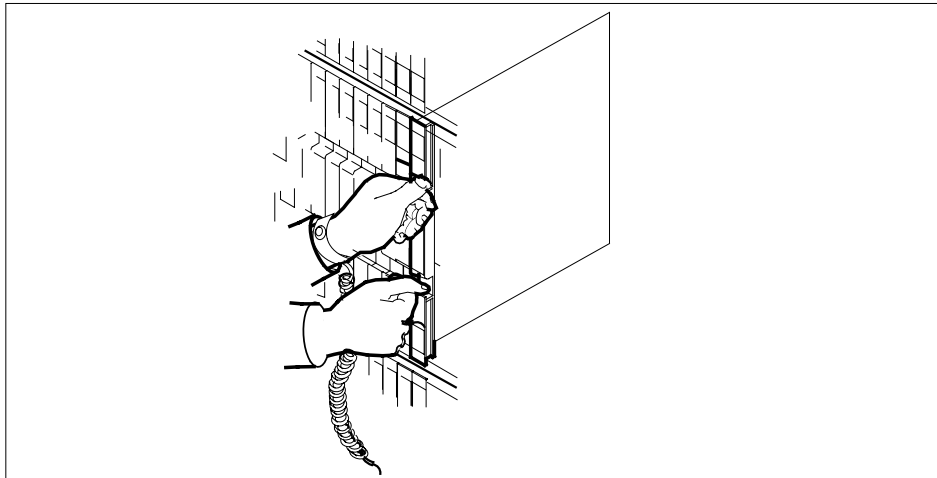
- c** Ensure the replacement card has the same PEC including suffix, as the card you just removed.

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

NT6X44 in an RSC (continued)



At the MAP terminal

- 11** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 15
other	step 12

- 12** Return the inactive RCC unit to service by typing
>RTS UNIT rcc_unit_no
and pressing the Enter key.
where

rcc_unit_no
is the number of the RCC unit busied in step 6.

If RTS	Do
passed	step 13
failed	step 16

- 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

NT6X44
in an RSC (end)

Go to step 17.

- 15** Return to the *Alarm Clearing Procedure* that directed you to this procedure. If necessary, go to the point where the 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.
- 16** Obtain further assistance in replacing this card by contacting personnel responsible for higher level of support.
- 17** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X44 in an SMA

Application

Use this procedure to replace the following card in an SMA identified in the following table.

PEC	Suffixes	Name
NT6X44	CA	Time Switch

Common procedures

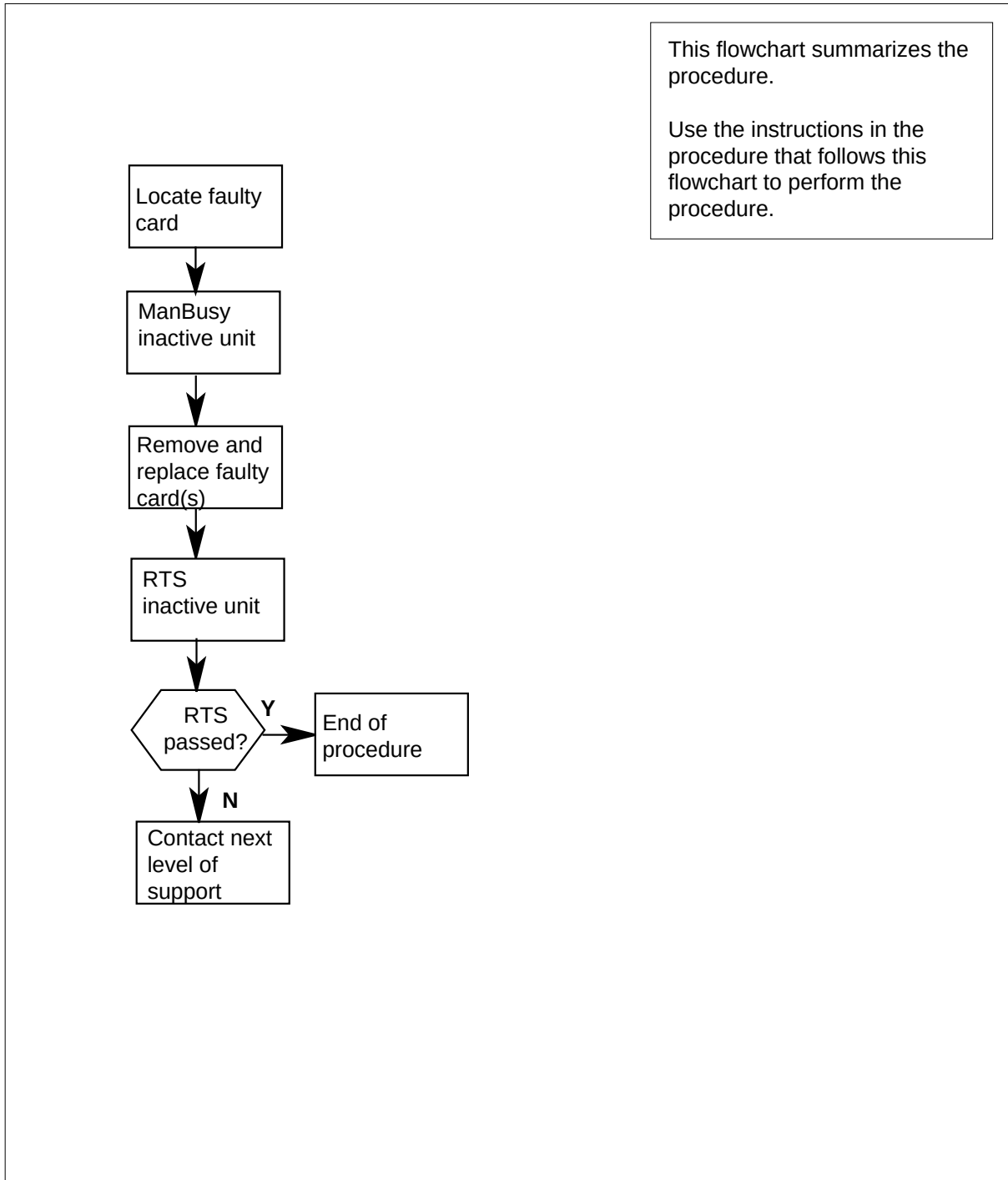
The following procedures are referenced in this procedure:

- replacing a card
- returning a card

Do not go to the common procedure unless directed to do so in the step-action 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.

NT6X44
in an SMA (continued)**Summary of card replacement procedure for an NT6X44 card in an SMA**

NT6X44 in an SMA (continued)

Replacing an NT6X44 card in an SMA

At your current location

- 1 Proceed only if you were directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in the SMA, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Verify 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 PM level of the MAP display by typing
>MAPCI;MTC;PM;POST SMA sma_no
and pressing the Enter key.

where

sma_no

is the number of the SMA to be posted

Example of a MAP response:

```
SMA 3   INSV   LINKS_00S   CSIDE 0   PSIDE 0
      Unit0    Act    InSv
      Unit1    InAct   ISTb
```

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

NT6X44 in an SMA (continued)

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
can continue at this time	step 6
cannot continue at this time	step 19

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed Reason: XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 The inactive unit could not establish two-way communication with the central control and has switched activity back to the originally active unit. All faults on the inactive unit must be cleared before attempting to clear the alarm condition on the active unit.

Go to step 17.

At the equipment frame

- 8 Hang a sign on the active unit with the words: *"Active unit—Do not touch."* This sign should not be attached by magnets or tape.

At the MAP terminal

- 9 Observe the MAP display and determine the state of the inactive unit. The example in step 3 shows the status of the PM as in-service on the active unit and in-service trouble on the inactive unit.

If state is	Do
ManB	step 11

NT6X44 in an SMA (continued)

	If state is	Do
	SysB, CBSy, ISTb, or InSv	step 10
10	Busy the inactive PM unit by typing >bsy UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the faulty SMA unit	

At the equipment frame

11



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

- Perform the common replacing a card procedure in this document.
- 12 Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 16
other	step 13

At the MAP terminal

- 13 Return the inactive SMA unit to service by typing
>RTS UNIT unit_no
and pressing the Enter key.
where
 unit_no
 is the number of the faulty SMA unit

If RTS	Do
passes	step 14

NT6X44
in an SMA (end)

If RTS

fails

Dostep 17

At the equipment frame

- 14** Remove the sign from the active SMA unit.
- 15** Go to the common returning a card procedure in this document.
Go to step 18.
- 16** Return to *Alarm Clearing Procedures* section of this manual or other procedure that directed you to this procedure. At 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.
- 17** Obtain further assistance in replacing this card by contacting personnel responsible for a higher level of support.
- 18** You have successfully 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.
- 19** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

NT6X44 in an SMA-MVI-20

Application

Use this procedure to replace the following card in an SMA identified in the following table.

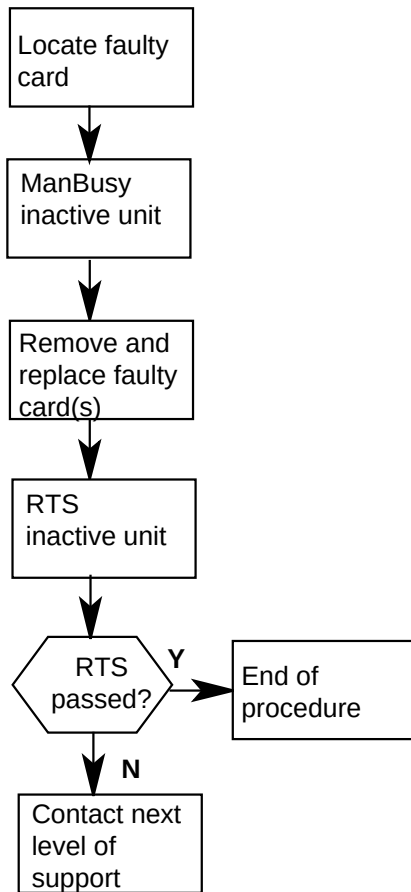
PEC	Suffixes	Name
NT6X44	CA	Time Switch

Common procedures

The common replacing a card procedure 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.

NT6X44
in an SMA-MVI-20 (continued)**Summary of card replacement procedure for an NT6X44 card in an SMA**

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

NT6X44 in an SMA-MVI-20 (continued)

Replacing an NT6X44 card in an SMA

At your current location

- 1 Proceed only if you were directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in the SMA, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

Obtain a replacement card. Verify 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 PM level of the MAP display by typing
>MAPCI;MTC;PM;POST SMA sma_no
and pressing the Enter key.

where

sma_no

is the number of the SMA to be posted

Example of a MAP response:

```
SMA 3   INSV   LINKS_00S   CSIDE 0   PSIDE 0
      Unit0    Act    InSv
      Unit1    InAct   ISTb
```

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 9

- 5 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

NT6X44

in an SMA-MVI-20 (continued)

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

	If SWACT	Do
	cannot continue at this time	step 6
	can continue at this time	step 7
6	Do not switch activity of the units. Reject the switch by typing >NO and pressing the Enter key. The system discontinues the switch of activity. Return to step 5 during a period of low traffic.	
7	Switch the activity of the unit by typing >YES and pressing the Enter key. The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably. Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.	
	If the message is	Do
	SwAct passed	step 9
	SwAct failed Reason: XPM SwActback	step 8
	SwAct refused by SwAct controller	step 8
8	The inactive unit could not establish two-way communication with the central control and has switched activity back to the originally active unit. All faults on the inactive unit must be cleared before attempting to clear the alarm condition on the active unit. Go to step 19.	
At the equipment frame		
9	Hang a sign on the active unit with the words: <i>"Active unit—Do not touch."</i> This sign should not be attached by magnets or tape.	

NT6X44 in an SMA-MVI-20 (continued)

At the MAP terminal

- 10 Observe the MAP display and determine the state of the inactive unit. The example in step 3 shows the status of the PM as in-service on the active unit and in-service trouble on the inactive unit.

If state is	Do
ManB	step 12
SysB, CBsy, ISTb, or InSv	step 11

- 11 Busy the inactive PM unit by typing
>bsy UNIT unit_no
and pressing the Enter key.
where
 unit_no
 is the number of the faulty SMA unit

At the equipment frame

12



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Perform the common replacing a card procedure in this document.

- 13 Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 18
other	step 14

At the MAP terminal

- 14 Return the inactive SMA unit to service by typing
>RTS UNIT unit_no
and pressing the Enter key.
where

NT6X44
in an SMA-MVI-20 (end)

unit_no
is the number of the faulty SMA unit

If RTS	Do
passes	step 15
fails	step 19

At the equipment frame

- 15** Remove the sign from the active SMA unit.
- 16** Send any faulty cards for repair according to local procedure.
- 17** Record the following items in office records according to local policy:
 - the date the card was replaced
 - the serial number of the card
 - the symptoms that prompted replacement of the cardGo to step 20.
- 18** Return to *Alarm Clearing Procedures* section of this manual or other procedure that directed you to this procedure. At 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.
- 19** Obtain further assistance in replacing this card by contacting personnel responsible for a higher level of support.
- 20** You have successfully 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.

NT6X44 in an SMS

Application

Use this procedure to replace an NT6X44 card in an SMS.

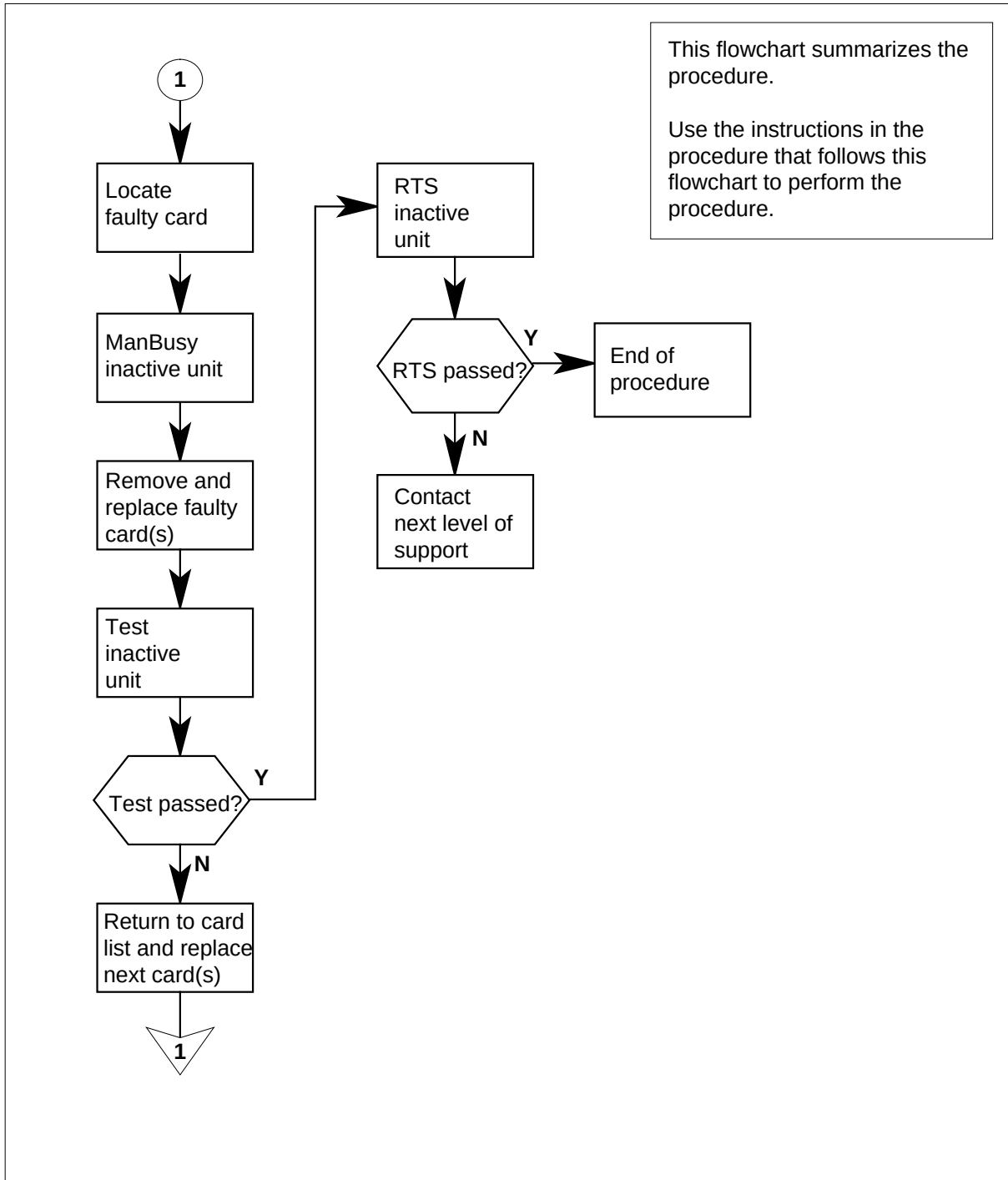
PEC	Suffixes	Name
NT6X44	AB, CA	Time switch

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.

NT6X44
in an SMS (continued)**Summary of card replacement procedure for an NT6X44 card in an SMS**

NT6X44 in an SMS (continued)

Replacing an NT6X44 card in an SMS

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 SMS, ensure the unit where you are replacing the card is inactive and the mate unit is active.

Obtain a replacement card. Verify 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 PM level of the MAP display by typing
>MAPCI;MTC;PM;POST SMS sms_no
 and pressing the Enter key.
 where
 sms_no
 is 0-127 for NT40 and 0-255 for DMS SuperNode

Example of a MAP response

```
SMS 3 INSV LINKS_00S CSIDE 0 PSIDE 0
Unit0 Act InSv
Unit1 Inact ISTb
```

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing
>SWACT

NT6X44 in an SMS (continued)

and pressing the Enter key.

The system determines the type of SWACT it can perform and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
cannot continue at this time	step 23
can continue at this time	step 6

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failed Reason: XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 Return to "SMS alarm clearing procedures" section in this document to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

- 8 Put a sign on the active unit bearing the words: *Active unit—Do not touch*. The sign should not be attached by magnets or tape.

At the MAP terminal

- 9 Busy the inactive PM unit by typing

>bsy UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS unit

NT6X44 in an SMS (continued)

At the frame

10



WARNING

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 SMS. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

11



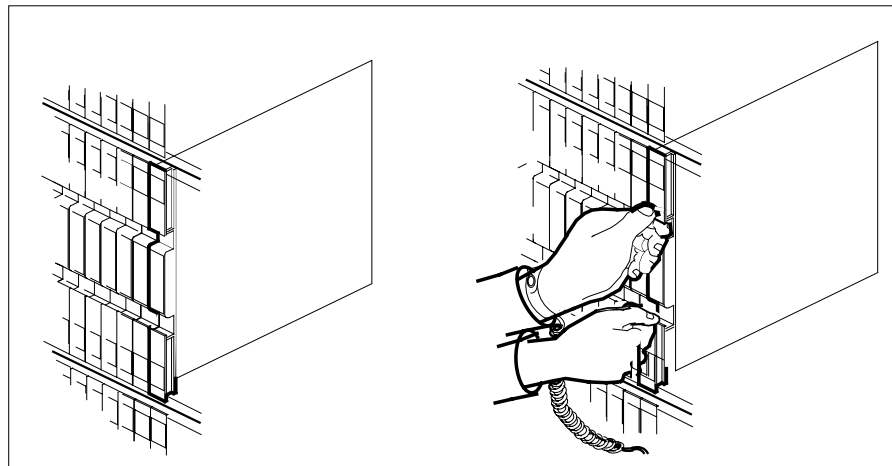
DANGER

Equipment damage

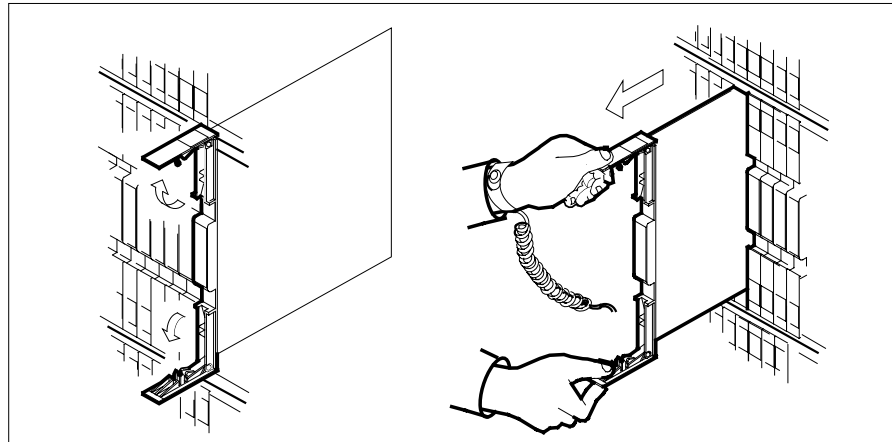
When removing or inserting a card, do not apply direct pressure to the components and do not force the cards into the slots.

Remove the NT6X44 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.

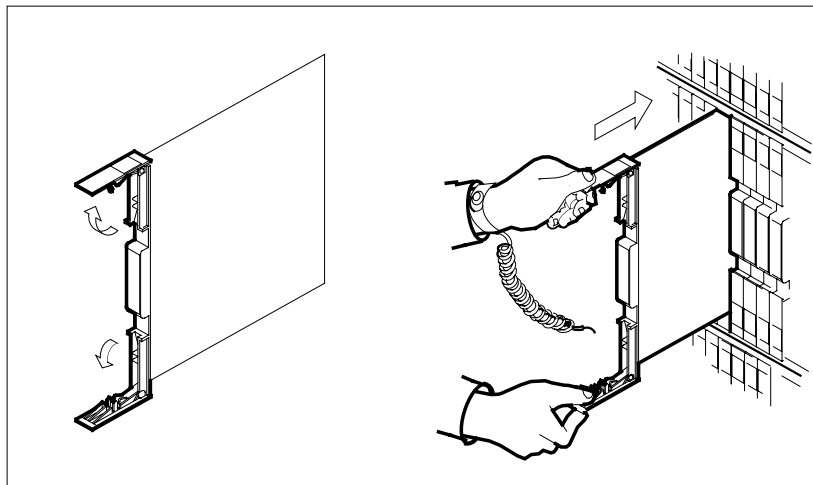


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

NT6X44
in an SMS (continued)

- c** Verify the replacement card has the same PEC, including suffix, as the card you just removed.

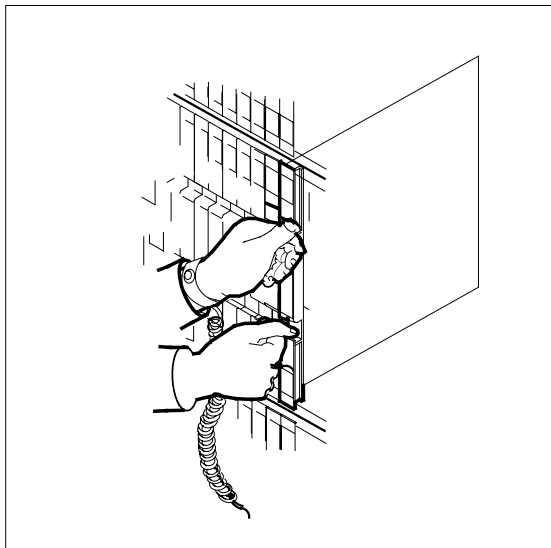
- 12** Open the locking levers on the replacement card. Align the card with the slots in the shelf and gently slide the card into the shelf.



- 13** Seat and lock the card.

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

NT6X44 in an SMS (continued)



- 14 Use the following information to determine where to go next in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 20
other	step 15

- 15 Test the inactive SMS unit by typing

>TST UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS unit

If TST	Do
passed	step 16
failed	step 20

- 16 Return the inactive SMS unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

NT6X44
in an SMS (end)

unit_no
is the number of the faulty SMS unit

If RTS	Do
passed	step 17
failed	step 21

At the frame

- 17** Remove the sign from the active SMS unit.
- 18** Send any faulty cards for repair according to local procedure.
- 19** Record the following items in office records according to local policy:
- 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 maintenance procedure that directed you to this procedure. At 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 higher level of support.
- 22** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 23** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

NT6X44 in an SMS-R

Application

Use this procedure to replace the following card in an SMS-R.

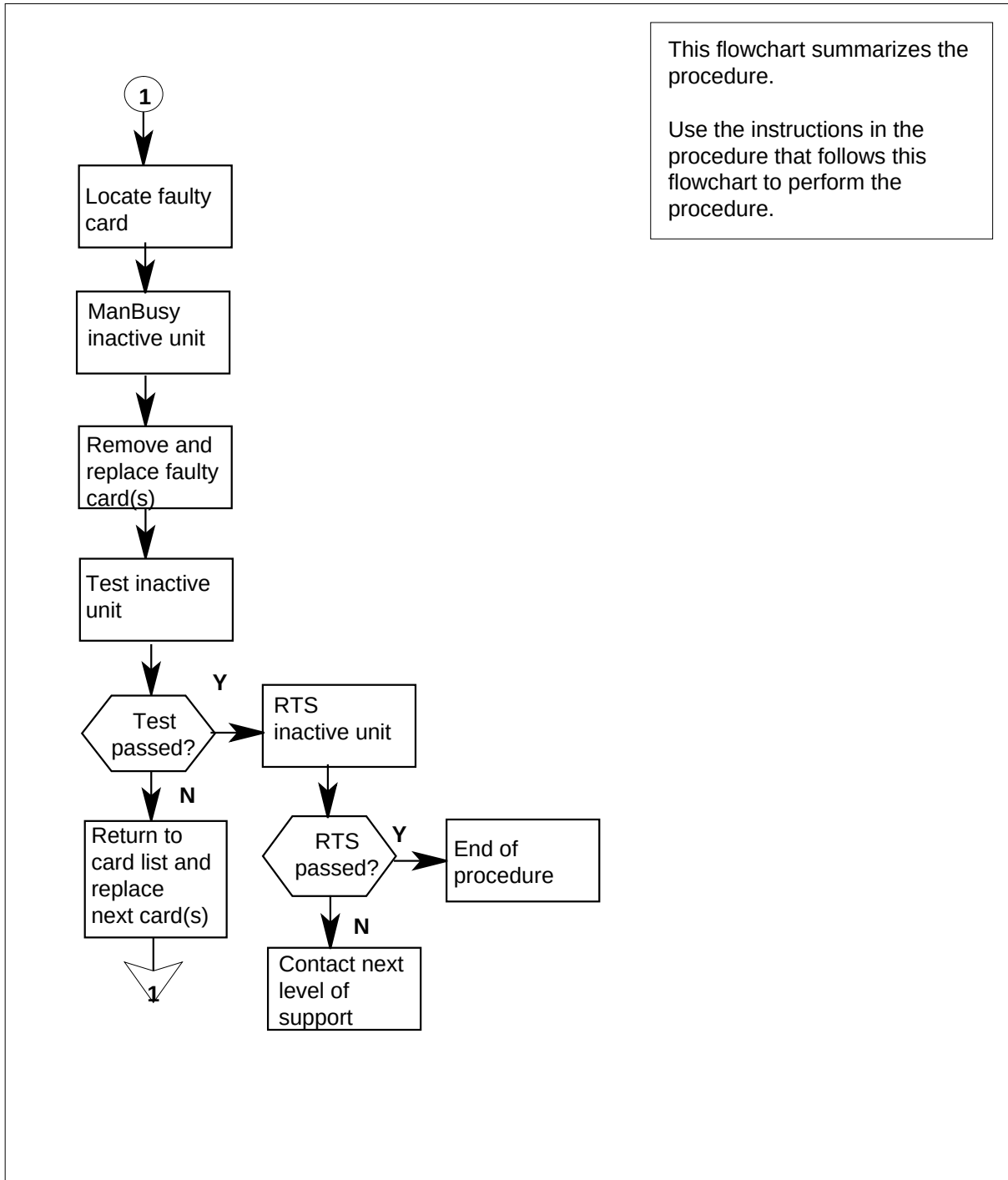
PEC	Suffixes	Name
NT6X44	AB, CA	Time Switch

Common procedures

Not applicable

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.

NT6X44
in an SMS-R (continued)**Summary of card replacement procedure for an NT6X44 card in an SMS-R**

NT6X44 in an SMS-R (continued)

Replacing an NT6X44 card in an SMS-R

At your Current Location

- 1 Proceed only if you were directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in the SMS-R, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

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

At the MAP display

- 3 Access the PM level of the MAP display by typing
>MAPCI;MTC;PM;POST SMSR smsr_no
and pressing the Enter key.

where

smsr_no

is the number of the SMS-R to be posted

Example of a MAP response:

SMSR 3	INSV	LINKS_00S	CSIDE 0	PSIDE 0
Unit0	Act	InSv		
Unit1	InAct	ISTb		

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

NT6X44 in an SMS-R (continued)

The system determines the type of SWACT it can perform and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
can continue at this time	step 6
cannot continue at this time	step 23

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failed Reason: XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 Return to the alarm clearing procedure to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

- 8 Put a sign on the active unit with the words: *"Active unit—Do not touch."*

At the MAP display

- 9 Busy the inactive PM unit by typing

>bsy UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS-R unit

NT6X44 in an SMS-R (continued)

At the frame

10



WARNING

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 SMS-R. This strap protects the equipment against damage caused by static electricity.

Put on a wrist strap.

11



DANGER

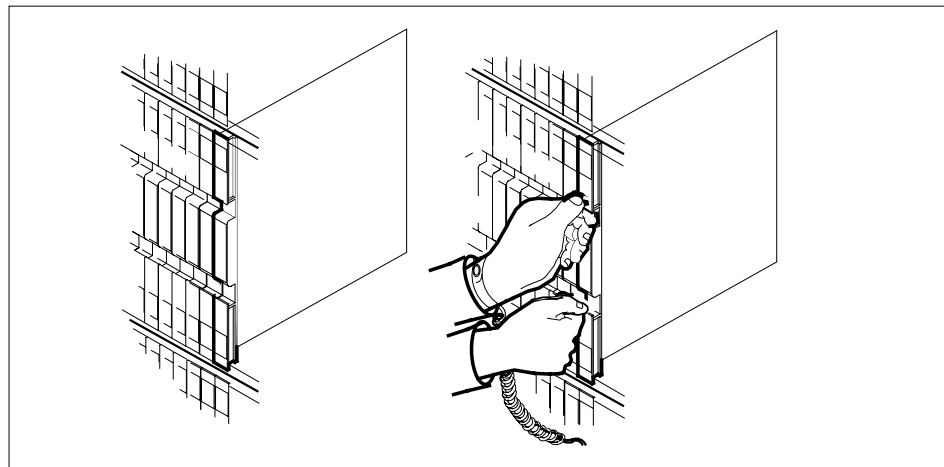
Equipment damage

Take the following precautions when removing or inserting a card:

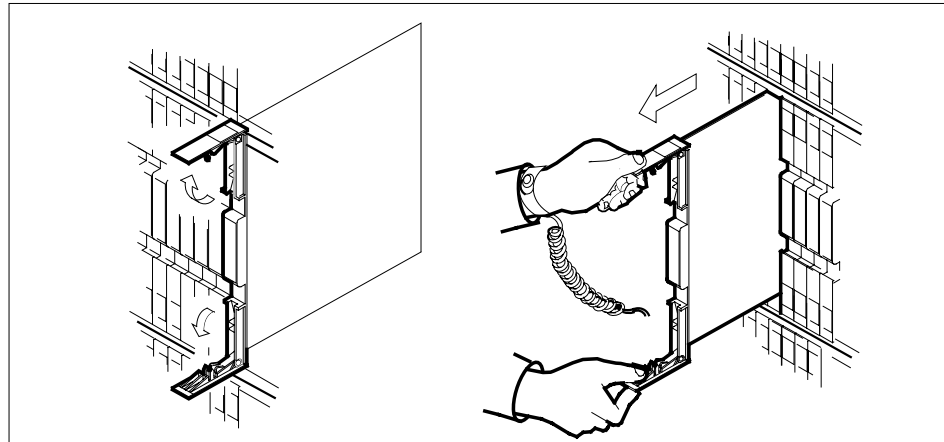
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Remove the NT6X44 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.



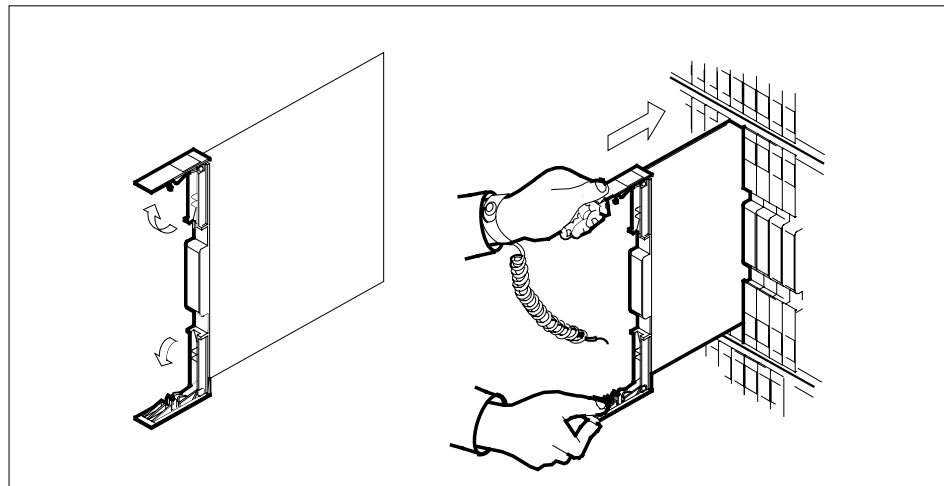
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

NT6X44
in an SMS-R (continued)

- c Verify that the replacement card has the same PEC, including suffix, as the card you just removed.

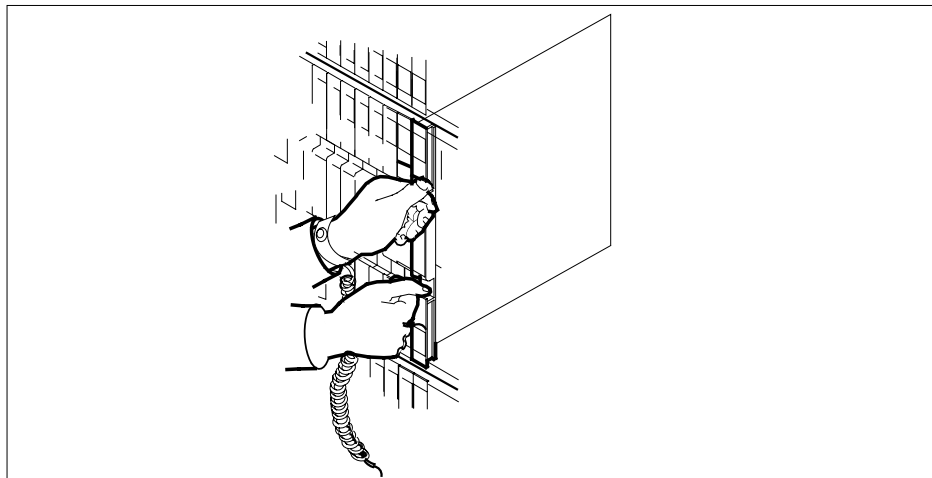
12 Open the locking levers on the replacement card.

- a 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.

NT6X44 in an SMS-R (continued)



- 14** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 20
other	step 15

- 15** Test the inactive SMS-R unit by typing
>TST UNIT unit_no
and pressing the Enter key.

where

unit_no
is the number of the faulty SMS-R unit

If TST	Do
passes	step 16
fails	step 20

- 16** Return the inactive SMS-R unit to service by typing
>RTS UNIT unit_no
and pressing the Enter key.

where

NT6X44
in an SMS-R (end)

unit_no
is the number of the faulty SMS-R unit

If RTS	Do
passes	step 17
fails	step 21

At the frame

- 17** Remove the sign from the active SMS-R unit.
- 18** Send any faulty cards for repair according to local procedure.
- 19** Record the following items in office records according to local policy:
- the date the card was replaced
 - the serial number of the card
 - the symptoms that prompted replacement of the card
- Go to step 22.
- 20** Return to *Alarm Clearing Procedures* section of this manual or other procedure that directed you to this procedure. At 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 personnel responsible for a higher level of support.
- 22** You have successfully 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.
- 23** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

NT6X45 in an IOPAC HIE

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

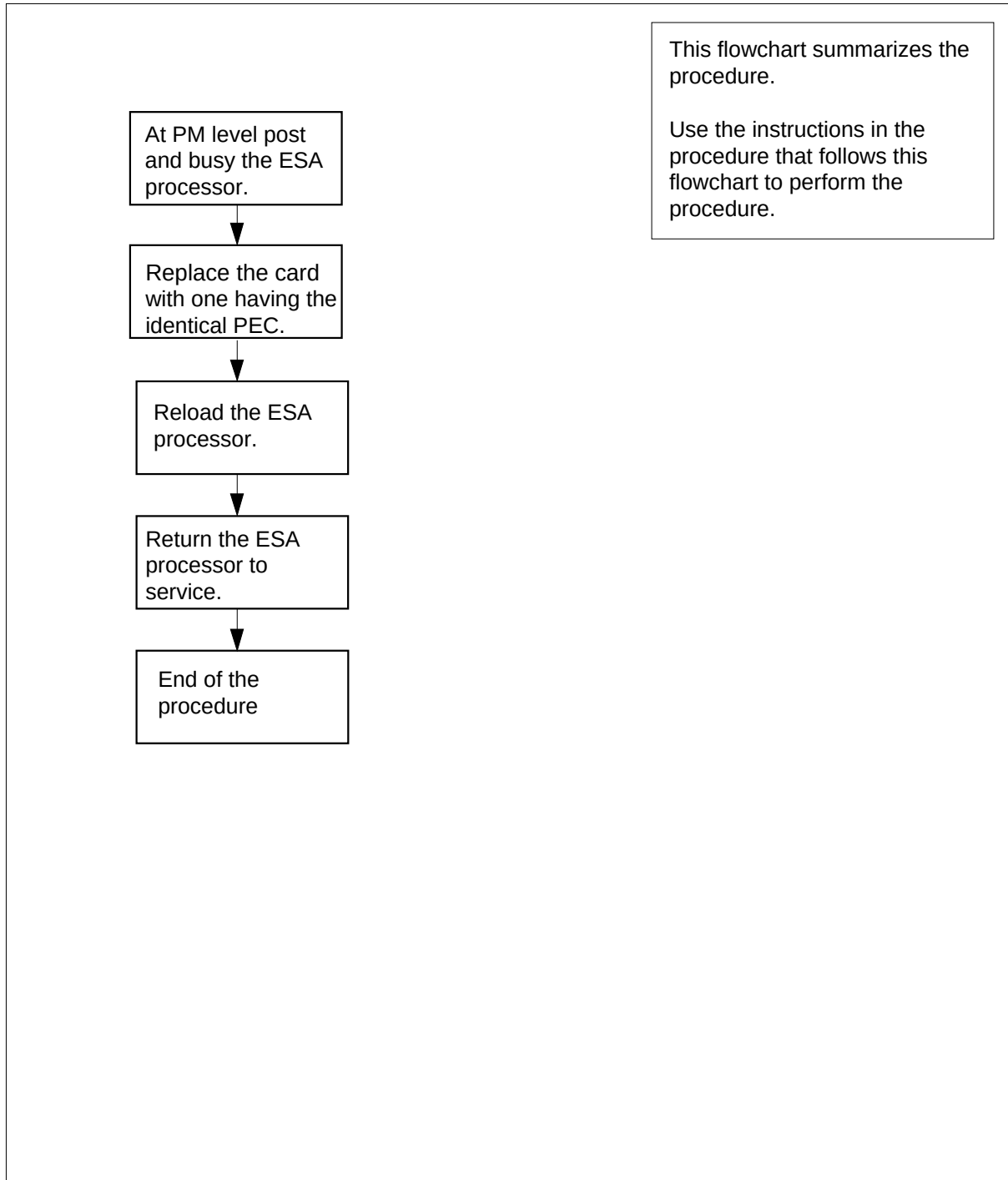
PEC	Suffix	Name
NTX645	AF	ESA processor

Common procedures

The common replacing a card procedure 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.

NT6X45
in an IOPAC HIE (continued)**Summary of card replacement procedure for an NT6X45 card in an HIE**

NT6X45 in an IOPAC HIE (continued)

Replacing an NT6X45 in an HIE

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.

Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 6.

Otherwise, continue with step 4.

At the MAP terminal

- 4 Post the Emergency Stand-Alone (ESA) processor by typing
>MAPCI;MTC;PM;POST ESA esa_no
and pressing the Enter key.
where
esa_no
is the number of the ESA processor

- 5 Busy the ESA processor by typing
>BSY
and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

At the HIE shelf

- 6 Replace the NT6X45 card using the common replacing a card procedure in this document. When the card is replaced, return to this step.

When you have completed the procedure, return here.
- 7 If you were directed to this procedure from the *Alarm Clearing Procedures*, return to the alarm clearing procedure that directed you here. Otherwise, continue with step 8.

NT6X45 in an IOPAC HIE (continued)

At the MAP terminal

- 8** Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If	Do
The message <code>loadfile not found in directory</code> is received.	step 9
load passed	step 26
load failed	step 29

- 9** Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 10
IOC disk	step 16
SLM disk	step 21

- 10** Locate the tape that contains the PM load files.

- 11** Mount the tape on a magnetic tape drive.

- 12** Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape containing the PM load files

- 13** List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape containing the PM load files

- 14** Demount the tape drive by typing

>DEMOUNT T tape_no

and pressing the Enter key.

where

NT6X45 in an IOPAC HIE (continued)

- tape_no**
is the number of the tape drive containing the PM load files
- 15 Go to step 25.
- 16 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 17 Access the disk utility level of the MAP display by typing
>DSKUT
and pressing the Enter key.
- 18 List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files obtained in step 16.
- 19 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 20 Go to step 25.
- 21 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 22 Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 23 List the SLM file names into your user directory by typing
>LV CM;LF file_name
and pressing the Enter key.
where
file_name
is the name of the SLM disk volume containing the file obtained in step 21.
- 24 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25 Reload the ESA processor by typing
>LOADPM

NT6X45
in an IOPAC HIE (end)

and pressing the Enter key.

	If	Do
	load failed	step 29
	load passed	step 26
26	Return the ESA processor to service by typing >RTS and pressing the Enter key.	
	If RTS	Do
	passed	step 27
	failed	step 29
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 30.	
29	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
30	You have completed this procedure.	

NT6X45 in an OPAC HIE

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

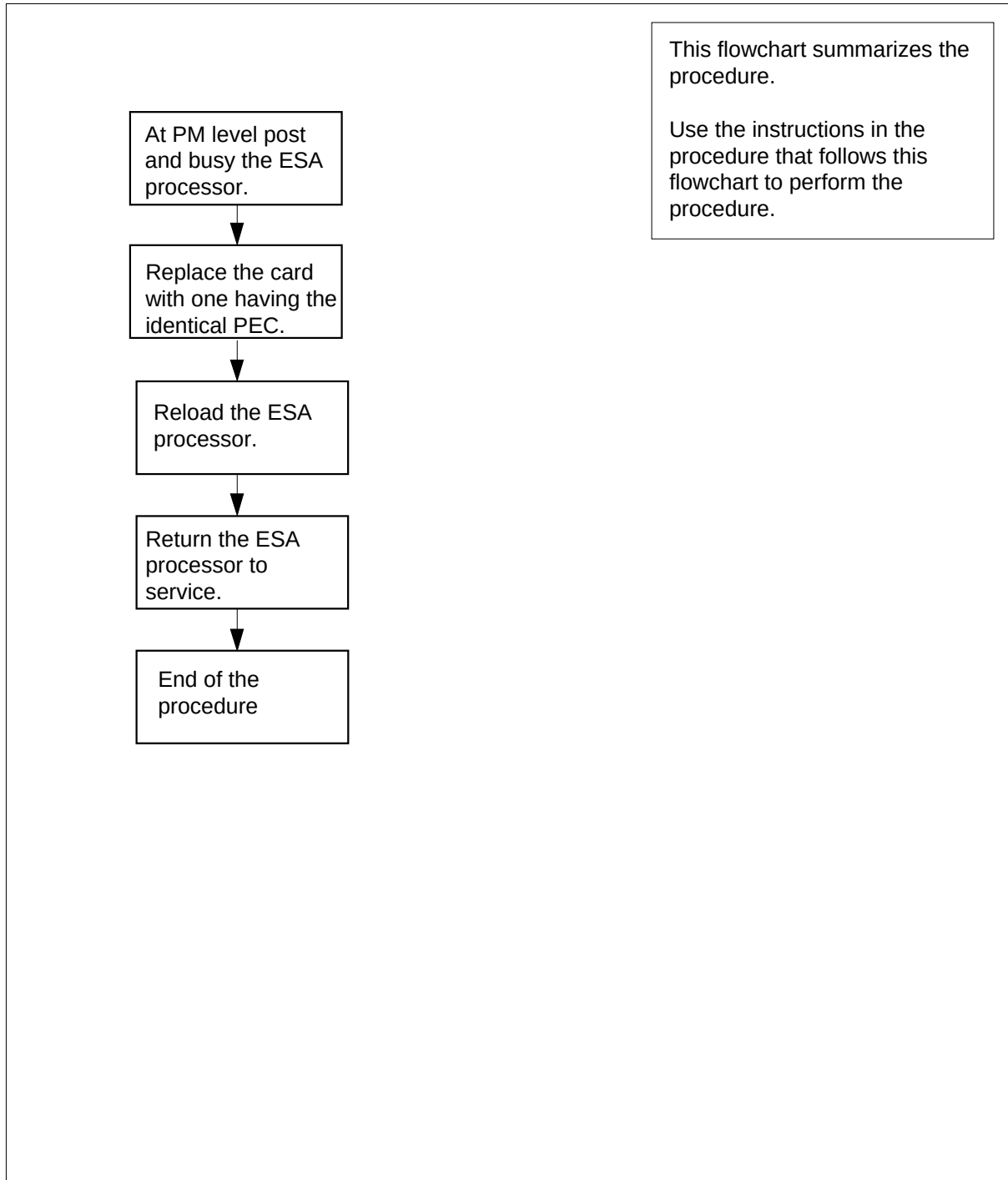
PEC	Suffix	Name
NTX645	AF	ESA processor

Common procedures

The common replacing a card procedure 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.

NT6X45
in an OPAC HIE (continued)**Summary of card replacement procedure for an NT6X45 card in an HIE**

NT6X45 in an OPAC HIE (continued)

Replacing an NT6X45 in an HIE

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.

Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 6.

Otherwise, continue with step 4.

At the MAP terminal

- 4 Post the Emergency Stand-Alone (ESA) processor by typing
>MAPCI;MTC;PM;POST ESA esa_no
and pressing the Enter key.
where
esa_no
is the number of the ESA processor

- 5 Busy the ESA processor by typing
>BSY

and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

At the HIE

- 6 Replace the NT6X45 card using the common replacing a card procedure in this document. When you have completed the procedure, return here.
- 7 If you were directed to this procedure from the *Alarm Clearing Procedures*, return to the alarm clearing procedure that directed you here. Otherwise, continue with step 8.

NT6X45 in an OPAC HIE (continued)

At the MAP terminal

- 8** Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If	Do
The message <code>loadfile not found in directory</code> is received.	step 9
load passes	step 26
load fails	step 29

- 9** Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 10
IOC disk	step 16
SLM disk	step 21

- 10** Locate the tape that contains the PM load files.

- 11** Mount the tape on a magnetic tape drive.

- 12** Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape containing the PM load files

- 13** List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape containing the PM load files

- 14** Demount the tape drive by typing

>DEMOUNT T tape_no

and pressing the Enter key.

where

NT6X45 in an OPAC HIE (continued)

- tape_no**
is the number of the tape drive containing the PM load files
- 15 Go to step 25.
- 16 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 17 Access the disk utility level of the MAP display by typing
>DSKUT
and pressing the Enter key.
- 18 List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files obtained in step 16.
- 19 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 20 Go to step 25.
- 21 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 22 Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 23 List the SLM file names into your user directory by typing
>LV CM;LF file_name
and pressing the Enter key.
where
file_name
is the name of the SLM disk volume containing the file obtained in step 21.
- 24 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25 Reload the ESA processor by typing
>LOADPM

NT6X45
in an OPAC HIE (end)

and pressing the Enter key.

	If	Do
	load failed	step 29
	load passed	step 26
26	Return the ESA processor to service by typing >RTS and pressing the Enter key.	
	If RTS	Do
	passed	step 27
	failed	step 29
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 30.	
29	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
30	You have completed this procedure.	

NT6X45 in an OPM HIE

Application

Use this procedure to replace the following card in an HIE shelf.

PEC	Suffixes	Name
NT6X45	AF	OPM ESA Processor (Master Processor-ESA)

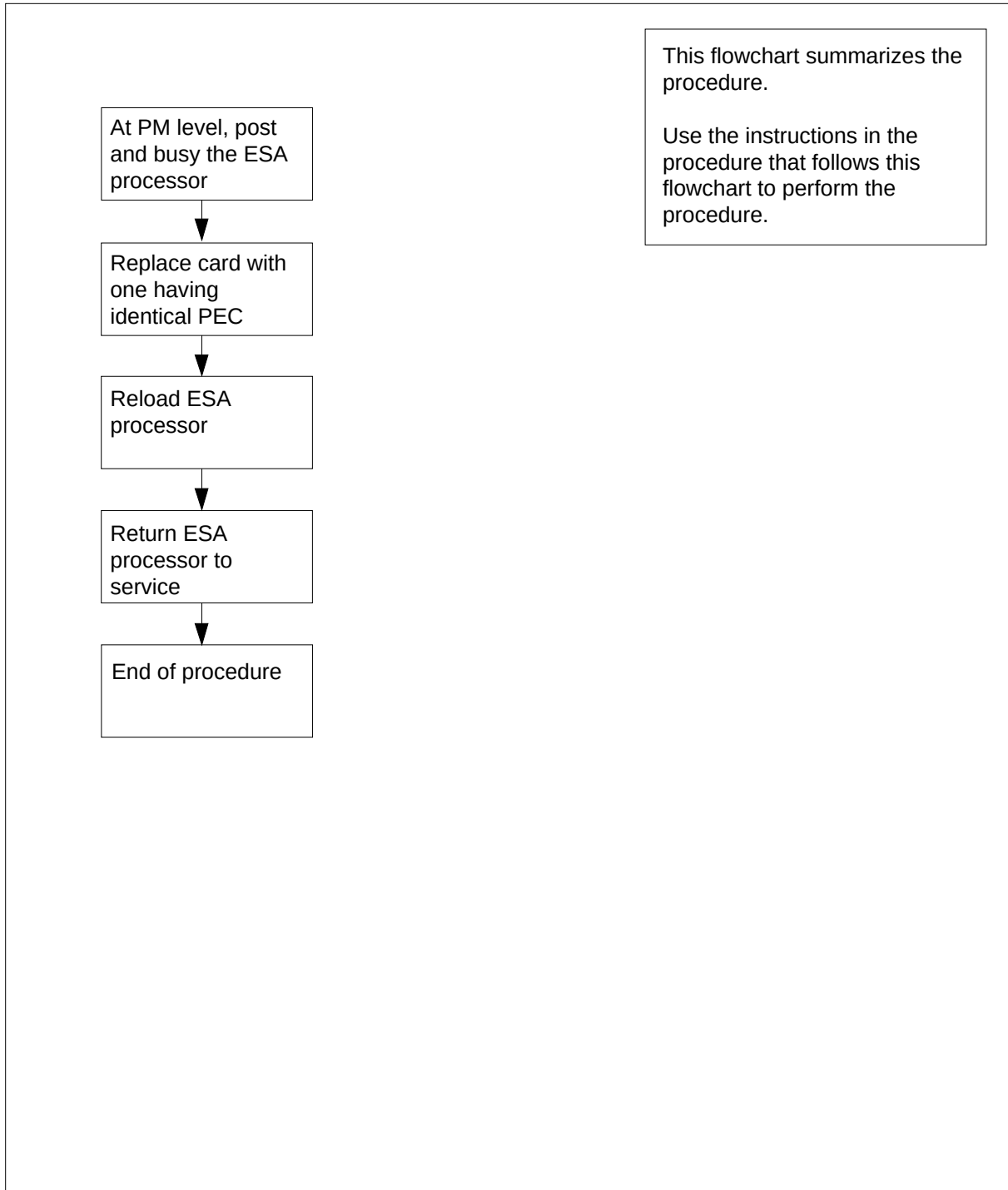
Note: NT6X45 with suffix AF is the ESA processor supported only for OPM ESA.

Common procedures

The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X45
in an OPM HIE (continued)**Summary of replacing an NT6X45 card in an HIE**

NT6X45 in an OPM HIE (continued)

Replacing an NT6X45 card in an HIE

At your Current Location

- 1 Obtain a replacement card. Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 5; otherwise, continue with step 3.

At the MAP terminal

- 3 Post the ESA processor by typing
>MAPCI;MTC;PM;POST ESA esa_no
and pressing the Enter key.
where
esa_no
is the number of the ESA processor (0 to 255)

- 4 Busy the ESA processor by typing

>BSY

and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

At the OPM cabinet

- 5 Replace the NT6X45 card using the common replacing a card procedure in this document. When you have completed the procedure, return to this point.
- 6 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 7.
- 7 Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If	Do
message "loadfile not found in directory" is received	step 8
load passes	step 26

NT6X45 in an OPM HIE (continued)

	If	Do
	load fails	step 29
8	Determine the type of device on which the PM load files are located.	
	If load files are located on	Do
	tape	step 9
	IOC disk	step 15
	SLM disk	step 20
9	Locate the tape that contains the PM load files.	
10	Mount the tape on a magnetic tape drive.	
At the MAP terminal		
11	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
12	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
13	Demount the tape by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
14	Go to step 25.	
15	From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.	
16	Access the disk utility level of the MAP display by typing >DSKUT	

NT6X45
in an OPM HIE (continued)

- and pressing the Enter key.
- 17** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 15
- 18** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 19** Go to step 25.
- 20** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 21** Access the disk utility level of the MAP display by typing
>DISKUT
and pressing the Enter key.
- 22** List all SLM disk volumes into your user directory by typing
>LV CM
and pressing the Enter key.
- 23** List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 20
- 24** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25** Reload the ESA processor by typing
>LOADPM
and pressing the Enter key.

If loadpm	Do
failed	step 29

NT6X45
in an OPM HIE (end)

	If loadpm	Do
	passed	step 26
26	Return the ESA processor to service by typing >RTS and pressing the Enter key.	
	If RTS	Do
	passed	step 27
	failed	step 29
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 30.	
29	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
30	You have completed this procedure.	

NT6X45 in an RLCM HIE

Application

Use this procedure to replace the following card in an HIE shelf.

PEC	Suffixes	Name
NT6X45	AF	RLCM ESA Processor (Master Processor-ESA)

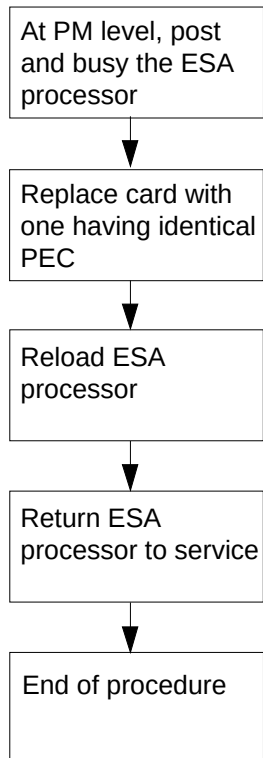
Note: NT6X45 with suffix AF is the ESA processor supported only for RLCM ESA.

Common procedures

The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X45
in an RLCM HIE (continued)**Summary of replacing an NT6X45 card in an HIE**

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

NT6X45 in an RLCM HIE (continued)

Replacing an NT6X45 card in an HIE

At your current location

- 1 Obtain a replacement card. Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 5; otherwise, continue with step 3.

At the MAP terminal

- 3 Post the ESA processor by typing
>MAPCI;MTC;PM;POST ESA esa_no
and pressing the Enter key.
where
esa_no
is the number of the ESA processor (0 to 255)

- 4 Busy the ESA processor by typing
>BSY

and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

At the RLCE frame

- 5 Replace the NT6X45 card using the common replacing a card procedure in this document. When you have completed the procedure, return to this point.
- 6 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 7.
- 7 Load the ESA processor by typing
>LOADPM

NT6X45 in an RLCM HIE (continued)

and pressing the Enter key.

	If	Do
	message "loadfile not found in directory" is received	step 8
	Load passed	step 26
	Load failed	step 29
8	Determine the type of device on which the PM load files are located.	
	If load files are located on	Do
	tape	step 9
	IOC disk	step 15
	SLM disk	step 20
9	Locate the tape that contains the PM load files.	
10	Mount the tape on a magnetic tape drive.	
At the MAP terminal		
11	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
12	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
13	Demount the tape by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
14	Go to step 25.	

NT6X45 in an RLCM HIE (continued)

- 15 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 16 Access the disk utility level of the MAP display by typing
>DSKUT
and pressing the Enter key.
- 17 List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 15
- 18 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 19 Go to step 25.
- 20 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 21 Access the disk utility level of the MAP display by typing
>DISKUT
and pressing the Enter key.
- 22 List all SLM disk volumes into your user directory by typing
>LV CM
and pressing the Enter key.
- 23 List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 20
- 24 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25 Reload the ESA processor by typing
>LOADPM

NT6X45
in an RLCM HIE (end)

and pressing the Enter key.

If loadpm

Do

passed

step 26

failed

step 29

- 26** Return the ESA processor to service by typing
>RTS
and pressing the Enter key.

If RTS

Do

passed

step 27

failed

step 29

- 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 30.

- 29** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.

- 30** You have completed this procedure.

NT6X47 in an IOPAC HIE

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

PEC	Suffixes	Name
NT6X47	AC	Master processor memory circuit card (see note below)

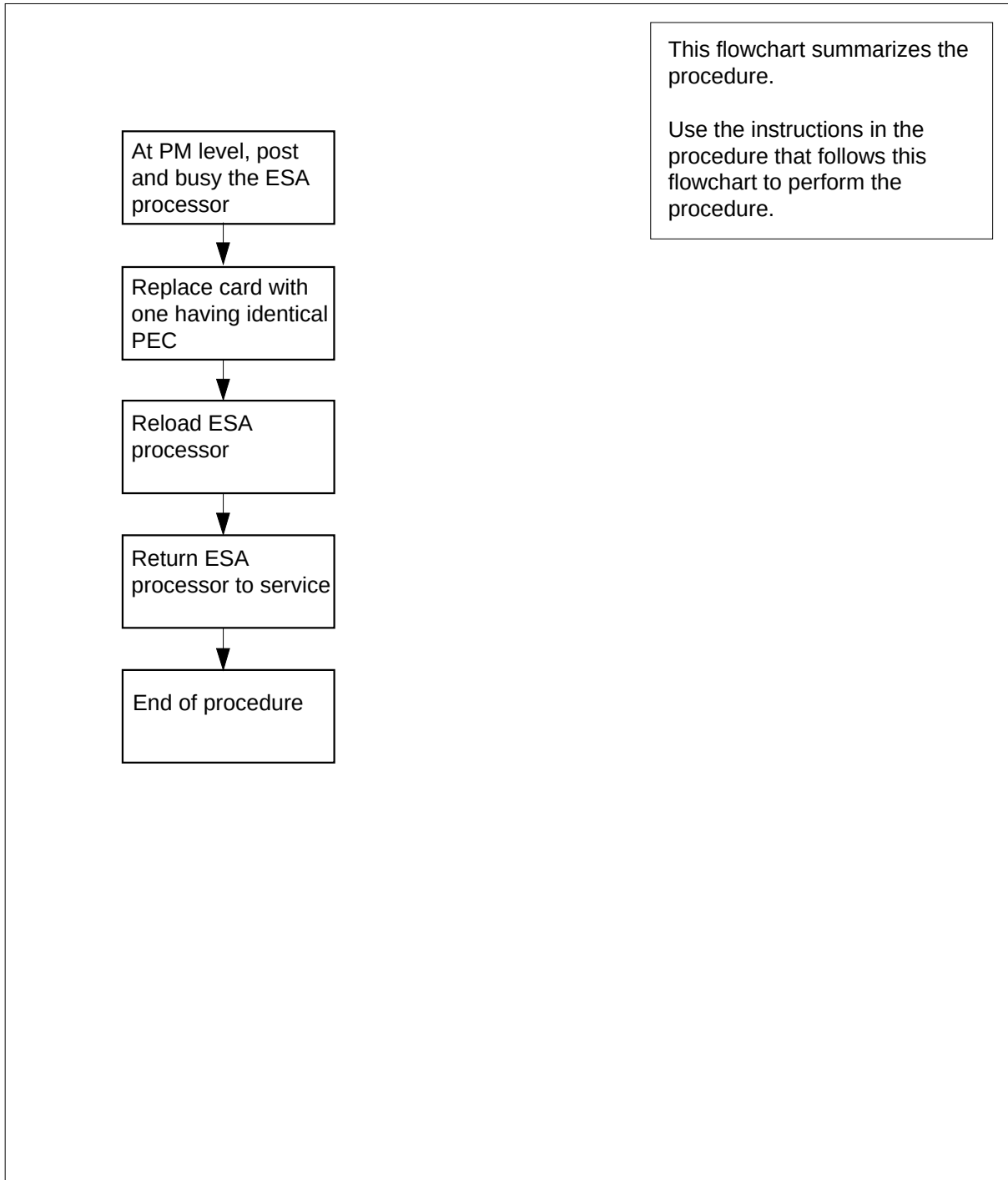
Note: This card is also referred to as the ESA memory card.

Common procedures

The common replacing a card procedure 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.

NT6X47
in an IOPAC HIE (continued)**Summary of card replacement procedure for an NT6X47 in an HIE**

NT6X47 in an IOPAC HIE (continued)

Replacing an NT6X47 in an HIE

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. Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 6. Otherwise, continue with step 4.

At the MAP terminal:

- 4 Post the Emergency Stand-Alone (ESA) processor by typing
>MAPCI;MTC;PM;POST ESA esa_no
and pressing the Enter key.
where

esa_no
is the number of the ESA processor

- 5 Busy the ESA processor by typing
>BSY
and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

At the IOPAC cabinet:

- 6 Replace the NT6X47 card using the common replacing a card procedure in this document. When you have completed the procedure, return here.
- 7 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 8.

NT6X47 in an IOPAC HIE (continued)

At the MAP terminal

- 8** Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If	Do
message loadfile not found in directory is received	step 9
load passed	step 26
load failed	step 29

- 9** Determine the type of device where the peripheral module (PM) load files are located.

If load files are located on	Do
tape	step 10
IOC disk	step 16
SLM disk	step 21

- 10** Locate the tape that contains the PM load files.

- 11** Mount the tape on a magnetic tape drive.

At the MAP terminal:

- 12** Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape containing the PM load files

- 13** List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape containing the PM load files

- 14** Demount the tape drive by typing

>DEMOUNT T tape_no

NT6X47

in an IOPAC HIE (continued)

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

15 Go to step 25.

16 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.

17 Access the disk utility level of the MAP display by typing

>DSKUT

and pressing the Enter key.

18 List the IOC file names into your user directory by typing

>LISTVOL volume_name ALL

and pressing the Enter key.

where

volume_name

is the name of the volume that contains the PM load files obtained in step 16.

19 Leave the disk utility by typing

>QUIT

and pressing the Enter key.

20 Go to step 25.

21 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.

22 Access the disk utility level of the MAP display by typing

>DSKUT

and pressing the Enter key.

23 List the SLM file names into your user directory by typing

>LV CM;LF file_name

and pressing the Enter key.

where

file_name

is the name of the SLM disk volume containing the PM load files obtained in step 21.

24 Leave the disk utility by typing

>QUIT

and pressing the Enter key.

NT6X47
in an IOPAC HIE (end)

- 25** Reload the ESA processor by typing
>LOADPM
and pressing the Enter key.

If	Do
load failed	step 29
load passed	step 26

- 26** Return the ESA processor to service by typing
>RTS
and pressing the Enter key.

If RTS	Do
passed	step 27
failed	step 29

- 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 30.

- 29** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.

- 30** You have completed this procedure.

NT6X47 in an OPM HIE

Application

Use this procedure to replace the following card in an HIE shelf.

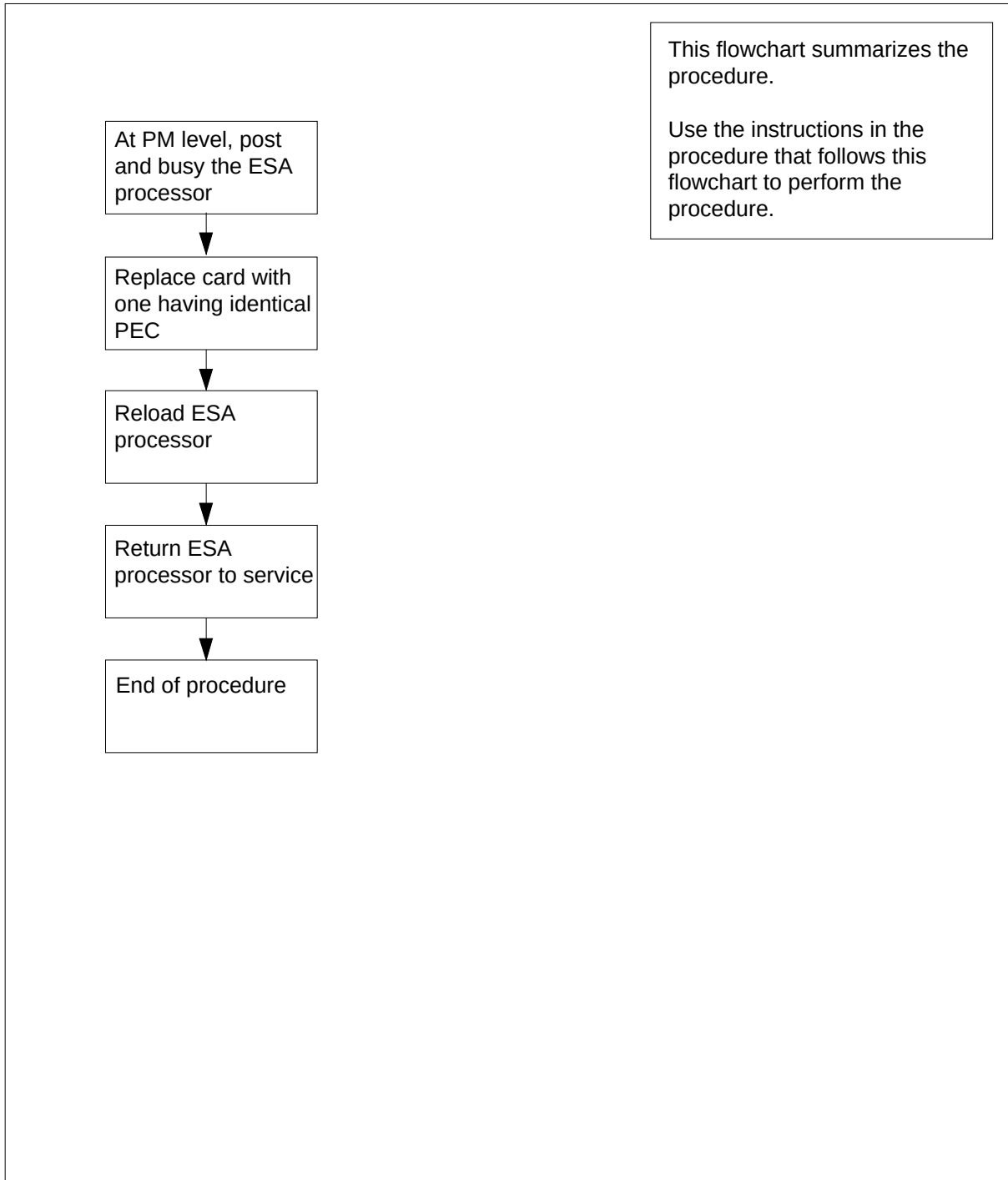
PEC	Suffixes	Name
NT6X47	AB, AC	Master Processor Memory (ESA) Plus

Common procedures

The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X47
in an OPM HIE (continued)**Summary of replacing an NT6X47 card in an HIE**

NT6X47 in an OPM HIE (continued)

Replacing an NT6X47 in an HIE

At your Current Location

- 1 Obtain a replacement card. Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 5; otherwise, continue with step 3.

At the MAP terminal

- 3 Post the ESA processor by typing
>MAPCI;MTC;PM;POST ESA esa_no
and pressing the Enter key.
where
esa_no
is the number of the ESA processor (0 to 255)

- 4 Busy the ESA processor by typing
>BSY
and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

At the OPM cabinet

- 5 Replace the NT6X47 card using the common replacing a card procedure in this document. When you have completed the procedure, return to this point.
- 6 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 7.

NT6X47

in an OPM HIE (continued)

At the MAP terminal

- 7** Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If	Do
message "loadfile not found in directory" is received	step 8
load passed	step 26
load failed	step 29

- 8** Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 9
IOC disk	step 15
SLM disk	step 20

- 9** Locate the tape that contains the PM load files.

- 10** Mount the tape on a magnetic tape drive.

At the MAP terminal

- 11** Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 12** List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 13** Demount the tape by typing

>DEMOUNT T tape_no

and pressing the Enter key.

NT6X47

in an OPM HIE (continued)

where

tape_no

is the number of the tape drive containing the PM load files

- 14 Go to step 25.
- 15 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 16 Access the disk utility level of the MAP display by typing
>DSKUT
and pressing the Enter key.
- 17 List the IOC disk file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.

where

volume_name

is the name of the volume that contains the PM load files, obtained in step 15

- 18 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 19 Go to step 25.
- 20 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 21 Access the disk utility level of the MAP display by typing
>DISKUT
and pressing the Enter key.
- 22 List the SLM disk volumes into your user directory by typing
>LV CM
and pressing the Enter key.
- 23 List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.

where

volume_name

is the name of the volume containing the PM load files, obtained in step 20

- 24 Leave the disk utility by typing
>QUIT

NT6X47
in an OPM HIE (end)

and pressing the Enter key.

25 Reload the ESA processor by typing

>LOADPM

and pressing the Enter key.

If	Do
load fails	step 29
load passes	step 26

26 Return the ESA processor to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 27
failed	step 29

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 30.

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

30 You have completed this procedure.

NT6X47 in an RLCM HIE

Application

Use this procedure to replace the following card in an HIE shelf.

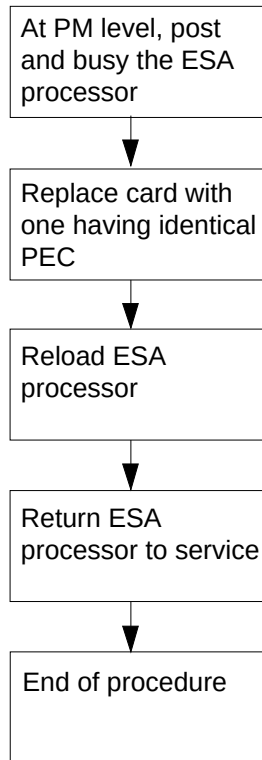
PEC	Suffixes	Name
NT6X47	AB, AC	Master Processor Memory (ESA) Plus

Common procedures

The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X47
in an RLCM HIE (continued)**Summary of replacing an NT6X47 card in an HIE**

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

NT6X47 in an RLCM HIE (continued)

Replacing an NT6X47 card in an HIE

At your current location

- 1 Obtain a replacement card. Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 5; otherwise, continue with step 3.

At the MAP terminal

- 3 Post the ESA processor by typing
>MAPCI;MTC;PM;POST ESA esa_no
and pressing the Enter key.
where
esa_no
is the number of the ESA processor (0 to 255)

- 4 Busy the ESA processor by typing
>BSY

and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

At the RLCE frame

- 5 Replace the NT6X47 card using the common replacing a card procedure in this document. When you have completed the procedure, return to this point.
- 6 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 7.

NT6X47 in an RLCM HIE (continued)

At the MAP terminal

- 7 Load the ESA processor by typing

>LOADPM

and pressing the Enter key.

If	Do
message "loadfile not found in directory" is received	step 8
load passed	step 26
load failed	step 29

- 8 Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 9
IOC disk	step 15
SLM disk	step 20

- 9 Locate the tape that contains the PM load files.

At the IOE frame

- 10 Mount the tape on a magnetic tape drive.

At the MAP terminal

- 11 Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 12 List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 13 Demount the tape by typing

>DEMOUNT T tape_no

NT6X47

in an RLCM HIE (continued)

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

14 Go to step 25.

15 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.

16 Access the disk utility level of the MAP display by typing

>DSKUT

and pressing the Enter key.

17 List the IOC disk file names into your user directory by typing

>LISTVOL volume_name ALL

and pressing the Enter key.

where

volume_name

is the name of the volume that contains the PM load files, obtained in step 15

18 Leave the disk utility by typing

>QUIT

and pressing the Enter key.

19 Go to step 25.

20 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.

21 Access the disk utility level of the MAP display by typing

>DISKUT

and pressing the Enter key.

22 List the SLM disk volumes into your user directory by typing

>LV CM

and pressing the Enter key.

23 List the SLM file names into your user directory by typing

>LF volume_name

and pressing the Enter key.

where

volume_name

is the name of the volume containing the PM load files, obtained in step 20

NT6X47
in an RLCM HIE (end)

24 Leave the disk utility by typing

>QUIT

and pressing the Enter key.

25 Reload the ESA processor by typing

>LOADPM

and pressing the Enter key.

If**Do**

load passed

step 26

load failed

step 29

26 Return the ESA processor to service by typing

>RTS

and pressing the Enter key.

If RTS**Do**

passed

step 27

failed

step 29

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 30.

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

30 You have completed this procedure.

NT6X48 in an RSC

Application

Use this procedure to replace the following card in an RSC RCC.

PEC	Suffixes	Name
NT6X48	AA	DS-30A interface card

Common Procedures

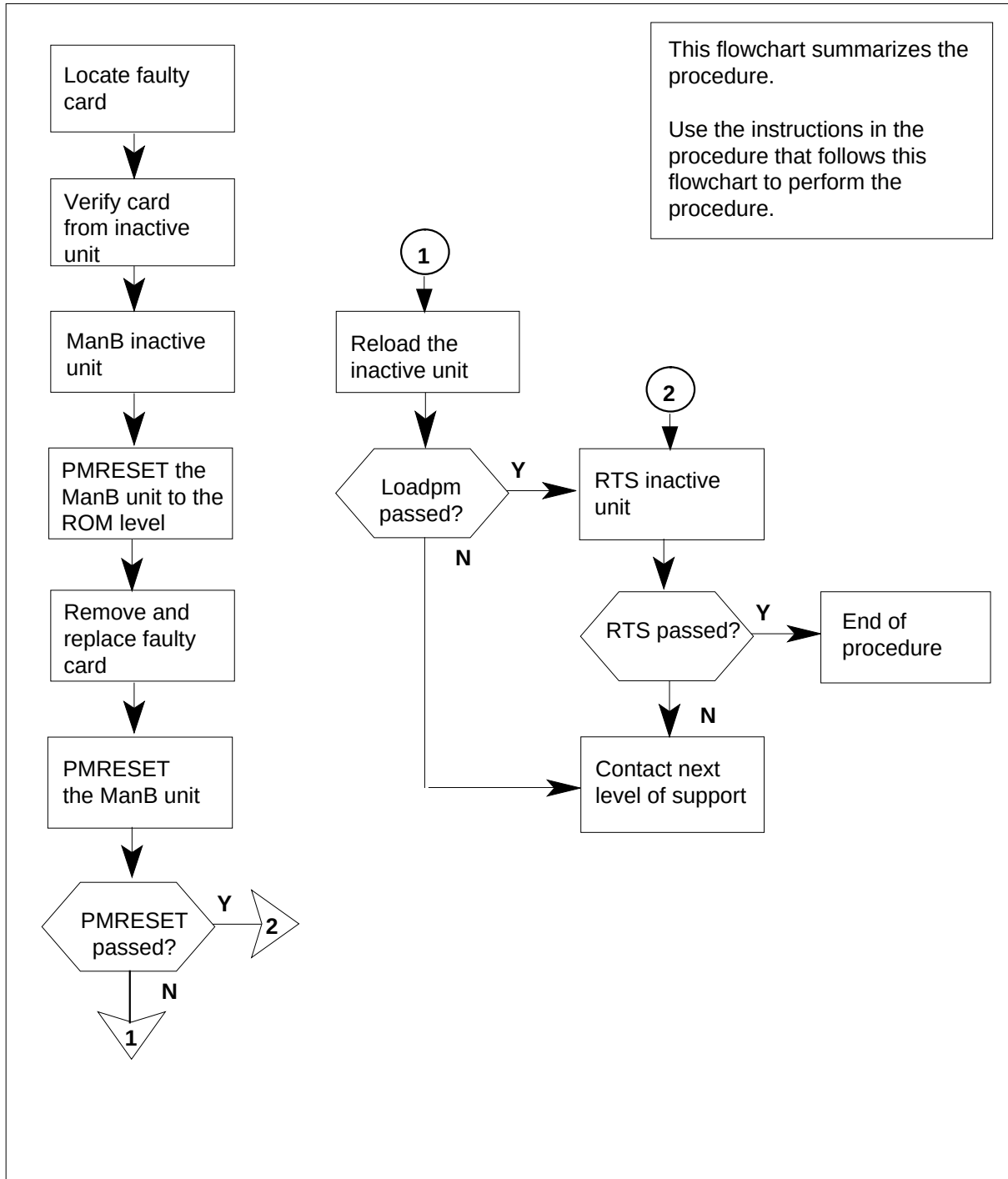
None

Action

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

NT6X48 in an RSC (continued)

Summary of replacing an NT6X48 card in an RSC RCC



NT6X48 in an RSC (continued)

Replacing an NT6X48 card in an RSC RCC

At the current location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in the RCC ensure the unit where 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 equipment code (PEC) including suffix, as the card to be removed.

At the MAP display

- 3 Access the PM level and post the RCC by typing
>MAPCI;MTC;PM;POST RCC rcc_unit_no
and pressing the Enter key.
where
rcc_unit_no
is the number of the RCC unit to be busied (0 or 1)
Example of a MAP display:

NT6X48 in an RSC (continued)

	CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
RCC	.	.	.	.	1RCC	.	.	.	.	.
0 Quit		PM		0	0	2		0	2	25
2 Post_		RCC		0	0	0		0	1	1
3 ListSet										
4		RCC		0	ISTb	Links_OOS:	Cside	0,	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 IRLINK										
17 Perform										
18										

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

At the RCE frame

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

At the MAP display

- 6 Busy the inactive RCC unit by typing
>BSY INACTIVE
 and pressing the Enter key.
- 7 Reset the inactive RCC unit to the ROM level by typing
>PMRESET UNIT unit_no NORUN
 and pressing the Enter key.
where

unit_no
 is the inactive RCC unit number (0 or 1)

Example of a MAP response:

RCC 0 Unit 0 PMReset Passed

NT6X48 in an RSC (continued)

At the RCE frame

8



WARNING

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 RCC. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

9



DANGER

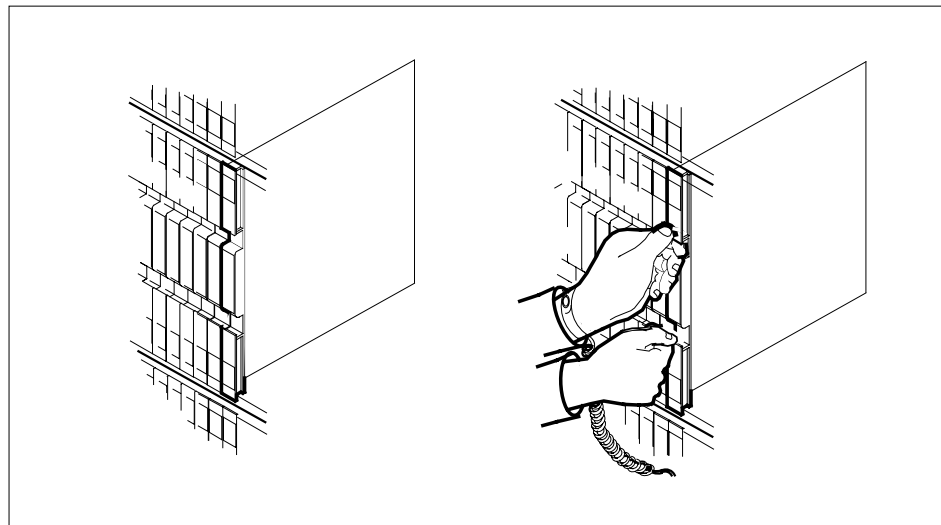
Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

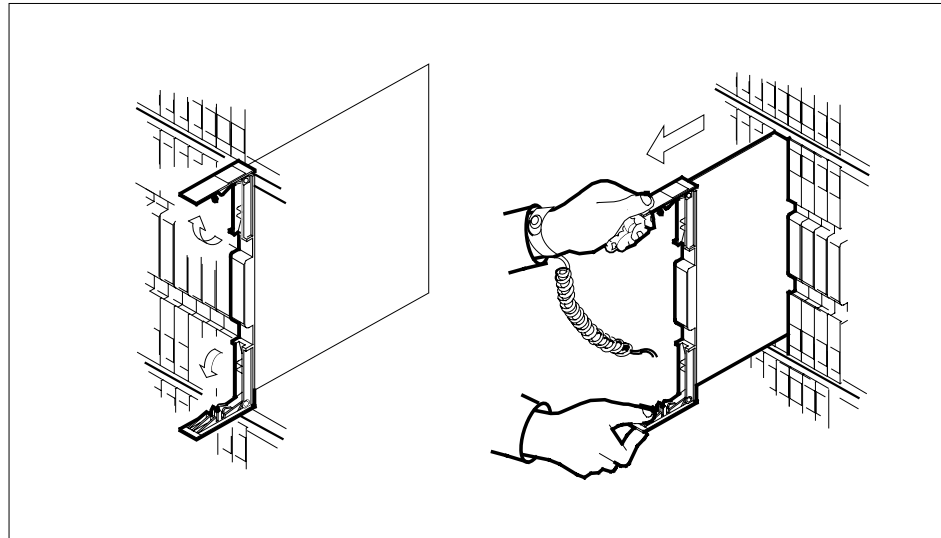
Replace the NT6X48 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.

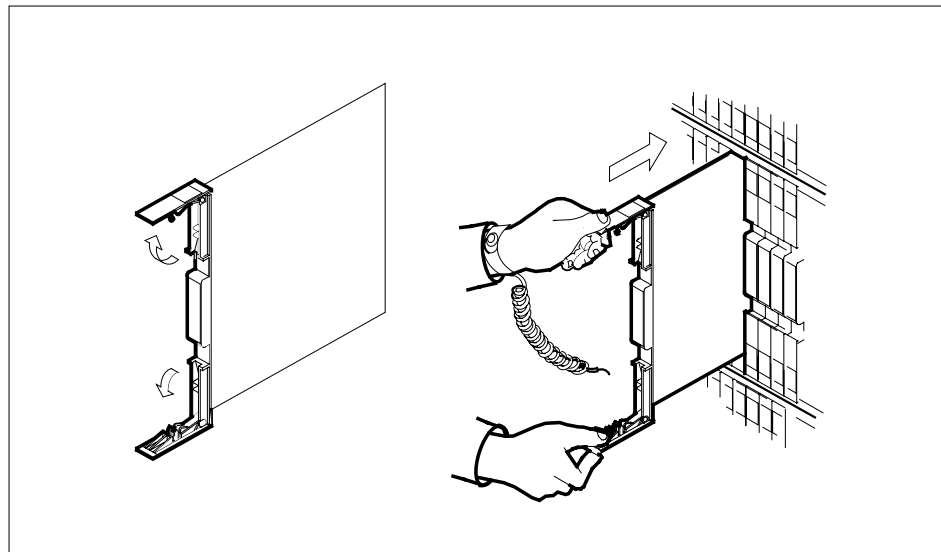


- b** Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

NT6X48
in an RSC (continued)



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

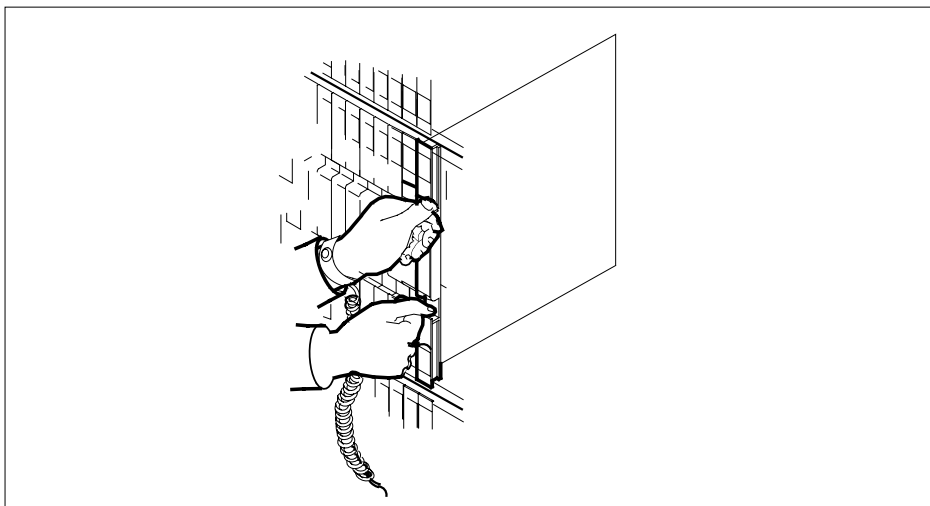


10 Seat and lock the card.

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

NT6X48 in an RSC (continued)

- b** Close the locking levers.



At the MAP display

- 11** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 17
other	step 12

- 12** Reset the inactive RCC unit by typing

>PMRESET UNIT unit_no

and pressing the Enter key.

where

unit_no

is the PM unit number (0 or 1)

Example of a MAP response:

RCC 0 Unit 0 PMReset Passed

If PMRESET command	Do
passed	step 14
failed	step 13

- 13** Reload the inactive RCC unit by typing

>LOADPM UNIT unit_no

NT6X48 in an RSC (end)

and pressing the Enter key.

where

unit_no

is the number of the inactive RCC unit (0 or 1)

If the LOADPM command	Do
passed	step 14
failed	step 18

- 14** Return the inactive RCC unit to service by typing

>RTS UNIT rcc_unit_no

and pressing the Enter key.

where

rcc_unit_no

is the number of the RCC unit busied in step 6

If RTS command	Do
passed	step 15
failed	step 18

- 15** Send any faulty cards for repair according to local procedure.

- 16** 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 19.

- 17** Return to the *Alarm Clearing Procedure* that directed you to this card replacement procedure. If necessary, go to the point where the faulty card list was produced, identify the next faulty card on the list, and go to the appropriate replacement procedure in this manual for that card.

- 18** Obtain further assistance in replacing this card by contacting personnel responsible for higher level of support.

- 19** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X50 in an OPAC HIE

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

PEC	Suffix	Name
NT6X50	AB	DS-1 EFF card (See notes below.)

Note 1: EFF is the acronym for “extended frame format.”

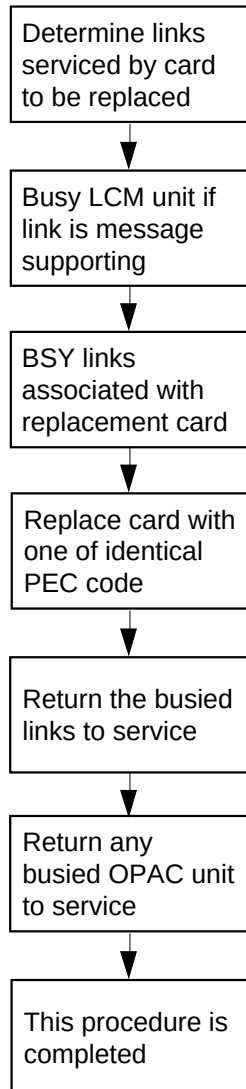
Note 2: This card has also been referred to as the “DS-1 interface card.”

Common procedures

The common replacing a card procedure 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.

NT6X50
in an OPAC HIE (continued)**Summary of card replacement procedure for NT6X50 in an HIE**

This flowchart summarizes the procedure.

Use the instructions in the procedure that follows this flowchart to perform the procedure.

NT6X50 in an OPAC HIE (continued)

Replacing an NT6X50 in an HIE

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 the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 5. Otherwise, continue with step 4.

At the MAP terminal:

- 4 Access the peripheral module (PM) level and post the line concentrating module (LCM) by typing

>MAPCI;MTC;PM;POST LCM site frame lcm

and pressing the Enter key.

where

site

is the site name of the OPAC (alphanumeric)

frame

is the frame number of the OPAC (0-99)

lcm

is the number of the LCM

- 5 Display central side (C-side) link information by typing

>TRNSL C

and pressing the Enter key.

Example of a MAP response:

Link 0: LTC 0 2; Cap MS; Status: OK;MsgCond: OPN

Link 1: LTC 0 6; Cap MS; Status: SysB;MsgCond: OPN

- 6 From the display in step 5, determine the control side (C-side) PM (LTC, LGC, or RCC) to which the OPAC is connected and post it by typing

>POST pm pm_no

and pressing the Enter key.

where

pm

is the name of the host PM (LTC, LGC, or RCC)

pm_no

is the number of the host PM (0 to 127)

NT6X50 in an OPAC HIE (continued)

Note: LTC is the acronym for line trunk controller; LGC is the acronym for line group controller; and RCC is the acronym for remote cluster controller.

- 7 Display P-side link information by typing

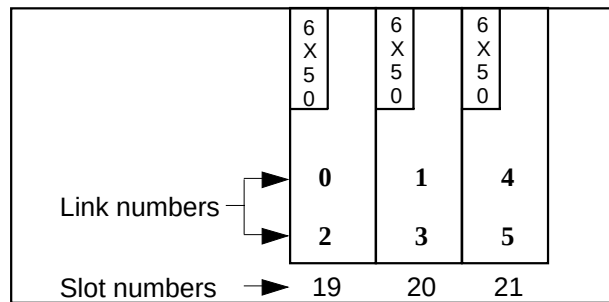
>TRNSL P

and pressing the Enter key.

Example of a MAP response:

Link 2: LCM REM1 00 0 0;Cap MS;Status: OK;MsgCond:OPN
Link 6: LCM REM1 00 0 1;Cap MS;Status:SysB;MsgCond:CLS

- 8 Record the numbers of the links with status not OK.
9 Use the diagram below to determine which DS-1 interface card or cards corresponds to the links identified as faulty in step 8. Note that each NT6X50 card has 2 ports.



Note: Links 0 and 1 are message supporting, links 2 through 5 are speech only.

- 10 Determine the slot location of the faulty card.

If faulty card is in slot	Do
19 or 20 of the HIE	step 11
21 of the HIE	step 14

- 11 Post the LCM by typing

>POST LCM site frame lcm

and pressing the Enter key.

where

site

is the site name of the OPAC (alphanumeric)

frame

is the frame number of the OPAC (0-99)

lcm

is the number of the LCM

NT6X50 in an OPAC HIE (continued)

- 12 Busy LCM unit 0 for the card in slot 19 or LCM unit 1 for the card in slot 20 by typing
>BSY UNIT unit_no
and pressing the Enter key.
where
unit_no
is the LCM unit to be busied (0 or 1)
Note: Extended DS-1 maintenance is applied to DS-1 message supporting links, the unit these links support must be manually busied before the DS-1 link can be busied.
- 13 Post the host peripheral module (LTC, LGC, or RCC) to which the OPAC is connected by typing
POST pm pm_no
and pressing the Enter key.
where
pm
is the name of the host PM (LTC, LGC, or RCC)
pm_no
is the number of the host PM (0 to 127)
- 14 Using the information collected in step 8, busy both links associated with the faulty card by typing
>BSY LINK link_no
and pressing the Enter key.
where
link_no
is one of two links associated with the faulty NT6X50 card
Repeat this entry for the other link associated with the faulty NT6X50 card.

At the HIE:

15



DANGER

Calls in progress may be interrupted.

Wait at least 15 min to allow calls in progress to be completed before removing the NT6X50 DS-1 interface card, because these are simplex links.

Change the dip switch settings on the new replacement card to match the faulty card being removed.

- 16 Replace the NT6X50 card using the common replacing a card procedure in this document. When the card has been replaced, Go to step 17.

NT6X50 in an OPAC HIE (continued)

At the MAP terminal:

- 17** Test the links busied in step 14 by typing

>TST LINK link_no

and pressing the Enter key.

where

link_no

is one of two links associated with the replacement card

Repeat this entry for the other link associated with the replacement card.

If test	Do
failed	step 25
passed	step 18

- 18** Return to service the links busied in step 14 by typing

>RTS LINK link_no

and pressing the Enter key.

where

link_no

is one of two links associated with the replacement card

Repeat this entry for the other link associated with the replacement card.

If RTS	Do
failed	step 25
passed	step 19

- 19** Determine if there are remaining links to clear.

If there are	Do
remaining links to clear	step 9
no remaining links to clear	step 20

- 20** If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 21.

- 21** Post the LCM by typing

>POST LCM site frame lcm

and pressing the Enter key.

where

NT6X50 in an OPAC HIE (end)

site

is the site name of the OPAC (alphanumeric)

frame

is the frame number of the OPAC (0-99)

lcm

is the number of the LCM

- 22** Return-to-service the LCM unit busied in step 12 by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no

is the LCM unit to be RTSed (0 or 1).

If RTS	Do
failed	step 25
passed	step 23

- 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

Proceed to step 26.

- 25** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.

- 26** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X50
in an OPM HIE**

Application

Use this procedure to replace the following card in an HIE shelf.

PEC	Suffixes	Name
NT6X50	AA	DS-1 Interface

Common procedures

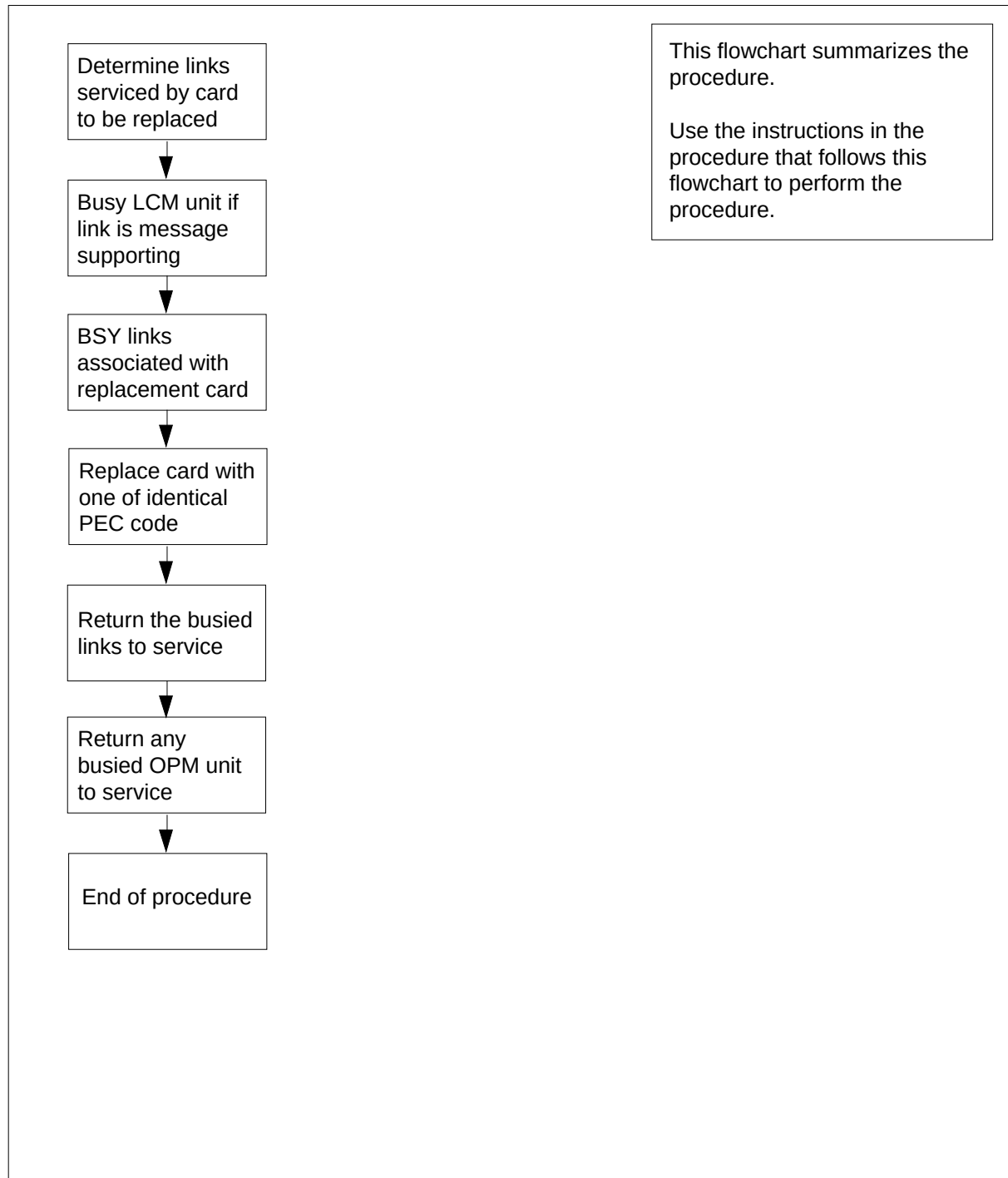
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X50 in an OPM HIE (continued)

Summary of card replacement procedure for an NT6X50 card in an HIE



NT6X50 in an OPM HIE (continued)

Replacing an NT6X50 card in an HIE

At your Current Location

- 1 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 4; otherwise, continue with step 3.

At the MAP display

- 3 Access the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the OPM site (alphanumeric)

frame

is the frame number of the OPM (0 to 511)

lcm

is the number of the LCM

- 4 Display C-side link information by typing
> TRNSL C
and pressing the Enter key.

Example of a MAP response:

	↓	LTC P-side link numbers
Link 0: LTC 0	2;	Cap MS; Status: OK ;MsgCond: OPN
Link 1: LTC 0	6;	Cap MS; Status: SysB ;MsgCond: CLS

- 5 From the display in step 4, determine the C-side peripheral module (LTC, LGC, or RCC) to which the OPM is connected and post it by typing

> POST host_pm host_pm_no

and pressing the Enter key.

where

host_pm

is the name of the host PM (LTC, LGC, or RCC)

host_pm_no

is the number of the host PM

NT6X50 in an OPM HIE (continued)

- 6 Display P-side link information by typing

> TRNSL P

and pressing the Enter key.

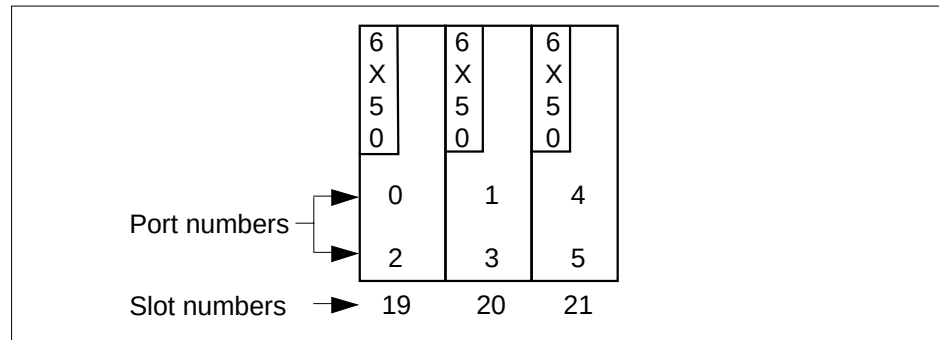
Example of a MAP response:

NT6X50 port numbers
↓

```
Link 2: LCM REM1 00 0 0;Cap MS;Status:OK ;MsgCond: OPN
Link 6: LCM REM1 00 0 1;Cap MS;Status:SysB ;MsgCond: CLS
```

- 7 Record the numbers of the links with status not OK.

Use the following diagram to determine which DS-1 interface card or cards corresponds to the links identified as faulty in step 6. Note that each NT6X50 card has 2 ports. For example, the faulty link 6 displayed in step 6 is connected to port 1 as indicated, which corresponds to the NT6X50 in slot 20.



- 8 Determine the slot location of the faulty card.

If faulty card is in slot	Do
19 or 20 of the HIE	step 9
21 of the HIE	step 12

- 9 Post the LCM by typing

>POST LCM site frame lcm

and pressing the Enter key.

where

site

is the name of the OPM site (alphanumeric)

frame

is the frame number of the OPM (0-511)

lcm

is the number of the LCM

NT6X50 in an OPM HIE (continued)

- 10** Busy LCM unit 0 for card in slot 19 or LCM unit 1 for card in slot 20 by typing
>BSY UNIT lcm_unit
 and pressing the Enter key.
where
lcm_unit
 is the OPM unit to be busied (0 for card in slot 19 or 1 for card in slot 20)
- 11** Post the C-side peripheral module, previously posted in step 5, where the OPM is interfaced by typing
>POST host_pm host_pm_no
 and pressing the Enter key.
where
host_pm
 is the name of the host PM, previously posted in step 5
host_pm_no
 is the number of the host PM
- 12** Using the information collected in step 7, busy both links associated with the faulty card by typing
>BSY LINK link_no
 and pressing the Enter key.
where
link_no
 is one of two links associated with the faulty card
Note: Repeat this step for the other link associated with the faulty card.

At the OPM cabinet

13



DANGER

Calls in progress may be interrupted.

The craftsperson must wait at least 15 minutes to allow calls in progress to be completed before removing the NT6X50 DS-1 interface card.

Change dip switch settings on the new replacement card to match the faulty card being removed.

- 14** Replace the NT6X50 card using the common replacing a card procedure in this document. When the card has been replaced, return to this point.

NT6X50

in an OPM HIE (continued)

At the MAP display

- 15** Test the links busied in step 12 by typing

>TST LINK link_no

and pressing the Enter key.

where

link_no

is one of two links associated with the replacement card

Note: Repeat this step for the other link associated with the replacement card.

If test	Do
failed	step 24
passed	step 16

- 16** Return to service the links busied in step 12 by typing

>RTS LINK link_no

and pressing the Enter key.

where

link_no

is one of two links associated with the replacement card

Note: Repeat this entry for the other link associated with the replacement card.

If RTS	Do
failed	step 24
passed	step 17

- 17** Determine if there are remaining links to clear.

If there are	Do
remaining links to clear	step 12
no remaining links to clear	step 18

- 18** If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 19.

- 19** Determine if an LCM unit is manual busy.

If LCM unit	Do
is ManB	step 20

NT6X50
in an OPM HIE (end)

	If LCM unit	Do
	is not ManB	step 22
20	Post the LCM by typing >POST LCM site frame lcm and pressing the Enter key. <i>where</i> site is the site name of the OPM (alphanumeric) frame is the frame number of the OPM (0 to 511) lcm is the number of the LCM	
21	Return the busied unit to service by typing >RTS UNIT lcm_unit and pressing the Enter key. <i>where</i> lcm_unit is the OPM unit busied in step 10	
	If RTS	Do
	failed	step 24
	passed	step 22
22	Send any faulty cards for repair according to local procedure.	
23	Record the following items in office records: • date the card was replaced • serial number of the card • symptoms that prompted replacement of the card Proceed to step 25.	
24	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
25	You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.	

NT6X50 in an RLCM-EDC HIE

Application

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

PEC	Suffixes	Card name	Shelf/frame name
NT6X50	AB	DS-1 Interface card	HIE/RLCC

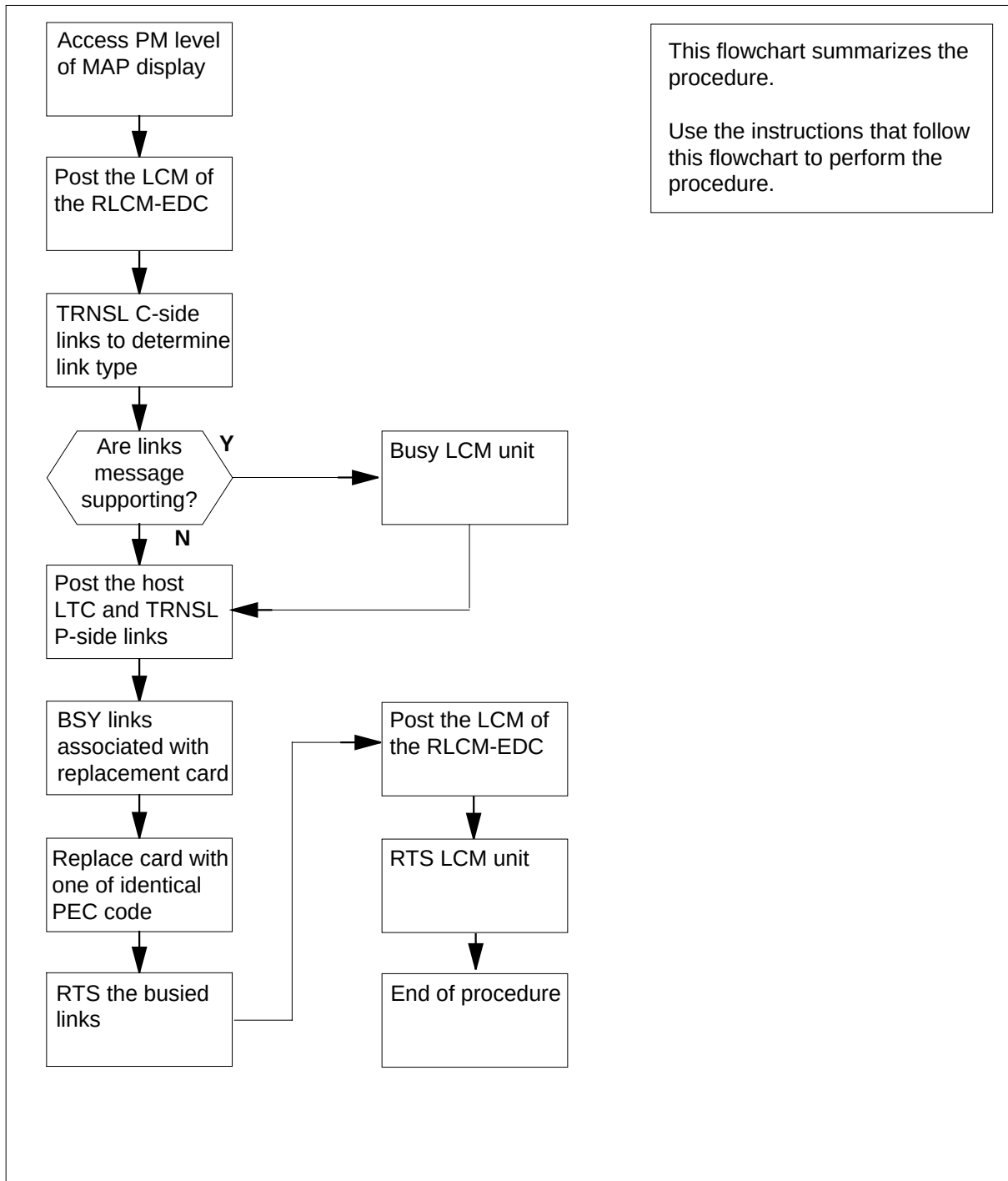
If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the index. The index provides a list of cards, shelves, and frames documented in this maintenance manual.

Common procedures

The common replacing a card procedure is referenced in this procedure.

Action

The procedure for card replacement contains a summary flowchart and a list of steps. Use the flowchart to review the procedure. Follow the steps to perform the procedure.

NT6X50
in an RLCM-EDC HIE (continued)**Summary of replacing an NT6X50 card in HIE**

NT6X50 in an RLCM-EDC HIE (continued)

How to replace an NT6X50 card in an HIE

At your current location

- 1 Obtain a replacement card. Make sure that the replacement card has the same product equipment code (PEC) and suffix as the card to remove.
- 2 If another maintenance procedure directed you to this procedure, proceed to step 4. If this event did not occur, proceed to step 3.

At the MAP display

- 3 To access the peripheral module (PM) level and post the line concentrating module (LCM), type

>MAPCI;MTC;PM;POST LCM site cabinet lcm

and press the Enter key.

where

site

is the name of the RLCM-EDC site (alphanumeric)

cabinet

is the number of the RLCC cabinet

lcm

is the number of the LCM

- 4 To display C-side link information, type

> TRNSL C

and press the Enter key.

Example of a MAP response:

LTC P-side link numbers
↓

Link 0: LTC 0	2; Cap MS; Status: OK	;MsgCond: OPN
Link 1: LTC 0	6; Cap MS; Status: SysB	;MsgCond: CLS

- 5 From the display in step 4, determine the C-side PM to which the RLCM-EDC connects. To post the C-side PM, type

> POST LTC ltc_no

and press the Enter key.

where

ltc_no

is the number of the host LTC+ (0 to 255)

- 6 To display P-side link information, type

> TRNSL P

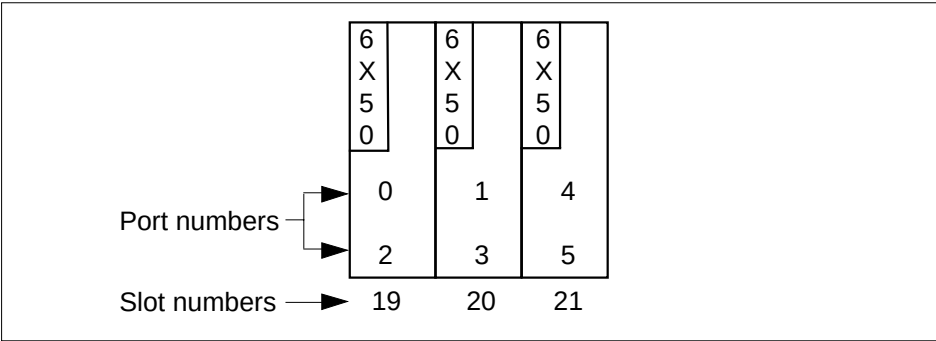
and press the Enter key.

NT6X50
in an RLCM-EDC HIE (continued)

Example of a MAP response:

RLCM-EDC C-side port numbers
↓
Link 2: LCM REM1 00 0 0;Cap MS;Status:OK ;MsgCond: OPN
Link 6: LCM REM1 00 0 1;Cap MS;Status:SysB ;MsgCond: CLS

- 7 Record the numbers of the links with status not OK.
- Use the following diagram to determine which DS-1 interface card or cards correspond to the links identified as defective in step 6. Note that each NT6X50 card has two ports. For example, the defective link 6 that appears in step 6 connects to port 1 as indicated. Port 1 corresponds to the NT6X50 in slot 20.



- 8 Determine the slot location of the defective card.

If defective card	Do
is in slot 19 or 20 of the HIE	step 9
is in slot 21 of the HIE	step 12

- 9 To post the LCM, type
>POST LCM site cabinet lcm
and press the Enter key.
where
site
is the name of the RLCM-EDC site (alphanumeric)
cabinet
is the number of the RLCC cabinet
lcm
is the number of the LCM
- 10 To busy LCM unit 0 for card in slot 19 or LCM unit 1 for card in slot 20, type
>BSY UNIT lcm_unit_no
and press the Enter key.

NT6X50 in an RLCM-EDC HIE (continued)

where

lcm_unit_no

is the RLCM-EDC unit (0 or 1) to busy

- 11 To post the C-side PM, posted before in step 5, where the RLCM-EDC connects, type

>POST LTC ltc_no

and press the Enter key.

where

ltc_no

is the number of the host LTC+ (0 to 255)

- 12 To busy both links associated with the defective card, use the information collected in steps 6 and 7. Type

>BSY LINK link_no

and press the Enter key.

where

link_no

is one of two links associated with the defective card

Note: Repeat this step for the other link associated with the defective card.

At the RLCE frame

13



DANGER

Possible interruption of calls in progress.

Operating company personnel must wait at least 15 min before removal of the NT6X50 DS-1 interface card.

Personnel must wait this time to allow callers to complete calls in progress.

Change dip switch settings on the new replacement card to match the defective card that you remove.

- 14 Use the common replacing a card procedure in this document to replace the NT6X50 card. When the card replacement is complete, return to this point.

At the MAP display

- 15 To test the links busied in step 12, type

>TST LINK link_no

and press the Enter key.

where

NT6X50 in an RLCM-EDC HIE (continued)

link_no

is one of two links associated with the replacement card

Note: Repeat this step for the other link associated with the replacement card.

	If test	Do
	failed	step 24
	passed	step 16
16	To return to service the links busied in step 12, type >RTS LINK link_no and press the Enter key. <i>where</i> link_no is one of two links associated with the replacement card Note: Repeat this entry for the other link associated with the replacement card.	
	If RTS	Do
	failed	step 24
	passed	step 17
17	Determine if links remain for you to clear.	
	If links that you must clear	Do
	remain	step 12
	do not remain	step 18
18	If another maintenance procedure directed you to this procedure, return now to the procedure that directed you here. Continue as directed. If this change in direction did not occur, go to step 19.	
19	Determine if an LCM unit is manual busy.	
	If LCM unit	Do
	is ManB	step 20
	is not ManB	step 22
20	To post the LCM, type >POST LCM site cabinet lcm and press the Enter key.	

NT6X50

in an RLCM-EDC HIE (end)

where

site

is the site name of the RLCM-EDC (alphanumeric)

cabinet

is the number of the RLCC cabinet

lcm

is the number of the LCM

- 21** To return the busied unit to service, type

>RTS UNIT lcm_unit

and press the Enter key.

where

lcm_unit

is the RLCM-EDC unit busied in step 10

If RTS	Do
failed	step 24
passed	step 22

- 22** Send defective cards for repair according to local procedure.

- 23** Record the items that follow in office records:

- date that card replacement occurred
- serial number of the card
- indications that prompted replacement of the card

Proceed to step 25.

- 24** For additional information for card replacement, contact the next level of support.

- 25** This procedure is complete. Return to the maintenance procedure that directed you to this card replacement procedure. Continue as directed.

**NT6X50
in an RLCM HIE**

Application

Use this procedure to replace the following card in an HIE shelf.

PEC	Suffixes	Name
NT6X50	AA	DS-1 Interface

Common procedures

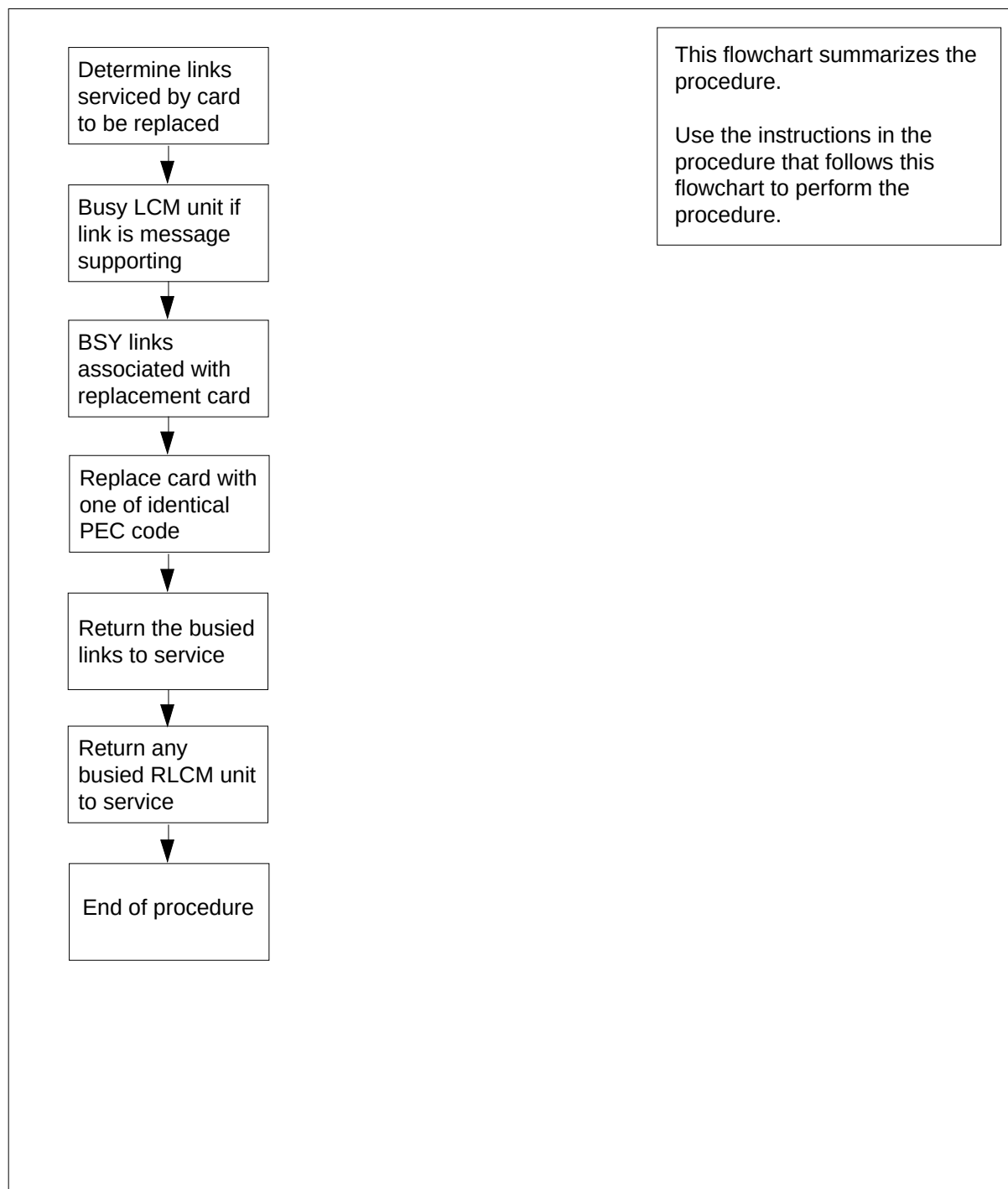
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X50 in an RLCM HIE (continued)

Summary of card replacement procedure for an NT6X50 card in an HIE



NT6X50 in an RLCM HIE (continued)

Replacing an NT6X50 card in an HIE

At your current location

- 1 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 4; otherwise, continue with step 3.

At the MAP display

- 3 Access the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the RLCM site (alphanumeric)

frame

is the frame number of the RLCE (0 to 511)

lcm

is the number of the LCM

- 4 Display C-side link information by typing
> TRNSL C
and pressing the Enter key.

Example of a MAP response:

	↓	LTC P-side link numbers
Link 0: LTC 0	2;	Cap MS; Status: OK ;MsgCond: OPN
Link 1: LTC 0	6;	Cap MS; Status: SysB ;MsgCond: CLS

- 5 From the display in step 4, determine the C-side peripheral module (LTC, LGC, or RCC) to which the RLCM is connected and post it by typing
> POST host_pm host_pm_no
and pressing the Enter key.

where

host_pm

is the name of the host PM (LTC, LGC, or RCC)

host_pm_no

is the number of the host PM (0 to 255)

NT6X50 in an RLCM HIE (continued)

- 6 Display P-side link information by typing

> TRNSL P

and pressing the Enter key.

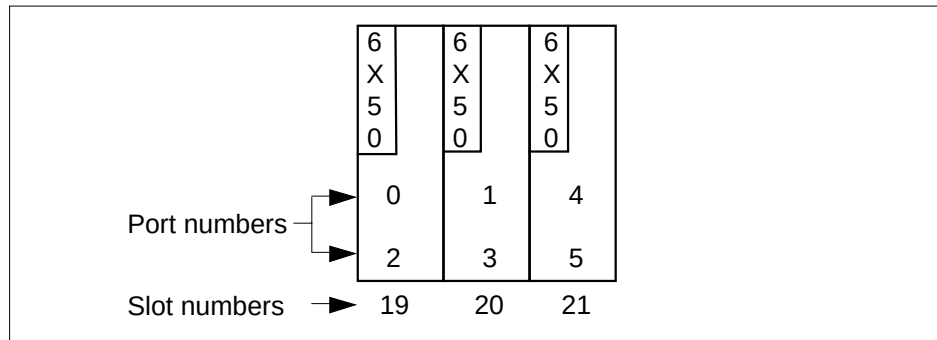
Example of a MAP response:

RLCM C-side port numbers
↓

```
Link 2: LCM REM1 00 0 0;Cap MS;Status:OK ;MsgCond: OPN
Link 6: LCM REM1 00 0 1;Cap MS;Status:SysB ;MsgCond: CLS
```

- 7 Record the numbers of the links with status not OK.

Use the following diagram to determine which DS-1 interface card or cards corresponds to the links identified as faulty in step 6. Note that each NT6X50 card has 2 ports. For example, the faulty link 6 displayed in step 6 is connected to port 1 as indicated, which corresponds to the NT6X50 in slot 20.



- 8 Determine the slot location of the faulty card.

If faulty card is in slot	Do
19 or 20 of the HIE	step 9
21 of the HIE	step 12

- 9 Post the LCM by typing

>POST LCM site frame lcm_no

and pressing the Enter key.

where

site

is the name of the RLCM site (alphanumeric)

frame

is the frame number of the RLCE (0-511)

lcm_no

is the number of the LCM

NT6X50 in an RLCM HIE (continued)

- 10** Busy LCM unit 0 for card in slot 19 or LCM unit 1 for card in slot 20 by typing
>BSY UNIT lcm_unit_no
 and pressing the Enter key.
where
lcm_unit_no
 is the RLCM unit to be busied, (0 or 1).
- 11** Post the C-side peripheral module, previously posted in step 5, where the RLCM is connected by typing
>POST host_pm host_pm_no
 and pressing the Enter key.
where
host_pm
 is the name of the host PM, previously posted in step 5
host_pm_no
 is the number of the host PM (0 to 255)
- 12** Using the information collected in steps 6 and 7, busy both links associated with the faulty card by typing
>BSY LINK link_no
 and pressing the Enter key.
where
link_no
 is one of two links associated with the faulty card
Note: Repeat this step for the other link associated with the faulty card.

At the RLCE frame

13



DANGER

Calls in progress may be interrupted.

The craftsperson must wait at least 15 minutes to allow calls in progress to be completed before removing the NT6X50 DS-1 interface card.

Change dip switch settings on the new replacement card to match the faulty card being removed.

- 14** Replace the NT6X50 card using the common replacing a card procedure in this document. When the card has been replaced, return to this point.

NT6X50

in an RLCM HIE (continued)

At the MAP display

- 15** Test the links busied in step 12 by typing

>TST LINK link_no

and pressing the Enter key.

where

link_no

is one of two links associated with the replacement card

Note: Repeat this step for the other link associated with the replacement card.

If test	Do
failed	step 24
passed	step 16

- 16** Return to service the links busied in step 12 by typing

>RTS LINK link_no

and pressing the Enter key.

where

link_no

is one of two links associated with the replacement card

Note: Repeat this entry for the other link associated with the replacement card.

If RTS	Do
failed	step 24
passed	step 17

- 17** Determine if there are remaining links to clear.

If there are	Do
remaining links to clear	step 12
no remaining links to clear	step 18

- 18** If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 19.

- 19** Determine if an LCM unit is manual busy.

If LCM unit	Do
is ManB	step 20

NT6X50
in an RLCM HIE (end)

	If LCM unit	Do
	is not ManB	step 22
20	Post the LCM by typing >POST LCM site frame lcm_no and pressing the Enter key. <i>where</i> site is the site name of the RLCM (alphanumeric) frame is the frame number of the RLCE (0 to 511) lcm_no is the number of the LCM	
21	Return the busied unit to service by typing >RTS UNIT lcm_unit and pressing the Enter key. <i>where</i> lcm_unit is the RLCM unit busied in step 10	
	If RTS	Do
	failed	step 24
	passed	step 22
22	Send any faulty cards for repair according to local procedure.	
23	Record the following items in office records: • date the card was replaced • serial number of the card • symptoms that prompted replacement of the card Proceed to step 25.	
24	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
25	You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.	

NT6X50 in an RSC

Application

Use this procedure to replace the following card in an RSC RCC.

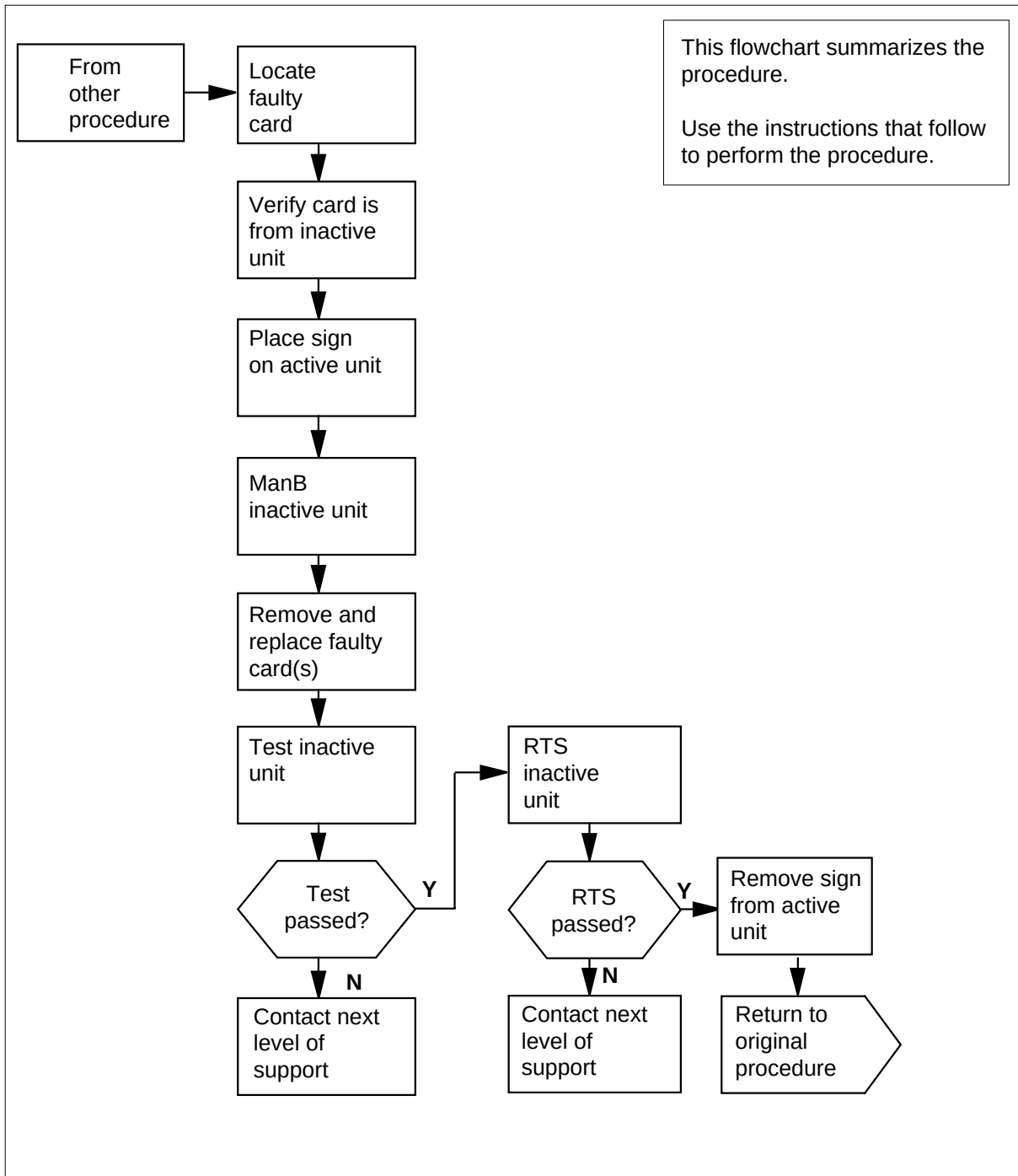
PEC	Suffixes	Name
NT6X50	AA, AB	DS-1 interface

Common Procedures

None

Action

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

NT6X50
in an RSC (continued)**Summary of replacing an NT6X50 card in an RSC RCC**

NT6X50 in an RSC (continued)

Replacing an NT6X50 card in RSC RCC

At your current location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in the RCC ensure the unit where you are replacing the card is **INACTIVE** and that the mate unit is **ACTIVE**.

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

At the MAP display

- 3 Access the PM level of the MAP display and post the RCC with the faulty NT6X50 card by typing

>MAPCI;MTC;PM;POST RCC rcc_no

and pressing the Enter key.

where

rcc_unit_no

is the number of the RCC associated with the faulty NT6X50 card.

Example of a MAP display:

NT6X50 in an RSC (continued)

```

CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      APPL
.        .        .        .        1RCC      .        .        .        .        .

RCC
0 Quit          PM      0      0      2      0      2      25
2 Post_         RCC      0      0      0      0      1      1
3 ListSet
4              RCC 0 ISTb Links_00S: CSide 1, PSide 1
5 TRNSL_         Unit0: Act   InSv
6 TST_           Unit1: Inact SysB
7 BSY_
8 RTS_
9 OffL
10 LoadPM_
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16 IRLINK
17 Perform
18

```

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

At the RCE

- 5 Put a sign on the active unit bearing the words, *Active unit—Do not touch*.

At the MAP display

- 6 Display the C-side links associated with the faulty NT6X50 card by typing
>TRNSL C
 and pressing the Enter key.

Note: Identify the host PM and its associated P-side and C-side links for later reference.

Example of a MAP response:

NT6X50 in an RSC (continued)

LINK 0	LTC	0	1;CAP	MS:STATUS OK	MSGCOND	OPN
LINK 1	LTC	0	2;CAP	MS:STATUS OK		
LINK 2	LTC	0	3;CAP	MS:STATUS SBsy	MSGCOND	CLS
LINK 3	LTC	0	4;CAP	MS:STATUS OK		
LINK 4	LTC	0	5;CAP	MS:STATUS OK		
LINK 5	LTC	0	6;CAP	MS:STATUS OK		

If the C-side links are	Do
faulty	step 8
not faulty	step 7

- 7 Display the P-side links associated with the DS-1 card by typing

>TRNSL P

and pressing the Enter key.

Example of a MAP response:

LINK 0	RMM	5	0;CAP	MS:STATUS OK	MSGCOND	OPN
LINK 1	LCM	REM1 00 0	0;CAP	MS:STATUS OK	MSGCOND	OPN
LINK 2	LCM	REM1 00 0	1;CAP	MS:STATUS OK	MSGCOND	OPN
LINK 3	LCM	REM1 00 0	2;CAP	S:STATUS OK		
LINK 4	CARRIER OF CLASS - TRUNK			:STATUS OK		
LINK 5	CARRIER OF CLASS - TRUNK			:STATUS SysB		

If the P links are	Do
faulty	step 11
not faulty	step 34

- 8 Busy the inactive RCC unit by typing

>BSY UNIT rcc_unit_no

and pressing the Enter key.

where

rcc_unit_no

is the number of the inactive RCC unit (0 or 1)

- 9 Post the host PM by typing

>POST host_pm host_pm_no

and pressing the Enter key.

where

host_pm

is a line group controller (LGC) or line trunk controller (LTC) in the host office

NT6X50 in an RSC (continued)

host_pm_no

is the number of an LGC or LTC

Example of a MAP display:

```

CM      MS      IOD      Net      PM      CCS      Lns      Trks      Ext      APPL
.        .        .        .      1RCC      .        .        .        .        .

LTC
0 Quit      PM      0      0      1      0      4      22
2 Post_     LTC      0      0      2      0      2      9
3 ListSet
4           LTC 0  ISTb  Links_00S: CSide 0, 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

```

- 10** Identify the faulty link number(s) of the host PM by typing

>TRNSL P

and pressing the Enter key.

Example of a MAP response:

```

LINK 1  RCC  0      0;CAP MS:STATUS  OK      MSGCOND  OPN
LINK 2  RCC  0      1;CAP MS:STATUS  OK
LINK 3  RCC  0      2;CAP S:STATUS   SBsy     MSGCOND  CLS
LINK 4  RCC  0      3;CAP S:STATUS   OK
LINK 5  RCC  0      4;CAP S:STATUS   OK
LINK 6  RCC  0      5;CAP S:STATUS   OK

```

- 11** Manually busy (ManB) the links connected to the faulty card by typing

>BSY LINK link_no

and pressing the Enter key.

where

link_no

is the number of the links associated with the faulty NT6X50 card from step 7

NT6X50 in an RSC (continued)

Note: Each NT6X50 card has two links associated with it. Therefore, each link must be ManB. Possible link number pairs are as follows: 0,1; 2,3; 4,5; or 6,7.

- 12** The system displays a prompt on the MAP screen requesting a confirmation of the command to BSY the link. Confirm the BSY command by typing

>YES

and pressing the Enter key.

- 13** Use the following information to determine the next step in this procedure.

If link is on P-side of	Do
host XPM	step 14
RCC	step 15

- 14** Type the following command

>TRKS; CARRIER; POST host_pm host_pm_no

and press the Enter key.

where

host_pm

is either a line group controller (LGC) or a line trunk controller (LTC)

host_pm_no

is the number of an LGC or LTC

Example of a MAP response;

CLASS	ML	OS	ALARM		SYSB	MANB	UNEQ	OFFL	CBSY	PBSY	INSV
TRUNKS	4	0	0		0	0	0	0	0	0	0
REMOTE	3	0	7		5	1	0	0	1	0	10

N	CLASS	SITE	LTC	CKT	D	ALARM	SLIP	FRAME	BER	SES	STATE
0	REMOTE	BRSC	0	2	C	SLIP	ML	1	ML	0	ManB
1	REMOTE	BRSC	0	3	C		0	0	<-.7	0	InSv
2	REMOTE	BRSC	0	4	C		0	0	<-.7	0	InSv

MORE

Note: The MORE at the bottom of the display indicates that more links can be observed by typing

>NEXT

and pressing the Enter key.

Go to step 17 .

- 15** Type the following command

>TRKS; CARRIER; POST RCC rcc_no

and press the Enter key.

where

NT6X50 in an RSC (continued)

rcc_unit_no

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

Example of a MAP response;

CLASS	ML	OS	ALARM	SYSB	MANB	UNEQ	OFFL	CBSY	PBSY	INSV
TRUNKS	2	0	4	1	0	22	5	0	0	255
REMOTE	1	1	3	5	1	0	0	1	0	10

N	CLASS	SITE	RCC	CK	D	ALARM	SLIP	FRME	BER	ES	SES	STATE
0	TRUNKS	BRSC	0	4	C		0	0	5	0	0	InSv
1	TRUNKS	BRSC	0	5	C		0	0	5	0	0	InSv
2	TRUNKS	BRSC	0	6	C	LCGA	11	OS	ML	0	0	SysB-T

MORE

Note: MORE at the bottom of the display indicates that more links can be observed by typing:

>NEXT

and pressing the Enter key

- 16** Identify the link number(s) associated with any faulty link(s) by referring to the *N* column (as shown in the map displays in steps 14 and 15). Busy the faulty links by typing

>BSY n

and pressing the Enter key.

where

n

is the number of the faulty link(s) associated with the NT6X50 card. Remember that at CARRIER level, links must be addressed by the number under the *n* column.

- 17** Test any faulty link(s) by typing

>TST n

and pressing the Enter key

where

n

is the number of the faulty link(s) associated with the NT6X50 card. Remember that at CARRIER level, links must be addressed by the number under the *n* column.

If	Do
carrier test passed	step 22
carrier test failed	step 18

NT6X50 in an RSC (continued)

At the RCE frame

18



WARNING

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 RCC. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

19



DANGER

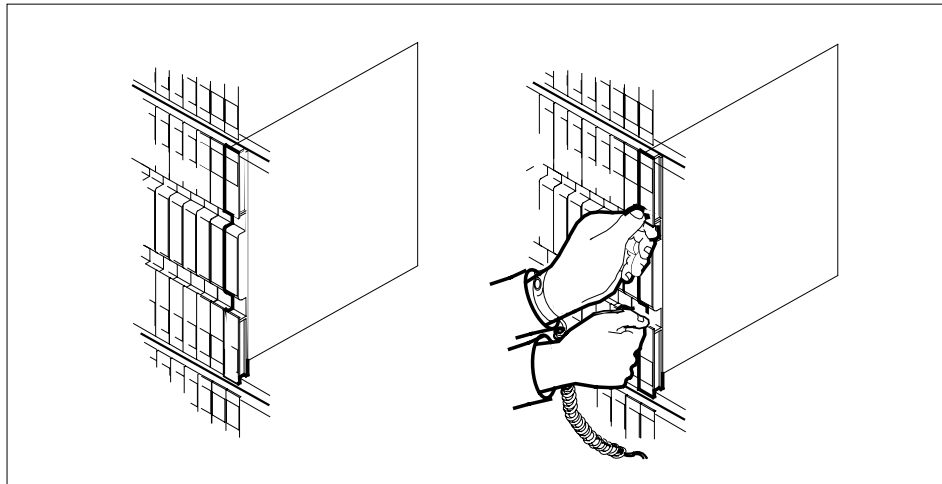
Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

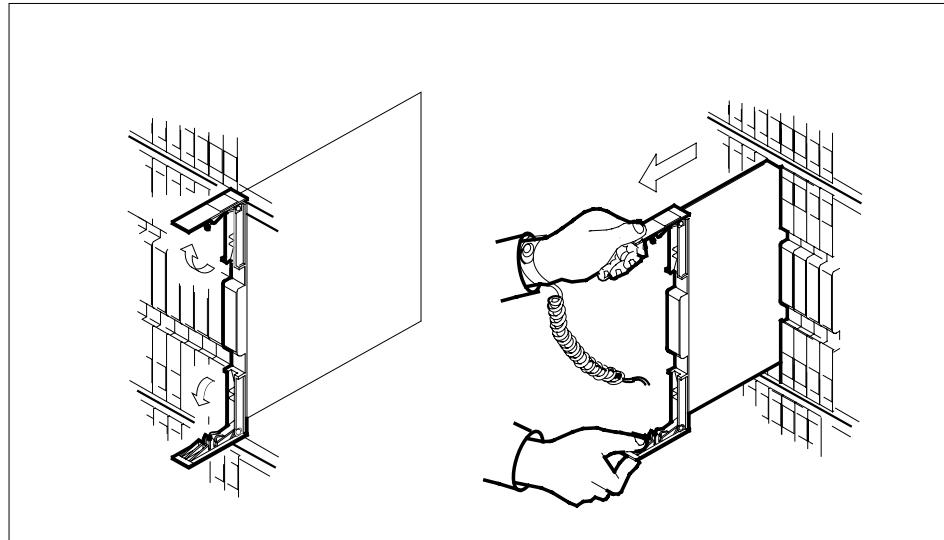
Replace the NT6X50 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.



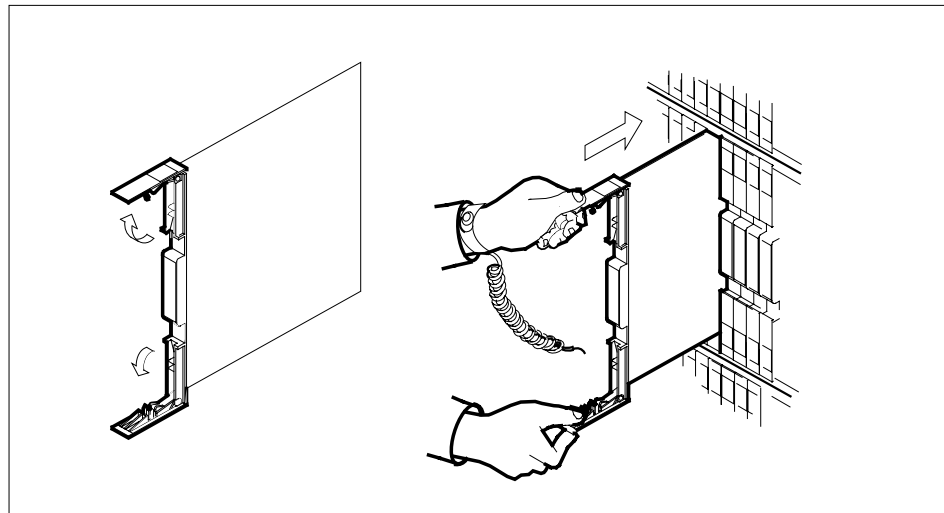
- b** Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

NT6X50 in an RSC (continued)



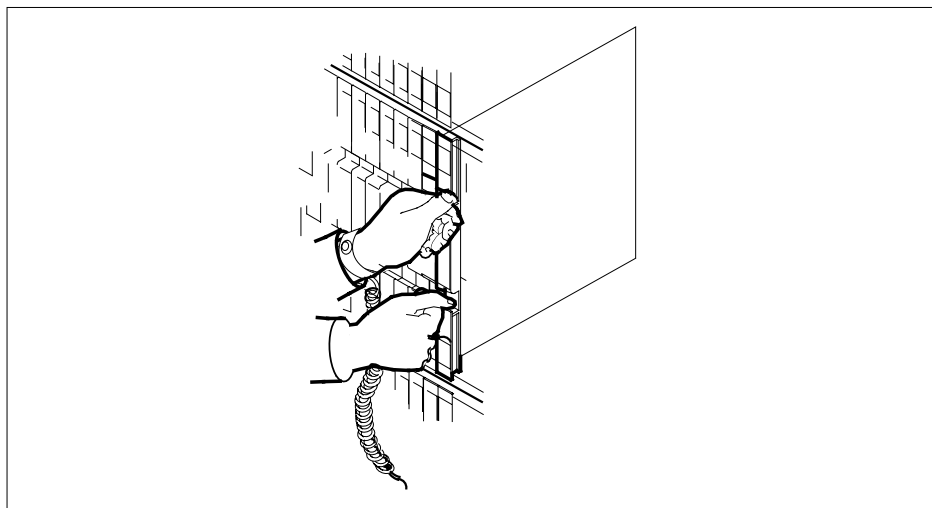
- c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

- 20** 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.



- 21** 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.

NT6X50 in an RSC (continued)



At the MAP display

- 22** Return all carrier links busied in step 16 to service by typing

>RTS n

and pressing the Enter key

where

n

is the number of the faulty link(s) associated with the new NT6X50 card. Remember that at CARRIER level, links must be addressed by the number under the n column.

If	Do
RTS PASSED	step 23
RTS FAILED	step 33

- 23** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 32
other	step 24

- 24** Post the RCC associated with the new NT6X50 card by typing

>PM; POST RCC rcc_unit_no

and pressing the Enter key

NT6X50
in an RSC (continued)

where

rcc_unit_no
is the number of the RCC unit associated with the new NT6X50 card

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	1RCC	.	.	.	.	.
RCC			SysB	ManB	OffL	CBsy	ISTb		InSv
0	Quit	PM	0	0	2	0	2		25
2	Post_	RCC	0	0	0	0	1		1
3	ListSet								
4		RCC 0	ISTb	Links_00S:	CSide	1,	PSide		0
5	TRNSL_	Unit0:	Act	InSv					
6	TST_	Unit1:	Inact	ManB					
7	BSY_								
8	RTS_								
9	OffL								
10	LoadPM_								
11	Disp_								
12	Next								
13	SwAct								
14	QueryPM								
15									
16	IRLINK								
17	Perform								
18									

- 25 Test the inactive RCC unit by typing

>**TST UNIT rcc_unit_no**

and pressing the Enter key.

where

rcc_unit_no
is the number of the inactive RCC unit (0 or 1)

If	Do
TEST PASSED	step 26
TEST FAILED	step 33

- 26 Post the host PM by typing

>**POST host_pm host_pm_no**

and pressing the Enter key.

Allow 15 minutes for messaging to clear between the CC and the RCC.

NT6X50
in an RSC (continued)

where

host_pm
is a line group controller (LGC) or line trunk controller (LTC)

host_pm_no
is the number of an LGC or LTC

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	1RCC	.	.	.	.	.
LTC			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	0	0	1	0	4	22	
2	Post_	LTC	0	0	2	0	2	9	
3	ListSet								
4		LTC 0	ISTb	Links_00S:	CSide 0,	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									

- 27 RTS the links busied in step 11 by typing
 >RTS LINK link_no
 and pressing the Enter key.

where

link_no
is the number of the links associated with the new NT6X50 card.

If	Do
RTS PASSED	step 30
RTS FAILED	step 33

- 28 Post the RCC associated with the new NT6X50 card by typing
 >PM; POST RCC rcc_unit_no

NT6X50
in an RSC (continued)

and pressing the Enter key.

where

rcc_unit_no

is the number of the RCC unit associated with the new NT6X50 card

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	1RCC	.	.	.	.	.
RCC			SysB	ManB	OffL	CBsy	ISTb		InSv
0	Quit	PM	0	0	2	0	2		25
2	Post_	RCC	0	0	0	0	1		1
3	ListSet								
4		RCC 0	ISTb	Links_00S:	CSide	1,	PSide		0
5	TRNSL_	Unit0:	Act	InSv					
6	TST_	Unit1:	Inact	ManB					
7	BSY_								
8	RTS_								
9	OffL								
10	LoadPM_								
11	Disp_								
12	Next								
13	SwAct								
14	QueryPM								
15									
16	IRLINK								
17	Perform								
18									

29 Return the inactive RCC unit to service by typing

>RTS UNIT rcc_unit_no

and pressing the Enter key.

where

rcc_unit_no

is the number of the RCC unit tested in step 25

If	Do
RTS PASSED	step 30
RTS FAILED	step 33

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

NT6X50 in an RSC (end)

- 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* that directed you to this card replacement procedure. If necessary, go to the point where the faulty card list was produced, identify the next faulty card on the list, and go to the appropriate replacement procedure in this manual for that card.
- 33** Obtain further assistance in replacing this card by contacting personnel responsible for higher level of support.
- 34** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X50
in an SMA**

Application

Use this procedure to replace an NT6X50 card in an SMA.

PEC	Suffixes	Name
NT6X50	AB	DS-1 Interface

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card
- returning a card

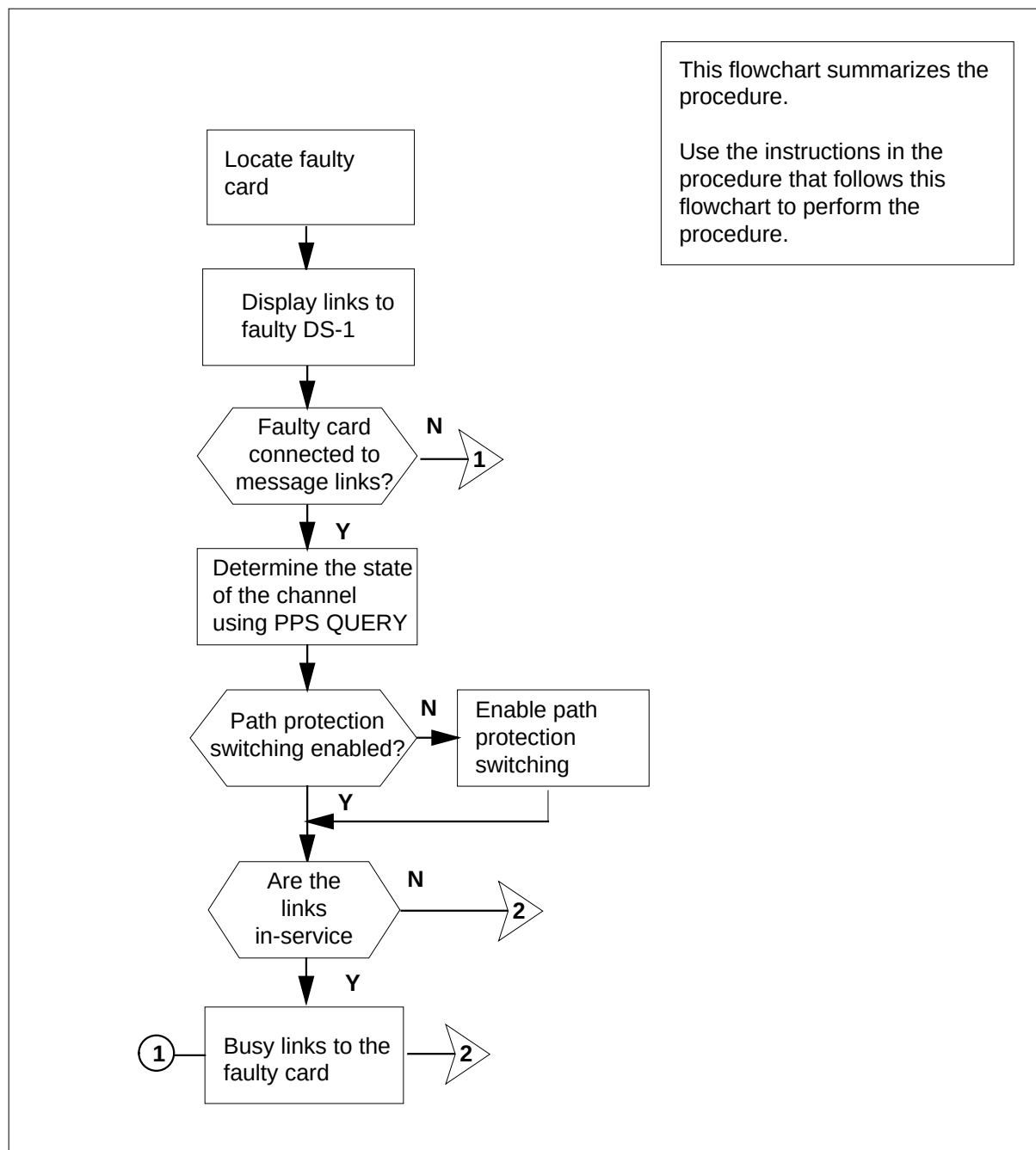
Do not go to the common procedures unless directed to do so in the step-action procedure.

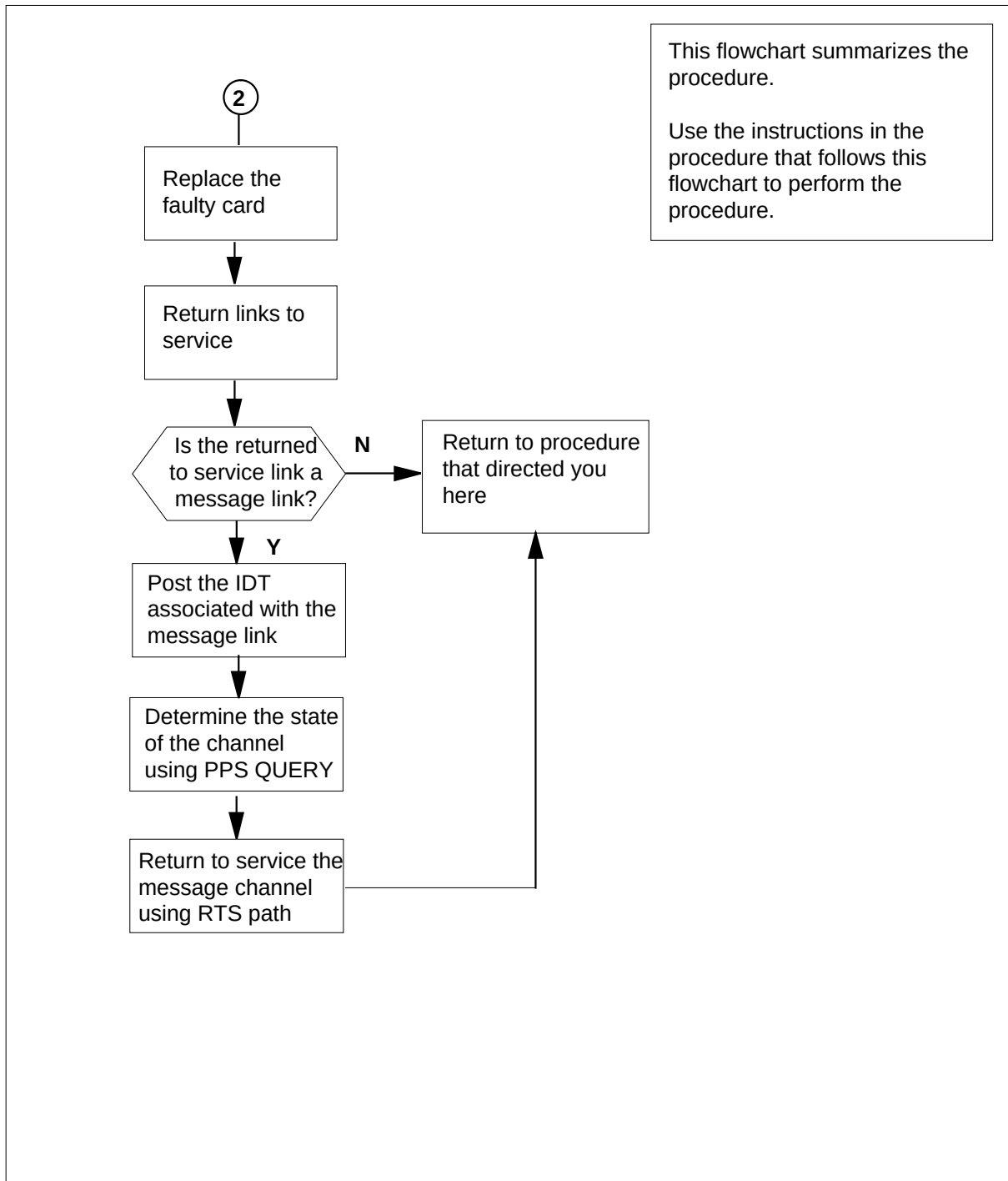
Action

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

NT6X50 in an SMA (continued)

Summary of card replacement procedure for an NT6X50 card in an SMA



NT6X50
in an SMA (continued)**Summary of card replacement procedure for an NT6X50 card in an SMA (continued)**

NT6X50 in an SMA (continued)

Replacing an NT6X50 card in an SMA

At your current location

1



CAUTION

Service disruption: calls may be dropped!

Perform this card replacement activity only during a period of low traffic. All calls being handled by the links connected to the DS-1 interface card being replaced will be dropped.

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

Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

3

Perform the procedure "Locating a faulty card in an SMA."

4



CAUTION

Loss of service

Ensure that you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

5

Ensure the current MAP display is at the PM level and post the SMA by typing

>MAPCI;MTC;PM;POST SMA sma_no

and pressing the Enter key.

where

NT6X50 in an SMA (continued)

sma_no

is the number of the SMA being posted

Example of a MAP response:

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
 Unit0: Act InSv
 Unit1: Inact ISTb

- 6** Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 11

- 7** Switch the activity (SWACT) of the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
cannot continue at this time	step 8
can continue at this time	step 9

- 8** Reject the prompt to switch the activity of the units by typing

>NO

and pressing the Enter key.

The system discontinues the SWACT. Go to step 48.

- 9** Confirm the system prompt by typing

>YES

and pressing the Enter key.

NT6X50 in an SMA (continued)

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 11
SWACT failed Rea- son: XPM SWACTback	step 10
SWACT refused by SWACT Controller	step 10

- 10** The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit.

Go to step 48.

At the equipment frame

- 11** Hang a sign on the active unit bearing the words: *Active unit-Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 12** Display the links to the faulty DS-1 Interface card (NT6X50) by typing

>TRNSL P

and pressing the Enter key.

Example of a MAP response:

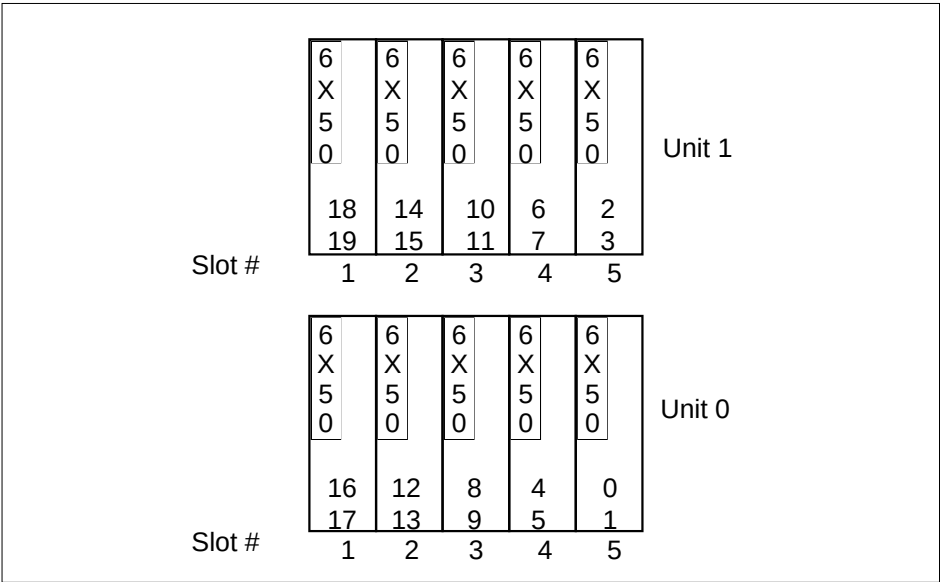
```
LINK3: IDT 1 3;Cap:MS; Status:OK; MsgCond:OPN
LINK4: IDT 1 4;Cap:MS; Status:OK; MsgCond:CLS
LINK5: IDT 1 Carrier of CLASS - Trunk;Status:SBusy
LINK6: IDT 1 Carrier of CLASS - Trunk;Status:SBusy
LINK7: IDT 2 0;Cap:MS; Status:OK; MsgCond:OPN
LINK8: IDT 2 1;Cap:MS; Status:SBSy; MsgCond:OPN
```

The first line indicates that DS-1 link 3 is connected to IDT1 at C-side link 3.

Record the link numbers, IDT number, and capability (CAP) of the links connected to the NT6X50 card to be replaced.

- 13** Use the following example to determine the numbers of the peripheral-side (P-side) links connected to the faulty NT6X50 card. Each card is connected to two links. The link 8, shown in step 12, corresponds to the NT6X50 card in slot 3 of unit 0.

NT6X50
in an SMA (continued)



- 14 If the NT6X50 to be replaced is connected to IDT message links, then the appropriate message channels (CSC and EOC) must be busied.

If the link has a CAP of	Do
MS, as identified in step 12	step 15
S, as identified in step 12	step 24

- 15 Post the IDT associated with the DS-1 link to be taken out of service, as recorded in step 12, by typing

>POST IDT idt_no
and pressing the Enter key.
where
 idt_no
 is the number of the IDT being posted

Example of a MAP response:

IDT	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
IDT	0	0	0	0	1	7

IDT 2 ISTb Links_00S:1

- 16 Display information about the state of the channels between the IDT and the RDT by typing

>PPS QUERY

NT6X50 in an SMA (continued)

and pressing the Enter key

Example of a MAP response:

```
CSC1: SMA 7 7 24; OOS;Standby;Enable
EOC1: SMA 7 7 12; OOS;Standby ;Enable
CSC2: SMA 7 8 24;InSv;Active;Enable
EOC2: SMA 7 8 12;InSv;Active;Enable
```

- 17** Determine if path protection is enabled for all channels.

If one or both CSC or EOC channels are	Do

inhibited	step 18

enabled	step 20

- 18** Enable path protection on an inhibited CSC or EOC message channel by typing

>PPS ENA path

and pressing the Enter key.

where

path

is the inhibited CSC1, CSC2, EOC1, or EOC2

- 19** Determine if path protection switching must be enabled on additional CSC or EOC message channels.

If	Do

additional channels must be enabled	step 18

all channels are enabled	step 20

- 20** Determine if the CSC or EOC message channels for the link to be taken out of service are in-service.

If CSC or EOC channels are	Do

in-service	step 21

out-of-service (OOS)	step 23

- 21** Busy the CSC or EOC message channel associated with the link to be taken out of service by typing

>BSY path

where

NT6X50 in an SMA (continued)

- path**
is CSC1, CSC2, EOC1, or EOC2
- 22** Determine if there are additional CSC or EOC message channels to be taken out of service.
- | If | Do |
|---|---------|
| more channels must be taken out of service | step 21 |
| no more channels are to be taken out of service | step 23 |
- 23** Determine if an additional link, as recorded in step 12, must be taken out of service associated with the NT6X50 to be replaced.
- | If | Do |
|---|---------|
| an additional link must be taken out of service | step 14 |
| no more links are to be taken out of service | step 24 |
- 24** Post the SMA identified in step 5 by typing
>POST SMA sma_no
 and pressing the Enter key.
where
sma_no
 is the number of the SMA being posted
Example of a MAP response:
- | SMA | SysB | ManB | Offl | CBsy | ISTb | InSv |
|-----|------|------|------|------|------|------|
| PM | 3 | 0 | 1 | 0 | 2 | 13 |
| SMA | 0 | 0 | 0 | 0 | 1 | 7 |
- SMA 7 ISTb Links_00S: CSide 0, PSide 1
 Unit0: Act InSv
 Unit1: Inact InSv

NT6X50 in an SMA (continued)

25

**CAUTION****Service disruption: calls may be dropped!**

If you are prompted to confirm a BSY LINK command, perform this activity only during a period of low traffic. All calls being handled by the busied link will be dropped.

Busy one of the links connected to the faulty NT6X50, as recorded in step12, by typing

>BSY LINK link_no

and pressing the Enter key.

where

link_no

is the number of the link connected to the faulty NT6X50 card

A confirmation prompt for the BSY command is displayed at the MAP terminal

Example of a MAP response:

```
bsy link 0
```

Any active call may be lost

Please confirm ("Yes", "Y", "No", or "N"):

If	Do
cannot continue at this time	step 26
can continue at this time	step 33

26 Reject the prompt to BSY the link by typing

>NO

and pressing the Enter key.

The system discontinues the BSY command.

27 Determine if the link is a message link

If the link has a CAP of	Do
MS	step 28
S	step 48

28 Post the IDT associated with the link by typing

>POST IDT idt_no

and pressing the Enter key.

NT6X50 in an SMA (continued)

where

idt_no

is the number of the IDT being posted

Example of a MAP response:

IDT	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
IDT	0	0	0	0	1	7

IDT 2 ISTb Links_00S:1

- 29** Display information about the state of the channels between the IDT and the RDT by typing

>PPS QUERY

and pressing the Enter key

Example of a MAP response:

```
CSC1: SMA 7 7 24; 00S;Standby;Enable
EOC1: SMA 7 7 12; 00S;Active ;Enable
CSC2: SMA 7 8 24;InSv;Standby;Enable
EOC2: SMA 7 8 12;InSv;Standby;Enable
```

- 30** Determine if there are any CSC or EOC message channels for the link to be returned to service.

If CSC or EOC channels are	Do
all in-service	step 48
out-of-service (OOS)	step 31

- 31** Return to service the message channels which were taken out of service in step 21 by typing

>RTS path

where

path

is CSC1, CSC2, EOC1, or EOC2

- 32** Determine if there are additional CSC or EOC message channels to be returned to service.

If there are	Do
more channels to be returned to service	step 31
no more channels to be returned to service	step 48

NT6X50 in an SMA (continued)

- 33** Confirm the system prompt by typing
>YES
and pressing the Enter key.
Go to step 34.
- 34** Determine if there are additional links on the NT6X50 to be taken out of service.

If	Do
there is another link to be taken out of service with a CAP of S	step 25
there is another link to be taken out of service with a CAP of MS and the associated IDT message channel has not been taken out of service	step 15
all links have been taken out of service	step 35
there is another link to be taken out of service with a CAP of MS and the associated IDT message channel has been taken out of service	step 25

At the equipment frame

35



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

- Perform the common replacing a card procedure in this document.
- 36** Ensure the switches on the replacement card are set to the same settings as those on the card you have just removed.

NT6X50 in an SMA (continued)

Refer to the following table for information on release numbers related to cable length and switch settings.

Switch settings for NT6X50 cards

Card	Length of cable	Close these switch contacts and leave all others open
NTX6X50AB, release number 39 or lower	0m to 91 m (0 ft to 299 ft)	SW1
	91 m to 137 m (299 ft to 449 ft)	SW2 SW5 SW7
	137 m to 200 m (449 ft to 655 ft)	SW3 SW6 SW8
NT6X50AB, release numbers 40 to 59	0 m to 91 m (0 ft to 299 ft)	SW4
	91 m to 137 m (299 ft to 449 ft)	SW3 SW6 SW8
	137 m to 200 m (449 ft to 655 ft)	SW1 SW5 SW7
NT6X50AB, release numbers 60 or higher	0 m to 41 m (0 ft to 133 ft)	SW1
	41 m to 81 m (133 ft to 266 ft)	S2 S3
	81 m to 122 m (266 ft to 399 ft)	S2
	122 m to 163 m (399 ft to 533 ft)	S3
	163 m to 200 m (533 ft to 655 ft)	None, all contacts are to be open

At the MAP terminal

- 37** Post the SMA identified in step 5 by typing
>POST SMA sma_no
 and pressing the Enter key.
where

NT6X50 in an SMA (continued)

sma_no

is the number of the SMA being posted

Example of a MAP response:

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_OOS: CSide 0, PSide 0
Unit0: Act InSv
Unit1: Inact ISTb

- 38** Return to service one of the two busied links by typing

>RTS LINK link_no

and pressing the Enter key.

where

link_no

is the number of the link connected to the NT6X50 card

If RTS	Do
passed	step 39
failed	step 48

- 39** Determine if the link that was returned to service is a messaging link.

If the link has a CAP of	Do
MS, as identified in step 12	step 41
S, as identified in step 12	step 40

- 40** Determine if additional links are to be returned to service

If	Do
an additional link must be re- turned to service	step 38
no more links are to be returned to service	step 46

- 41** Post the IDT associated with the DS-1 link that has been returned to service by typing

>POST IDT idt_no

and pressing the Enter key.

where

NT6X50
in an SMA (continued)

idt_no
is the number of the IDT being posted

Example of a MAP response:

IDT	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
IDT	0	0	0	0	1	7

IDT 1 SysB Links_00S:0

- 42 Display information about the state of the channels between the IDT and the RDT by typing

>PPS QUERY

and pressing the Enter key

Example of a MAP response:

CSC1: SMA 7 7 24; 00S;Standby;Enable
EOC1: SMA 7 7 12;InSv;Active ;Enable
CSC2: SMA 7 8 24; 00S;Standby;Enable
EOC2: SMA 7 8 12; 00S;Standby;Enable

- 43 Return to service the message channels which were taken out of service in step 21 by typing

>RTS path

where

path
is CSC1, CSC2, EOC1, or EOC2

- 44 Determine if there are additional CSC or EOC message channels to be returned to service.

If there are	Do
more channels to be returned to service	step 43
no more channels to be returned to service	step 45

- 45 Determine if there are additional links on the NT6X50 to be returned service.

If	Do
there is another link to be re-turned to service	step 37

NT6X50
in an SMA (end)

If	Do
all links have been returned to service	step 46

At the equipment frame

- 46** Remove the sign from the active SMA unit.
- 47** Go to the common returning a card procedure in this document.
Go to step 49.
- 48** For further assistance, contact the personnel responsible for the next level of support.
- 49** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X50
in an SMA-MVI-20**

Application

Use this procedure to replace an NT6X50 card in an SMA.

PEC	Suffixes	Name
NT6X50	AB	DS-1 Interface

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card
- returning a card

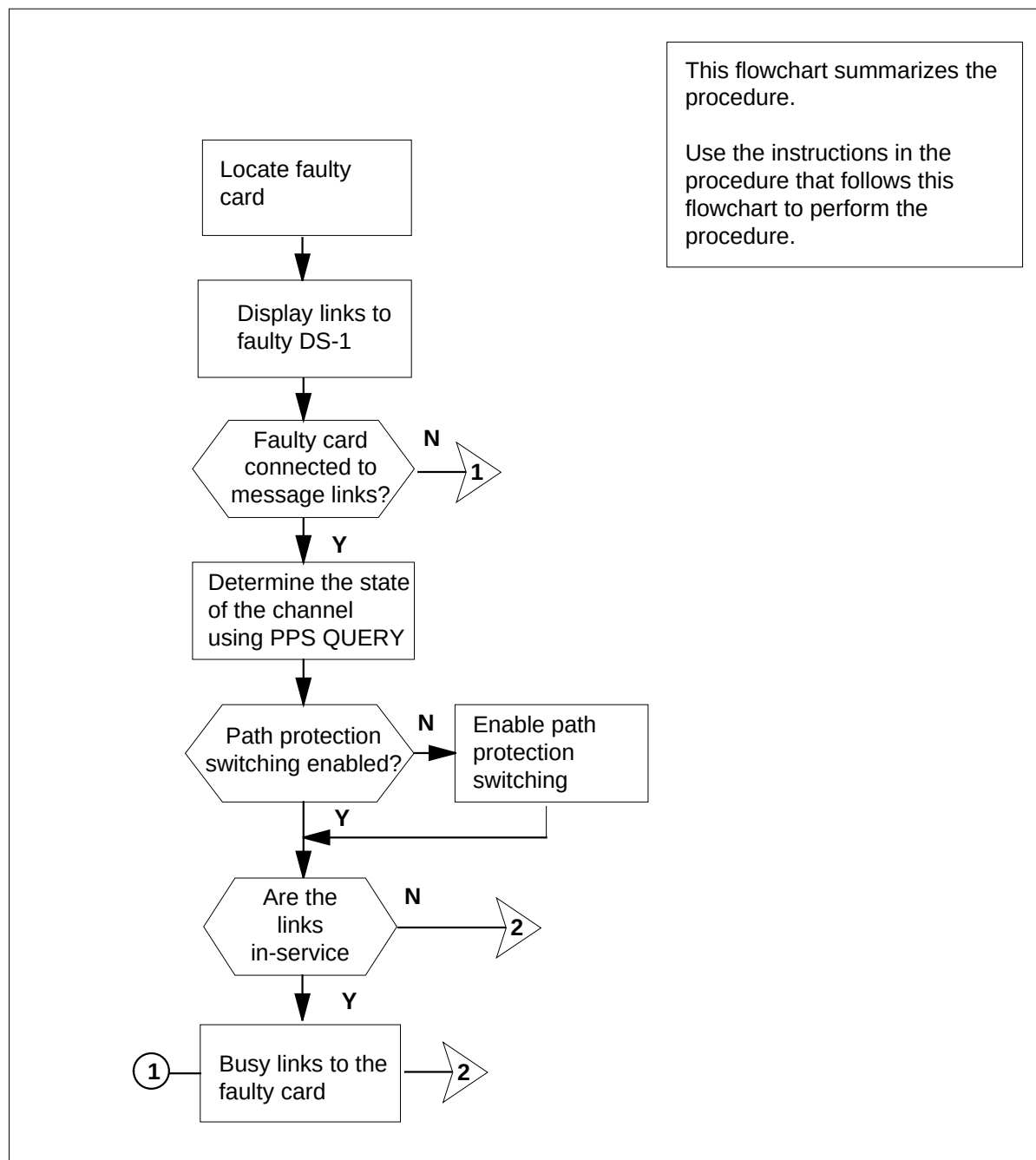
Do not go to the common procedures unless directed to do so in the step-action procedure.

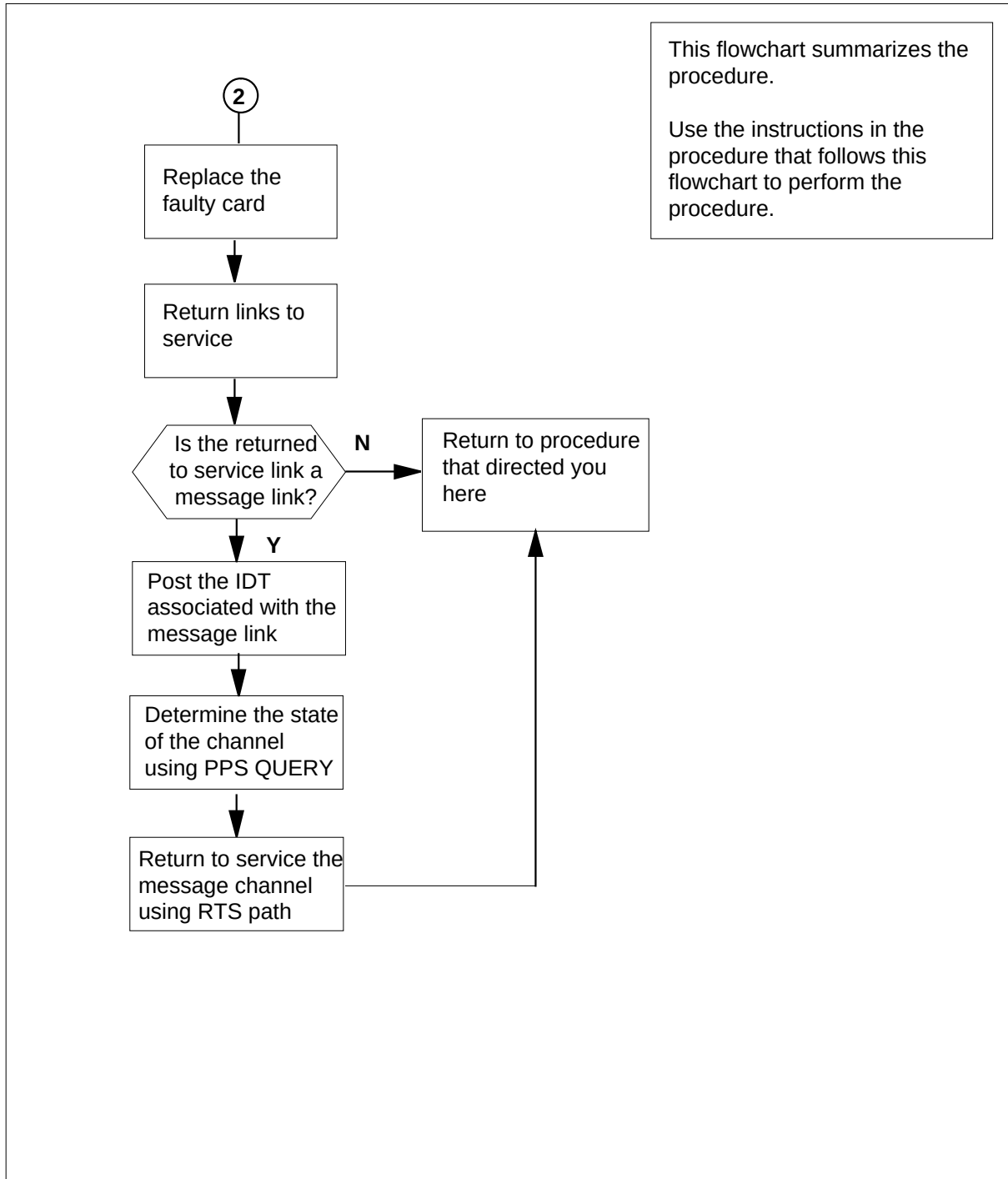
Action

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

NT6X50 in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NT6X50 card in an SMA



NT6X50
in an SMA-MVI-20 (continued)**Summary of card replacement procedure for an NT6X50 card in an SMA (continued)**

NT6X50 in an SMA-MVI-20 (continued)

Replacing an NT6X50 card in an SMA

At the equipment frame

1



CAUTION

Service disruption: calls may be dropped!

Perform this card replacement activity only during a period of low traffic. All calls being handled by the links connected to the DS-1 interface card being replaced will be dropped.

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

3 Perform the procedure "Locating a faulty card in an SMA."

4



CAUTION

Loss of service

Ensure that you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

5 Ensure the current MAP display is at the PM level and post the SMA by typing
>MAPCI;MTC;PM;POST SMA sma_no
and pressing the Enter key.
where

NT6X50 in an SMA-MVI-20 (continued)

sma_no

is the number of the SMA being posted

Example of a MAP response:

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 7 ISTb Links_00S: CSide 0, PSide 1

Unit0: Act InSv

Unit1: Inact InSv

- 6** Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 11

- 7** Switch the activity (SWACT) of the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
cannot continue at this time	step 8
can continue at this time	step 9

- 8** Reject the prompt to SWACT the units by typing

>NO

and pressing the Enter key.

The system discontinues the SWACT. Go to step 48.

- 9** Confirm the system prompt by typing

>YES

and pressing the Enter key.

NT6X50

in an SMA-MVI-20 (continued)

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 11
SWACT failed Rea- son: XPM SWACTback	step 10
SWACT refused by SWACT Controller	step 10

- 10** The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit.

Go to step 48.

At the equipment frame

- 11** Hang a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 12** Display the links to the faulty DS-1 Interface card (NT6X50) by typing

>TRNSL P

and pressing the Enter key.

Example of a MAP response:

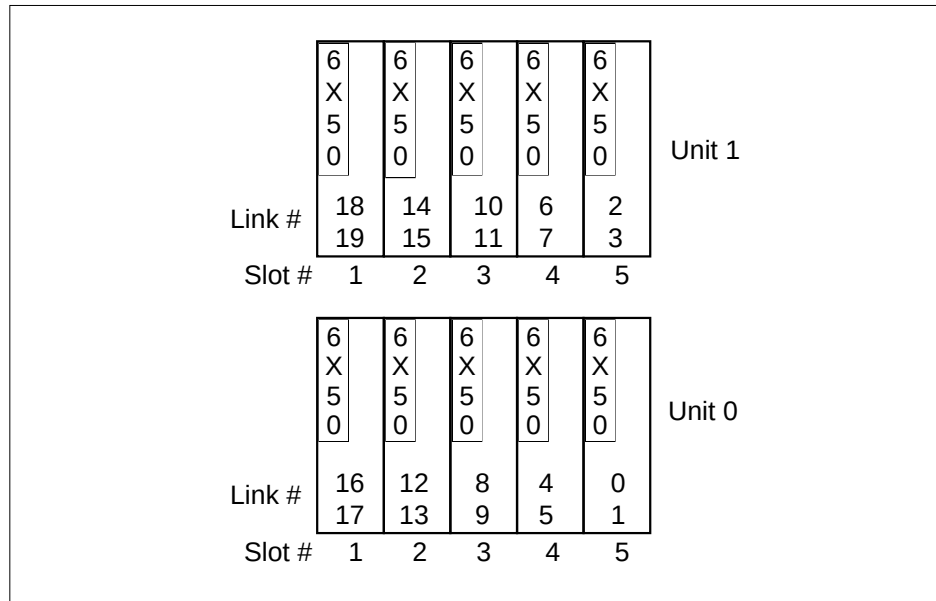
```
LINK3: IDT 1 3;Cap:MS; Status:OK; MsgCond:OPN
LINK4: IDT 1 4;Cap:MS; Status:OK; MsgCond:CLS
LINK5: IDT 1 Carrier of CLASS - Trunk;Status:SBusy
LINK6: IDT 1 Carrier of CLASS - Trunk;Status:SBusy
LINK7: IDT 2 0;Cap:MS; Status:SBsy; MsgCond:OPN
LINK8: IDT 2 1;Cap:MS; Status:OK; MsgCond:OPN
```

The first line indicates that DS-1 link 3 is connected to IDT1 at C-side link 3.

Record the link numbers, IDT number, and capability (CAP) of the links connected to the NT6X50 card to be replaced.

- 13** Use the following example to determine the numbers of the peripheral-side (P-side) links connected to the faulty NT6X50 card. Each card is connected to two links. For example, link 8, shown in step 12, corresponds to the NT6X50 card in slot 3 of unit 0.

NT6X50 in an SMA-MVI-20 (continued)



- 14** If the NT6X50 to be replaced is connected to IDT message links, then the appropriate message channels (TMC and EOC) must be busied.

If the link has a CAP of	Do
MS, as identified in step 12	step 15
S, as identified in step 12	step 24

- 15** Post the IDT associated with the DS-1 link to be taken out of service, as recorded in step 12, by typing

>POST IDT idt_no

and pressing the Enter key.

where

idt_no

is the number of the IDT being posted

Example of a MAP response:

IDT	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
IDT	0	0	0	0	1	7

IDT 2 ISTb Links_00S:1

NT6X50

in an SMA-MVI-20 (continued)

- 16** Display information about the state of the channels between the IDT and the RDT by typing

>PPS QUERY

and pressing the Enter key

Example of a MAP response:

```
TMC1: SMA 7 7 24; OOS;Standby;Enable
EOC1: SMA 7 7 12; OOS;Standby ;Enable
TMC2: SMA 7 8 24;InSv;Active;Enable
EOC2: SMA 7 8 12;InSv;Active;Enable
```

- 17** Determine if path protection is enabled for all channels.

If one or both TMC or EOC channels are	Do

inhibited	step 18

enabled	step 20

- 18** Enable path protection on an inhibited TMC or EOC message channel by typing

>PPS ENA path

and pressing the Enter key.

where

path

is the inhibited TMC1, TMC2, EOC1, or EOC2

- 19** Determine if path protection switching must be enabled on additional TMC or EOC message channels.

If	Do

additional channels must be enabled	step 18

all channels are enabled	step 20

- 20** Determine if the TMC or EOC message channels for the link to be taken out of service are in-service.

If TMC or EOC channels are	Do

in-service	step 21

out-of-service (OOS)	step 23

NT6X50 in an SMA-MVI-20 (continued)

- 21** Busy the TMC or EOC message channel associated with the link to be taken out of service by typing

>BSY path

where

path

is TMC1, TMC2, EOC1, or EOC2

- 22** Determine if there are additional TMC or EOC message channels to be taken out of service.

If

Do

more channels must be taken out of service step 21

no more channels are to be taken out of service step 23

- 23** Determine if an additional link, as recorded in step 12, must be taken out of service associated with the NT6X50 to be replaced.

If

Do

an additional link must be taken out of service step 14

no more links are to be taken out of service step 24

- 24** Post the SMA identified in step 5 by typing

>POST SMA sma_no

and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response:

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 7 ISTb Links_00S: CSide 0, PSide 1
Unit0: Act InSv
Unit1: Inact InSv

NT6X50 in an SMA-MVI-20 (continued)

25

**CAUTION****Service disruption: calls may be dropped!**

If you are prompted to confirm a BSY LINK command, perform this activity only during a period of low traffic. All calls being handled by the busied link will be dropped.

Busy one of the links connected to the faulty NT6X50, as recorded in step12, by typing

>BSY LINK link_no

and pressing the Enter key.

where

link_no

is the number of the link connected to the faulty NT6X50 card

A confirmation prompt for the BSY command is displayed at the MAP terminal

Example of a MAP response:

bsy link 0

Any active call may be lost

Please confirm ("Yes", "Y", "No", or "N"):

	If	Do
	cannot continue at this time	step 26
	can continue at this time	step 33
26	Reject the prompt to BSY the link by typing >NO and pressing the Enter key. The system discontinues the BSY command.	
27	Determine if the link is a message link	
	If the link has a CAP of	Do
	MS	step 28
	S	step 48
28	Post the IDT associated with the link by typing >POST IDT idt_no and pressing the Enter key.	

NT6X50 in an SMA-MVI-20 (continued)

where

idt_no

is the number of the IDT being posted

Example of a MAP response:

IDT	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
IDT	0	0	0	0	1	7

IDT 2 ISTb Links_00S:1

- 29** Display information about the state of the channels between the IDT and the RDT by typing

>PPS QUERY

and pressing the Enter key

Example of a MAP response:

```
TMC1: SMA 7 7 24; 00S;Standby;Enable
EOC1: SMA 7 7 12; 00S;Active ;Enable
TMC2: SMA 7 8 24; InSv;Standby;Enable
EOC2: SMA 7 8 12; InSv;Standby;Enable
```

- 30** Determine if there are any TMC or EOC message channels for the link to be returned to service.

If TMC or EOC channels are	Do
all in-service	step 48
out-of-service (OOS)	step 31

- 31** Return to service the message channels which were taken out of service in step 21 by typing

>RTS path

where

path

is TMC1, TMC2, EOC1, or EOC2

- 32** Determine if there are additional TMC or EOC message channels to be returned to service.

If there are	Do
more channels to be returned to service	step 31
no more channels to be returned to service	step 48

NT6X50

in an SMA-MVI-20 (continued)

- 33** Confirm the system prompt by typing
>YES
and pressing the Enter key.
Go to step 34.
- 34** Determine if there are additional links on the NT6X50 to be taken out of service.

If	Do
there is another link to be taken out of service with a CAP of S	step 25
there is another link to be taken out of service with a CAP of MS and the associated IDT message channel has not been taken out of service	step 15
all links have been taken out of service	step 35
there is another link to be taken out of service with a CAP of MS and the associated IDT message channel has been taken out of service	step 25

At the equipment frame

35



DANGER

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

- Perform the common replacing a card procedure in this document.
- 36** Ensure the switches on the replacement card are set to the same settings as those on the card you have just removed.

NT6X50 in an SMA-MVI-20 (continued)

Refer to the following table for information on release numbers related to cable length and switch settings.

Switch settings for NT6X50 cards

Card and length of cables	Close these switch contacts and leave all others open
NT6X50AB, release number 39 or lower	
Length of cables	
0 m to 91 m (0 ft to 299 ft)	SW1
91 m to 137 m (299 ft to 449 ft)	SW2 SW5 SW7
137 m to 200 m (449 ft to 655 ft)	SW3 SW6 SW8
<i>NT6X50AB, release numbers 40 to 59</i>	
Length of cables	
0 m to 91 m (0 ft to 299 ft)	SW4
91 m to 137 m (299 ft to 449 ft)	SW3 SW6 SW8
137 m to 200 m (449 ft to 655 ft)	SW1 SW5 SW7
NT6X50AB, release numbers 60 or higher	
Length of cables	
0 m to 41 m (0 ft to 133 ft)	SW1
41 m to 81 m (133 ft to 266 ft)	S2 S3
81 m to 122 m (266 ft to 399 ft)	S2
122 m to 163 m (399 ft to 533 ft)	S3
163 m to 200 m (533 ft to 655 ft)	None, all contacts are to be open

At the MAP terminal

- 37** Post the SMA identified in step 5 by typing
>POST SMA sma_no
 and pressing the Enter key.
where

NT6X50 in an SMA-MVI-20 (continued)

sma_no

is the number of the SMA being posted

Example of a MAP response:

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0

Unit0: Act InSv

Unit1: Inact ISTb

- 38** Return-to-service one of the two busied links by typing

>RTS LINK link_no

and pressing the Enter key.

where

link_no

is the number of the link connected to the NT6X50 card

If RTS	Do
passed	step 39
failed	step 48

- 39** Determine if the link that was returned to service is a messaging link.

If the link has a CAP of	Do
MS, as identified in step 12	step 41
S, as identified in step 12	step 40

- 40** Determine if additional links are to be returned to service

If	Do
an additional link must be re- turned to service	step 38
no more links are to be returned to service	step 46

- 41** Post the IDT associated with the DS-1 link that has been returned to service by typing

>POST IDT idt_no

and pressing the Enter key.

where

NT6X50 in an SMA-MVI-20 (continued)

idt_no

is the number of the IDT being posted

Example of a MAP response:

IDT	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
IDT	0	0	0	0	1	7

IDT 1 SysB Links_OOS:0

- 42** Display information about the state of the channels between the IDT and the RDT by typing

>PPS QUERY

and pressing the Enter key

Example of a MAP response:

```
TMC1: SMA 7 7 24; OOS;Standby;Enable
EOC1: SMA 7 7 12;InSv;Active ;Enable
TMC2: SMA 7 8 24; OOS;Standby;Enable
EOC2: SMA 7 8 12; OOS;Standby;Enable
```

- 43** Return to service the message channels which were taken out of service in step 21 by typing

>RTS path

where

path

is TMC1, TMC2, EOC1, or EOC2

- 44** Determine if there are additional TMC or EOC message channels to be returned to service.

If there are

Do

more channels to be returned to service step 43

no more channels to be returned to service step 45

- 45** Determine if there are additional links on the NT6X50 to be returned service.

If

Do

there is another link to be re- step 37
turned to service

NT6X50
in an SMA-MVI-20 (end)

If	Do
all links have been returned to service	step 46

At the equipment frame

- 46** Remove the sign from the active SMA unit.
- 47** Go to the common returning a card procedure in this document.
Go to step 49.
- 48** For further assistance, contact the personnel responsible for the next level of support.
- 49** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X51
in an IOPAC ILCM**

Application

Use this procedure to replace the following card in an International line concentrating module (ILCM).

PEC	Suffixes	Name
NT6X51	AC	Extended LCM processor

Common procedures

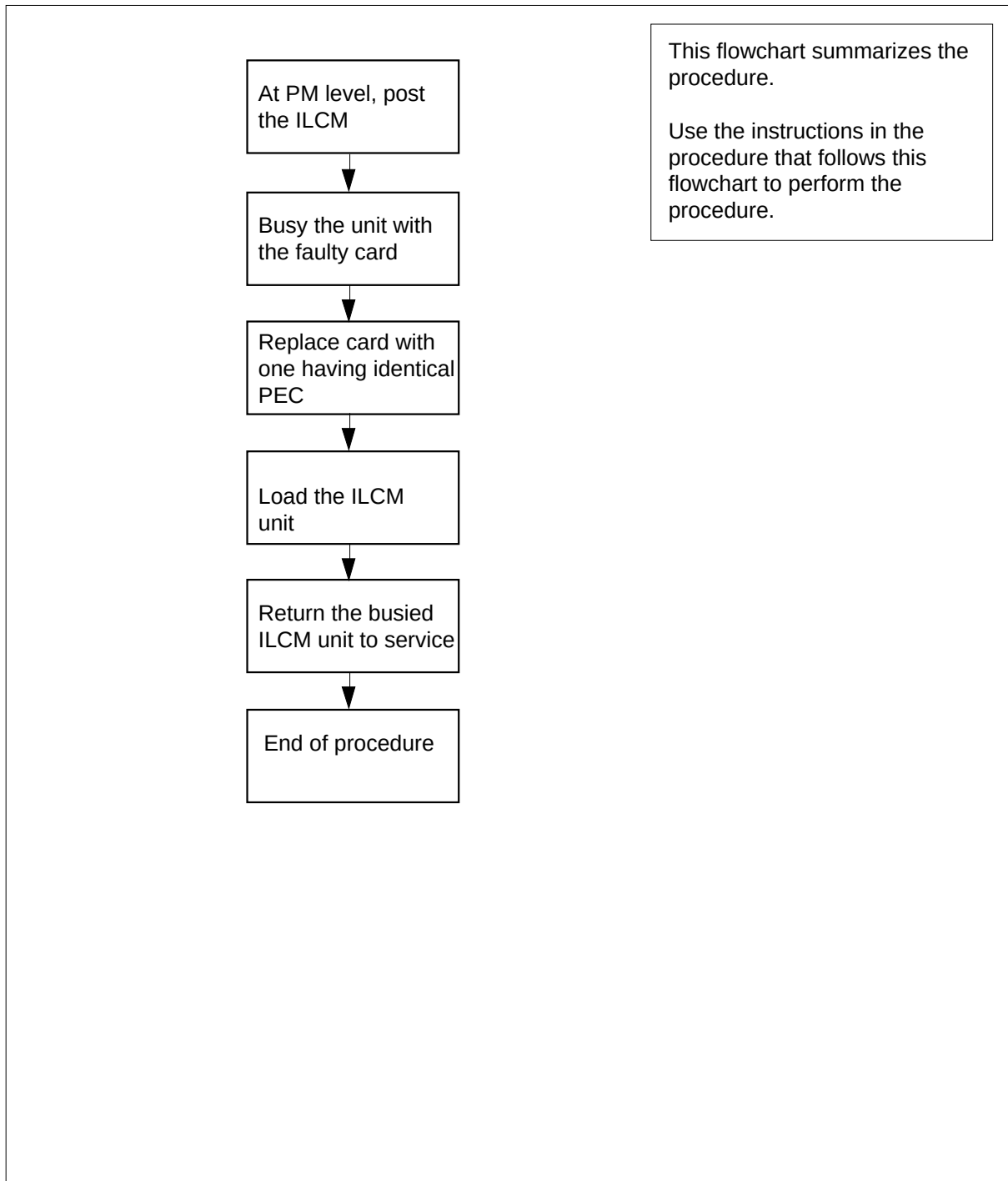
The common replacing a card procedure is referenced in this procedure.

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.

NT6X51 in an IOPAC ILCM (continued)

Summary of card replacement procedure for NT6X51 card in an ILCM



NT6X51 in an IOPAC ILCM (continued)

Replacing an NT6X51 in an ILCM

ATTENTION

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 your Current Location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

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

- 2 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 6. Otherwise, continue with step 3.

At the MAP terminal

- 3 Access the peripheral module (PM) level of the MAP display and post the ILCM that contains the faulty NT6X51 card by typing

```
>MAPCI;MTC;PM;POST ILCM site frame lcm
```

and pressing the Enter key.

where

site

is the site name of the IOPAC

frame

is the frame number of the IOPAC cabinet

lcm

is the number of the ILCM

NT6X51 in an IOPAC ILCM (continued)

- 4 Determine the state of the PM unit associated with the card you are replacing.

If the state of the PM unit is	Do
SysB , CBSy, ISTb, InSv	step 5
ManB	step 6
Offl	step 30

- 5 Busy the ILCM unit containing the faulty card by typing
>BSY UNIT lcm_unit
and pressing the Enter key.

where

lcm_unit
is the ILCM unit to be busied (0 or 1)

At the ILCM

6



DANGER

Static electricity damage

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

Go to the common replacing a card procedure in this document to replace the NT6X51 card. When the card is replaced, return to this step.

- 7 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 8.

At the MAP terminal

- 8 Load the ILCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.

where

NT6X51 in an IOPAC ILCM (continued)

lcm_unit is the ILCM unit to be loaded (0 or 1)	
If	Do
message loadfile not found in directory is received	step 9
load passes	step 26
load fails	step 29
9	Determine the type of device on which the PM load files are located.
If load files located on	Do
tape	step 10
IOC disk	step 16
SLM disk	step 21
10	Locate the tape that contains the PM load files.
11	Mount the tape on a magnetic tape drive.
12	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files
13	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files
14	Demount the tape drive by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files
15	Go to step 25.

NT6X51 in an IOPAC ILCM (continued)

- 16 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 17 Access the disk utility level of the MAP terminal by typing
>DSKUT
and pressing the Enter key.
- 18 List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files obtained in step 16.
- 19 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 20 Go to step 25.
- 21 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 22 Access the disk utility level of the MAP terminal by typing
>DISKUT
and pressing the Enter key.
- 23 List the SLM file names into your user directory by typing
>LV CM;LF file_name
and pressing the Enter key.
where
file_name
is the name of the SLM disk volume containing the file to be loaded, obtained in step 21.
- 24 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25 Reload the ILCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where

NT6X51 in an IOPAC ILCM (end)

lcm_unit is the ILCM unit to be loaded (0 or 1)	
If	Do
load failed	step 29
load passed	step 26
26	Return the ILCM unit to service by typing >RTS UNIT lcm_unit and pressing the Enter key. <i>where</i> lcm_unit is the ILCM busied in step 5 (0 or 1)
If RTS	Do
passed	step 27
failed	step 29
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	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
30	Consult office personnel to determine why the component is offline. Continue as directed by office personnel.
31	You have successfully completed this procedure.

NT6X51 in an OPAC LCM

Application

Use this procedure to replace the following card in a line concentrating module (LCM).

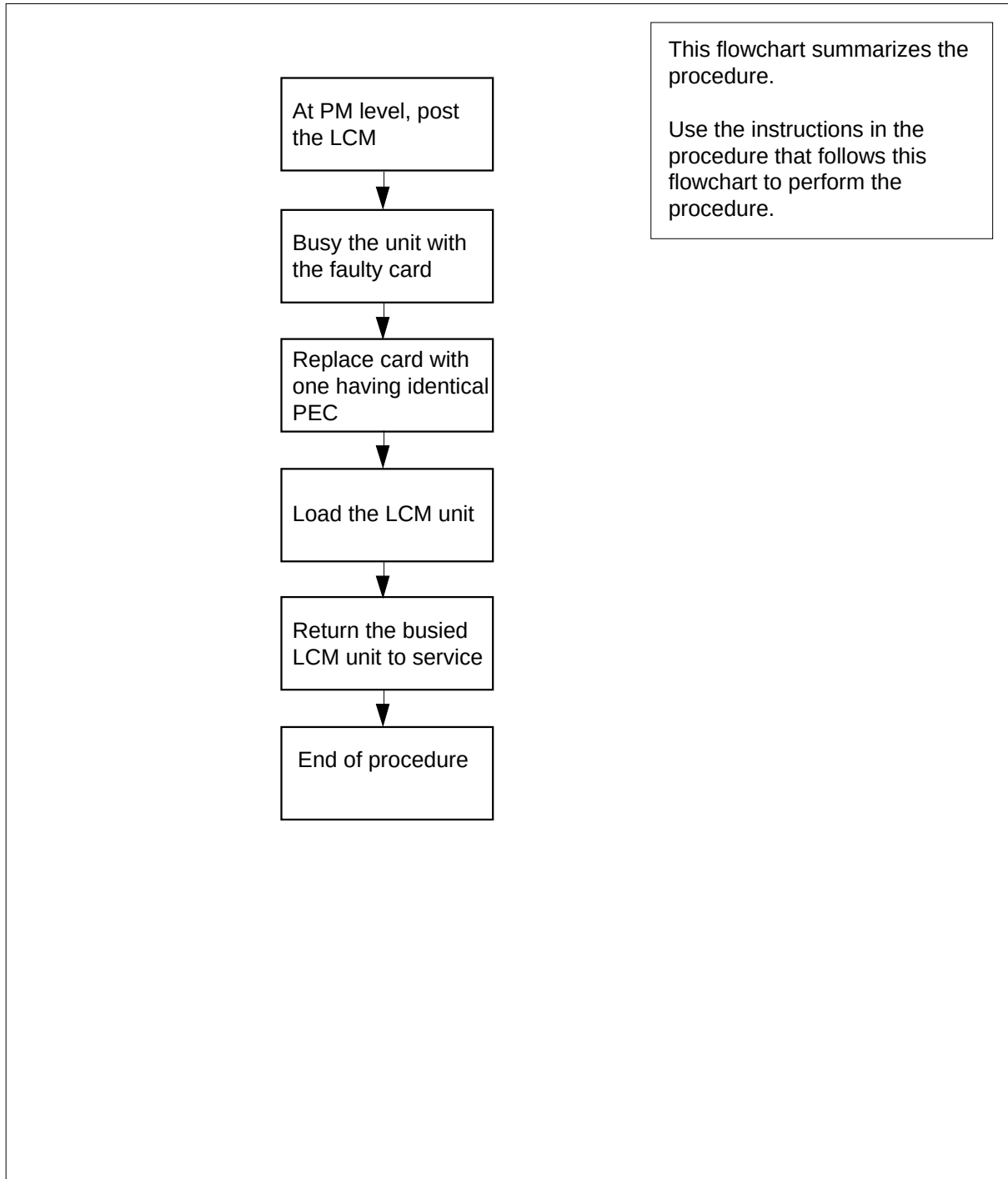
PEC	Suffixes	Name
NT6X51	AB, AC	Extended LCM processor

Common procedures

The common replacing a card procedure 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.

NT6X51
in an OPAC LCM (continued)**Summary of card replacement procedure for NT6X51 card in an LCM**

NT6X51 in an OPAC LCM (continued)

Replacing an NT6X51 in an LCM

ATTENTION

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 your Current Location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

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

- 2 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 6. Otherwise, continue with step 3.

At the MAP terminal

- 3 Access the peripheral module (PM) level and post the LCM by typing

```
>MAPCI;MTC;PM;POST LCM site frame lcm
```

and pressing the Enter key.

where

site

is the site name of the OPAC

frame

is the frame number of the OPAC (0 to 99)

lcm

is the number of the LCM

NT6X51 in an OPAC LCM (continued)

- 4 Determine the state of the PM unit associated with the card you are replacing.

If the state of the PM unit is	Do
SysB , CBSy, ISTb, InSv	step 5
ManB	step 6
Offl	step 30

- 5 Busy the LCM unit containing the faulty card by typing

>BSY UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the LCM unit to be busied (0 or 1)

At the LCM

6



DANGER

Static electricity damage

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

Go to the common replacing a card procedure in this document to replace the NT6X51 card. When the card is replaced, return to this step.

- 7 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 8.

At the MAP terminal

- 8 Load the LCM unit by typing
- >LOADPM UNIT lcm_unit CC**
- and pressing the Enter key.
- where

NT6X51 in an OPAC LCM (continued)

lcm_unit is the LCM unit to be loaded (0 or 1)	
If	Do
message loadfile not found in directory is received	step 9
load passed	step 26
load failed	step 29
9	Determine the type of device on which the PM load files are located.
If load files located on	Do
tape	step 10
IOC disk	step 16
SLM disk	step 21
10	Locate the tape that contains the PM load files.
<i>At the IOE frame</i>	
11	Mount the tape on a magnetic tape drive.
<i>At the MAP display</i>	
12	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files
13	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files
14	Demount the tape drive by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i>

NT6X51
in an OPAC LCM (continued)

- tape_no**
is the number of the tape drive containing the PM load files
- 15** Go to step 25.
- 16** From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 17** Access the disk utility level of the MAP terminal by typing
>DSKUT
and pressing the Enter key.
- 18** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files obtained in step 16.
- 19** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 20** Go to step 25.
- 21** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 22** Access the disk utility level of the MAP terminal by typing
>DISKUT
and pressing the Enter key.
- 23** List the SLM file names into your user directory by typing
>LV CM;LF file_name
and pressing the Enter key.
where
file_name
is the name of the SLM disk volume containing the file to be loaded, obtained in step 21.
- 24** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25** Reload the LCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.

NT6X51 in an OPAC LCM (end)

where

lcm_unit
is the LCM unit to be loaded (0 or 1)

If	Do
load failed	step 29
load passed	step 26

- 26** Return the LCM unit to service by typing

>RTS UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit
is the LCM busied in step 5 (0 or 1)

If RTS	Do
passed	step 27
failed	step 29

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

- 30** Consult office personnel to determine why the component is offline. Continue as directed by office personnel.

- 31** You have successfully completed this procedure.

**NT6X51
in an OPM**

Application

Use this procedure to replace the following card in an OPM.

PEC	Suffixes	Name
NT6X51	AA, AB, AC	LCM Processor Card

Common procedures

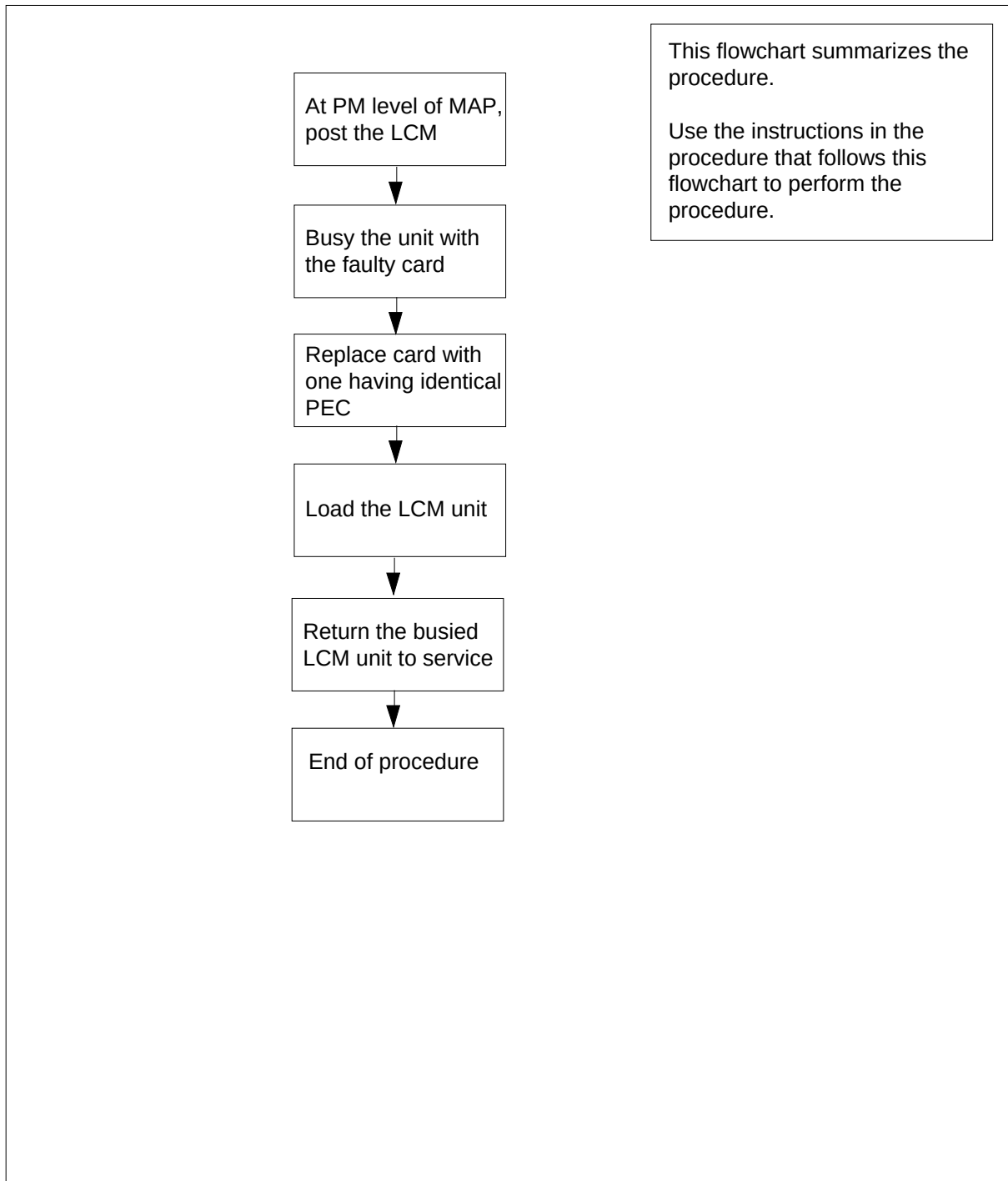
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X51 in an OPM (continued)

Summary of card replacement procedure for NT6X51 card in an OPM



NT6X51
in an OPM (continued)

Replacing an NT6X51 card in an OPM**ATTENTION**

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 your Current Location**1****CAUTION****Loss of service**

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

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

- 2** If you were directed to this procedure from another maintenance procedure, go to step 6; otherwise, continue with step 3.

At the MAP display

- 3** Access the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.
where
site
is the site name of the OPM (alphanumeric)
frame
is the frame number of the OPM (0-511)
lcm
is the number of the LCM

NT6X51 in an OPM (continued)

- 4 Determine the state of the PM unit associated with the card you are replacing.

If the state of the PM unit is	Do
SysB , CBSy, ISTb, InSv	step 5
ManB	step 6
Offl	step 31

- 5 Busy the LCM unit containing the faulty card by typing

>BSY UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the LCM unit to be busied (0 or 1)

- 6



DANGER

Static electricity damage

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

Go to the common replacing a card procedure in this document to replace the NT6X51 card. When the card is replaced, return to this step.

- 7 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 8.

At the MAP terminal

- 8 Load the LCM unit by typing

>LOADPM UNIT lcm_unit CC

and pressing the Enter key.

where

lcm_unit

is the LCM unit to be loaded (0 or 1)

If	Do
message "loadfile not found in directory" is received	step 9

NT6X51 in an OPM (continued)

	If	Do
	load passed	step 27
	load failed	step 30
9	Determine the type of device on which the PM load files are located.	
	If load files are located on	Do
	tape	step 10
	IOC disk	step 16
	SLM disk	step 21
10	Locate the tape that contains the PM load files.	
At the OPM frame		
11	Mount the tape on a magnetic tape drive.	
At the MAP display		
12	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
13	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files.	
14	Demount the tape drive by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
15	Go to step 26.	

NT6X51 in an OPM (continued)

- 16 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 17 Access the disk utility level of the MAP by typing
>DSKUT
and pressing the Enter key.
- 18 List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 16.
- 19 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 20 Go to step 26.
- 21 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 22 Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 23 List the SLM disk volume names by typing
>LV CM
and pressing the Enter key.
- 24 List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 21.
- 25 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 26 Load the LCM unit by typing
>LOADPM UNIT lcm_unit CC

NT6X51
in an OPM (end)

and pressing the Enter key.

where

lcm_unit
is the LCM unit to be loaded (0 or 1)

If	Do
load failed	step 30
load passed	step 27

27 Return the LCM unit to service by typing

>RTS UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit
is the LCM busied in step 5 (0 or 1)

If RTS	Do
passed	step 28
failed	step 30

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

29 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 32.

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

31 Consult office personnel to determine why the component is offline. Continue as directed by office personnel.

32 You have successfully completed this procedure.

NT6X51 in an RLCM

Application

Use this procedure to replace the following card in an RLCM.

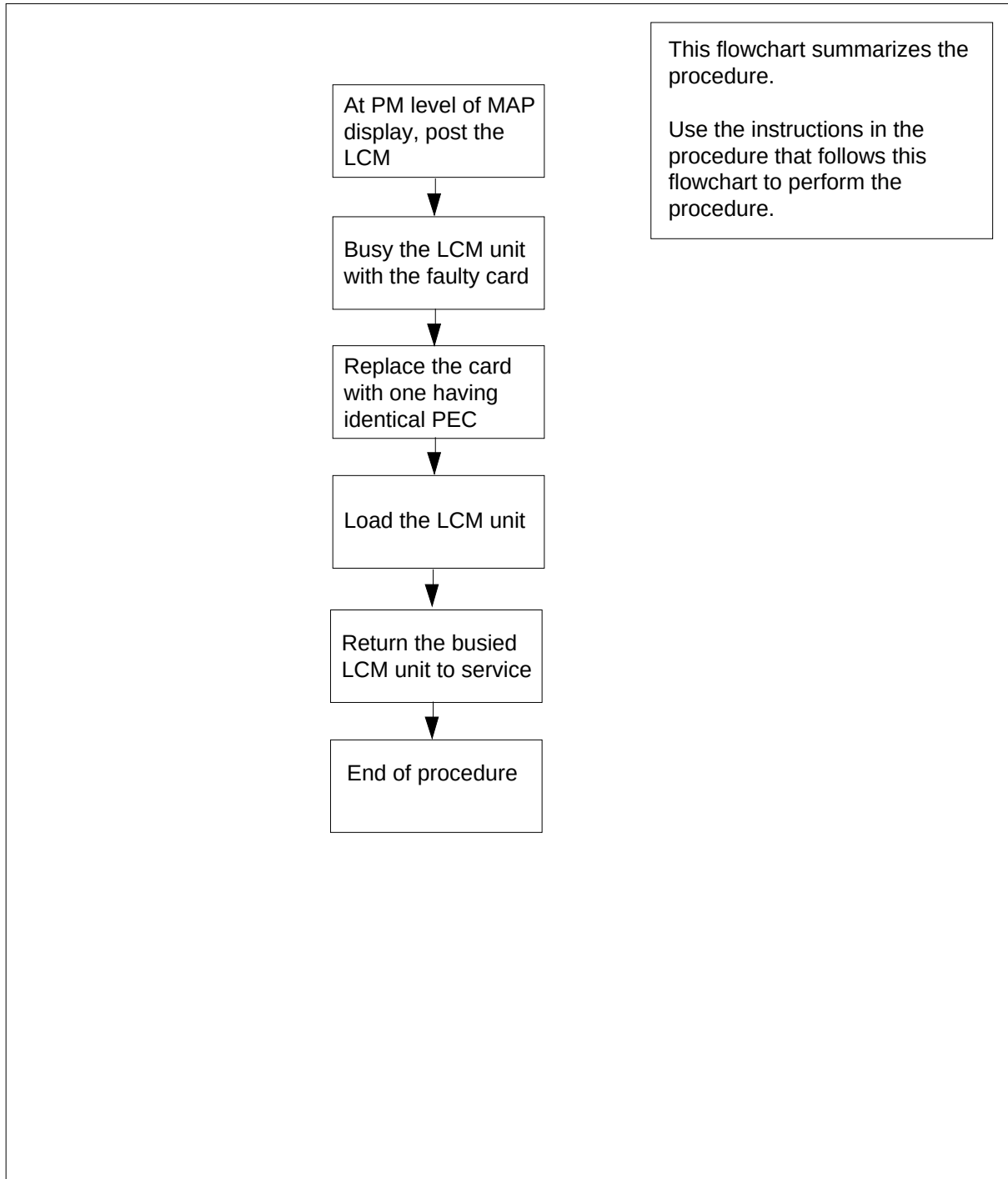
PEC	Suffixes	Name
NT6X51	AA, AB, AC	LCM Processor Card

Common procedures

The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X51
in an RLCM (continued)**Summary of card replacement procedure for an NT6X51 card in an RLCM**

NT6X51 in an RLCM (continued)

Replacing an NT6X51 card in an RLCM

ATTENTION

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 your current location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

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

- 2 If you were directed to this procedure from another maintenance procedure, go to step 6; otherwise, continue with step 3.

At the MAP display

- 3 Access the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the site name of the RLCM (alphanumeric)

frame

is the frame number of the RLCE (0-511)

lcm

is the number of the LCM

NT6X51 in an RLCM (continued)

- 4 Determine the state of the PM unit associated with the card you are replacing.

If the state of the PM unit is	Do
SysB , CBSy, ISTb, InSv	step 5
ManB	step 6
Offl	step 30

- 5 Busy the LCM unit containing the faulty card by typing

>BSY UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the LCM unit to be busied (0 or 1)

At the RLCE frame

6



DANGER

Static electricity damage

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

Replace the NT6X51 card using the common replacing a card procedure in this document. When the card has been replaced, return to this point.

- 7 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 8.

- 8 Load the LCM unit by typing

>LOADPM UNIT lcm_unit CC

and pressing the Enter key.

where

lcm_unit

is the LCM unit to be loaded (0 or 1)

If	Do
message "loadfile not found in directory" is received	step 9

NT6X51

in an RLCM (continued)

	If	Do
	load passed	step 26
	load failed	step 29
9	Determine the type of device on which the PM load files are located.	
	If load files are located on	Do
	tape	step 10
	IOC disk	step 16
	SLM disk	step 21
10	Locate the tape that contains the PM load files.	
	<i>At the IOE frame</i>	
11	Mount the tape on a magnetic tape drive.	
	<i>At the MAP display</i>	
12	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
13	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files.	
14	Demount the tape drive by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
15	Go to step 25.	

NT6X51
in an RLCM (continued)

- 16** From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 17** Access the disk utility level of the MAP by typing
>DSKUT
and pressing the Enter key.
- 18** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 16.
- 19** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 20** Go to step 25.
- 21** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 22** Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 23** List the SLM file names into your user directory by typing
>LV CM;LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 21.
- 24** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25** Load the LCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where

NT6X51
in an RLCM (end)

	lcm_unit is the LCM unit to be loaded (0 or 1)						
	<table><tr><th>If</th><th>Do</th></tr><tr><td>load failed</td><td>step 29</td></tr><tr><td>load passed</td><td>step 26</td></tr></table>	If	Do	load failed	step 29	load passed	step 26
If	Do						
load failed	step 29						
load passed	step 26						
26	Return the LCM unit to service by typing >RTS UNIT lcm_unit and pressing the Enter key. <i>where</i> lcm_unit is the LCM busied in step 5 (0 or 1)						
	<table><tr><th>If RTS</th><th>Do</th></tr><tr><td>passed</td><td>step 27</td></tr><tr><td>failed</td><td>step 29</td></tr></table>	If RTS	Do	passed	step 27	failed	step 29
If RTS	Do						
passed	step 27						
failed	step 29						
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	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.						
30	Consult office personnel to determine why the component is offline. Continue as directed by office personnel.						
31	You have successfully completed this procedure.						

**NT6X51
in an RLCM-EDC**

Application

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

PEC	Suffixes	Card name	Shelf/frame name
NT6X51	BA	LCM Processor Card	LCM/RLCC

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the index. The index provides a list of cards, shelves, and frames documented in this maintenance manual.

Common procedures

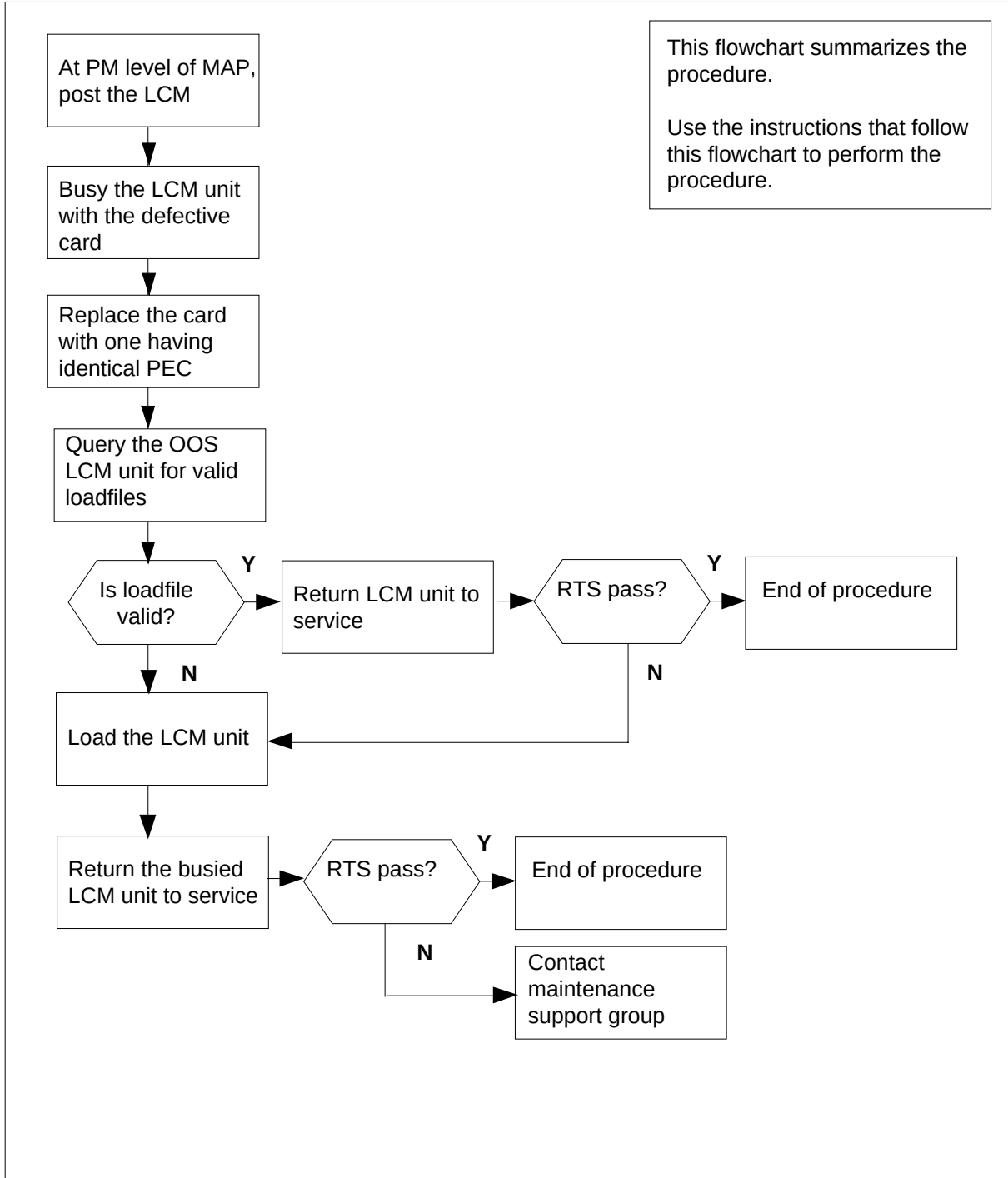
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X51 in an RLCM-EDC (continued)

Summary of replacing an NT6X51 card in LCM



NT6X51 in an RLCM-EDC (continued)

Replacing an NT6X51 card in an LCM

At your current location

- 1 Obtain a replacement card. Make sure that the replacement card has the same product equipment code (PEC) and suffix as the card to remove.
- 2 If another maintenance procedure directed you to this procedure, proceed to step 5. If this event did not occur, proceed to step 3.

At the MAP display

- 3 To access the peripheral module (PM) level and post the RLCM-EDC, type
>MAPCI;MTC;PM;POST LCM site cabinet lcm
and press the Enter key.

where

site

is the site name of the RLCM-EDC (alphanumeric)

cabinet

is the number of the RLCC-EDC cabinet

lcm

is the number of the LCM

- 4 To busy the LCM unit that contains the defective NT6X51 card, type
>BSY UNIT unit_no
and press the Enter key.

where

unit_no

is the LCM unit (0 or 1) associated with the defective NT6X51 card

At the RLCC cabinet

- 5 Use the common replacing a card procedure in this document to replace the NT6X51 card. When the card replacement is complete, return to this point.
- 6 If another maintenance procedure directed you to this procedure, return now to the procedure that directed you here. Continue as directed. If this event did not occur, proceed to step 7.
- 7 To query the out-of-service (OOS) LCM unit for valid loadfiles, type
>QUERYPM OOS
and press the Enter key.

Example of a MAP response

NT6X51 in an RLCM-EDC (continued)

```
PM Type: LCM  Int. No.: 9  Status index: 7  Node_No: 40
LCM REM1 02 0  Memory Size - Unit 0: 4M , Unit 1: 4M
ESA equipped: No, Intraswitching is Off
Loadname: LCMINV - REDC07AA
Unit0 Loads: Act- REDC07AB Stby- REDC07AA
Unit1 Loads: Act- REDC07AB *FLT* Stby- REDC07AA *FLT*
REX is ON; INCOMPLETE on SAT. 1995/10/28 at 01:35:19
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}
Unit 1 Status: {MAN_BUSY, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
REM1 01 K03 RLCM 02 04 LCM 02 0 6X04AA
Services : NEUTRAL
```

	If loadfile names	Do
	are valid	step 8
	are invalid or corrupted	step 9
8	To return the LCM unit to service, type >RTS UNIT lcm_unit and press the Enter key. <i>where</i> lcm_unit is the LCM unit (0 or 1) busied in step 4	
	If RTS	Do
	passed	step 11
	failed	step 9
9	To load the LCM unit, type >LOADPM UNIT unit_no CC and press the Enter key. <i>where</i> unit_no is the LCM unit (0 or 1) to load	
	If the load	Do
	passed	step 10
	failed	step 13

NT6X51
in an RLCM-EDC (end)

- 10** To return the LCM unit to service and switch load to the standby bank, type
>RTS UNIT lcm_unit SWLD
and press the Enter key.
where
lcm_unit
is the LCM unit (0 or 1) busied in step 4
- | If RTS | Do |
|--------|---------|
| passed | step 11 |
| failed | step 13 |
- 11** Send any defective cards for repair according to local procedure.
- 12** Record the items that follow in office records:
- date that card replacement occurred
 - serial number of the card
 - indications that prompted replacement of the card
- Proceed to step 14.
- 13** For additional help in this card replacement, contact the next level of support.
- 14** This procedure is complete.

NT6X51 in an RSC-S (DS-1) Model A LCM

Application

Use this procedure to replace an NT6X51 card in an RSC-S LCM.

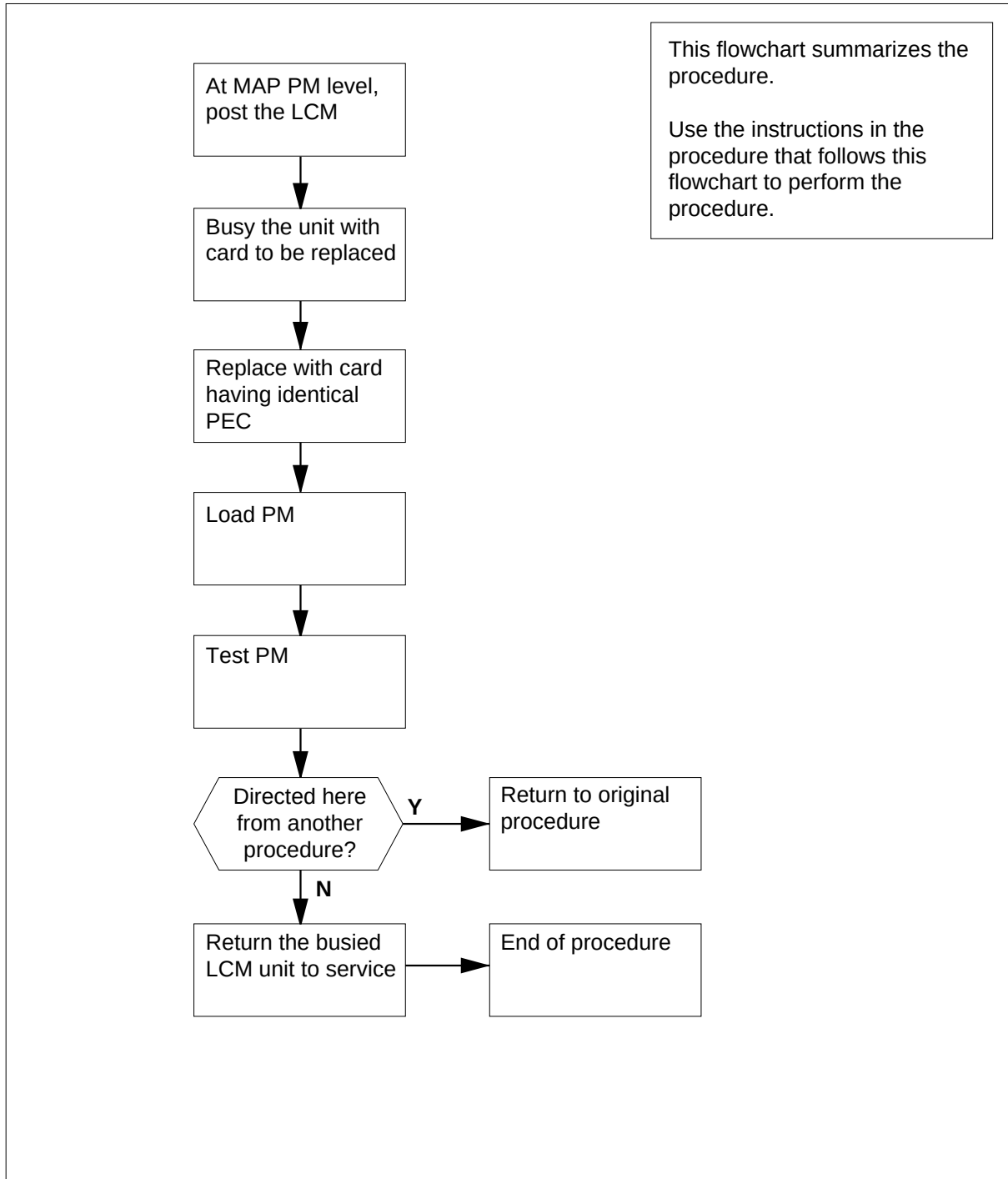
PEC	Suffixes	Name
NT6X51	AB, AC	Extended LCM Processor

Common procedures

None

Action

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

NT6X51
in an RSC-S (DS-1) Model A LCM (continued)**Summary of card replacement procedure for an NT6X51 card in RSC-S LCM**

NT6X51 in an RSC-S (DS-1) Model A LCM (continued)

Replacing an NT6X51 card in an RSC-S LCM

ATTENTION

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 your current location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

Obtain an NT6X51 replacement card. Ensure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 2 Set the MAP to the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM lcm_site_name lcm_frame_no lcm_no
and pressing the Enter key.

where

lcm_site_name

is the name of the site at which the LCM is located

lcm_frame_no

is the number of the frame in which the LCM is located

lcm_no

is the number of the LCM with the faulty card

- 3 Busy the LCM by typing
>BSY UNIT lcm_unit_no
and pressing the Enter key.

where

NT6X51

in an RSC-S (DS-1) Model A LCM (continued)

lcm_unit_no

is the number of the LCM unit

Example of a MAP response:

```
LCM    RemL 00 0 ISTb Links_00S: CSide 1 PSide 0
Unit-0: InSv Mtce TakeOver /RG: 0
Unit-1: ManB Mtce          /RG: 0
              11 11 11 11 11
Drwr:  01 23 45 67 89 01 23 45 67 89      RG:Pref:0 InSv
              . . . . . Stby:1 InSv
              . . . . .
```

At the LCE frame

4

**DANGER****Card damage—transport**

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom [Nortel} Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

**DANGER****Static electricity damage**

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the frame supervisory panel (FSP) of the LCM. This protects the equipment against damage caused by static electricity.

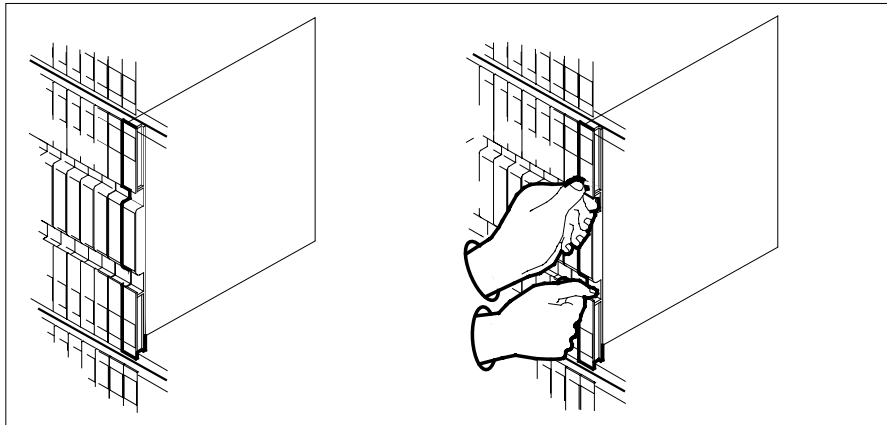
Put on a wriststrap.

5

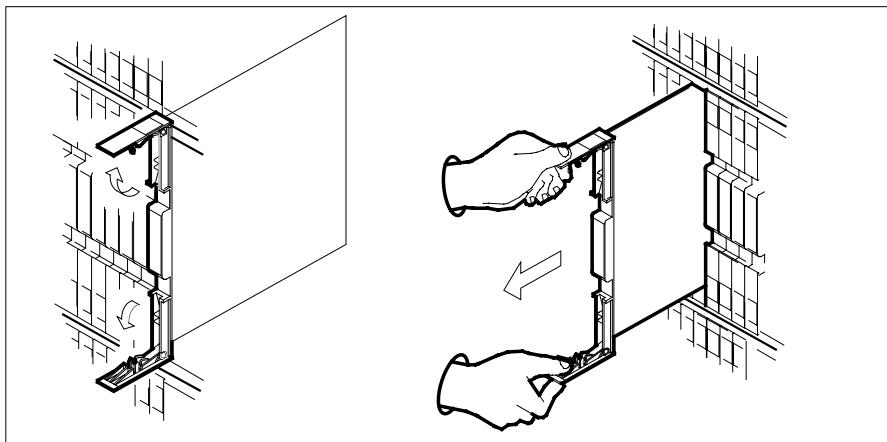
Remove the card to be replaced.

- a** Locate the card to be removed on the appropriate shelf.

NT6X51 in an RSC-S (DS-1) Model A LCM (continued)

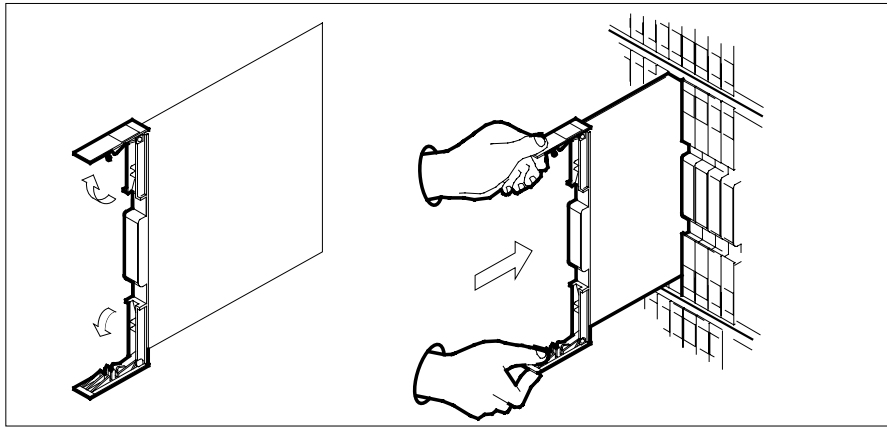


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 6** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X51 in an RSC-S (DS-1) Model A LCM (continued)



7



DANGER

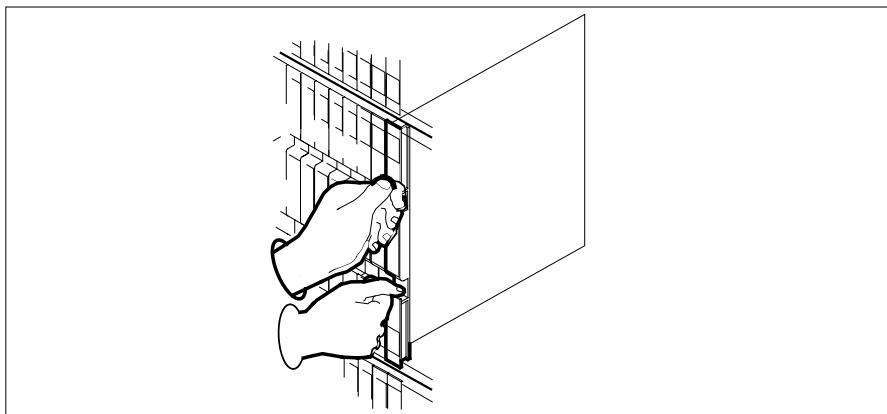
Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Seat and lock the card.

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



NT6X51

in an RSC-S (DS-1) Model A LCM (continued)

At the MAP terminal

- 8** Load the inactive LCM unit by typing
>loadpm unit lcm_unit_no CC
 and pressing the Enter key.

where

lcm_unit_no
 is the number of the LCM unit busied in step 3

If load	Do
passed	step 9
failed	step 14

- 9** Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 13
other	step 10

- 10** Return the LCM unit to service by typing
>RTS UNIT lcm_unit_no
 and pressing the Enter key.

where

lcm_unit_no
 is the number of the LCM unit busied in step 3

If RTS	Do
passed	step 11
failed	step 14

- 11** Send any faulty cards for repair according to local procedure.
- 12** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 15.
- 13** Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.
- 14** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

NT6X51

in an RSC-S (DS-1) Model A LCM (end)

- 15** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X51 in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NT6X51 card in an RSC-S LCM.

PEC	Suffixes	Name
NT6X51	AB, AC	Extended LCM Processor

Common procedures

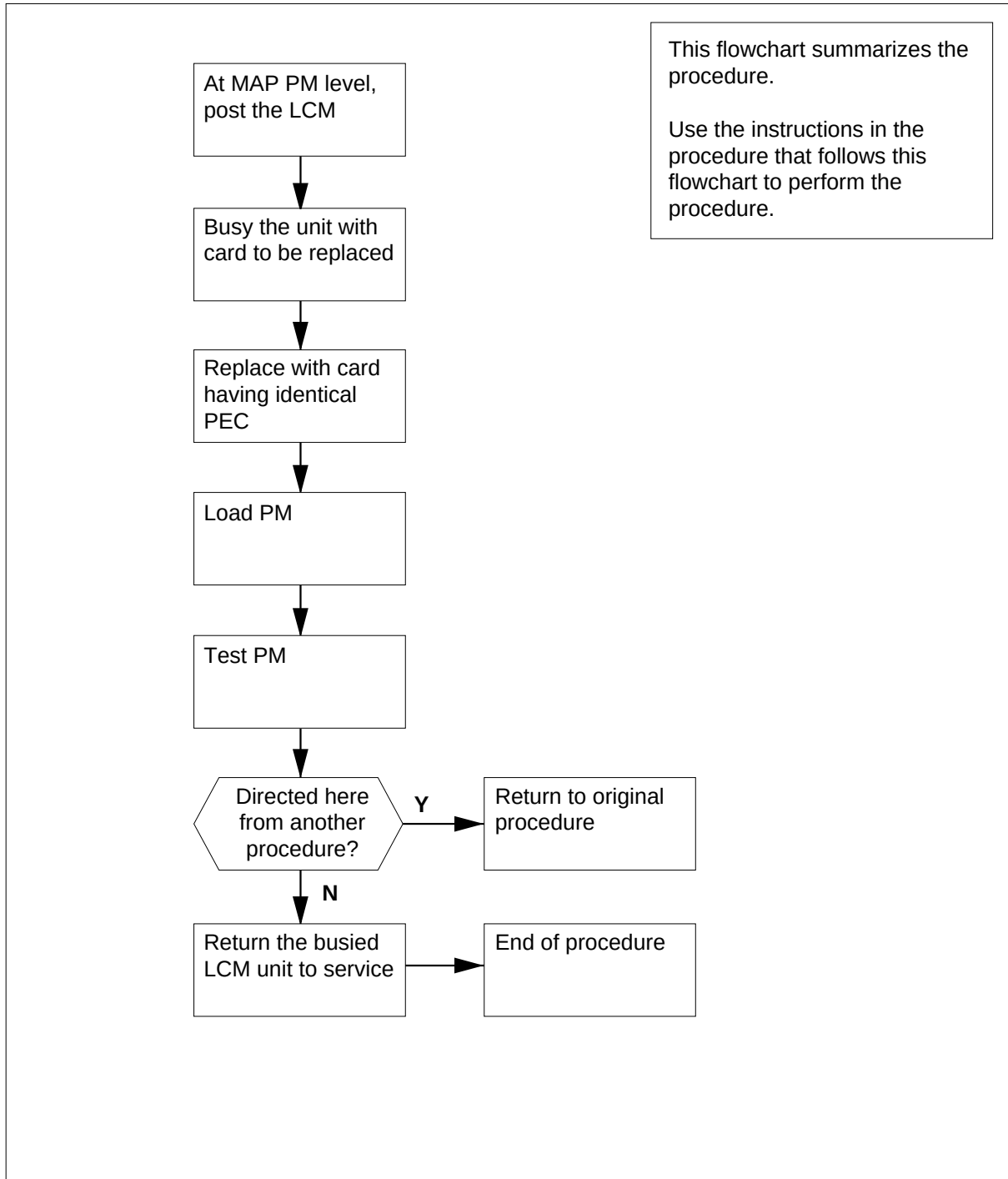
None

Action

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

NT6X51 in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NT6X51 card in RSC-S LCM



NT6X51 in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NT6X51 card in an RSC-S LCM

ATTENTION

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 your Current Location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

Obtain an NT6X51 replacement card. Ensure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 2 Access the PM level of the MAP display and post the LCM with the faulty NT6X51 card by typing

```
>MAPCI;MTC;PM;POST LCM lcm_site_name lcm_frame_no lcm_no
```

and pressing the Enter key.

Example of a MAP response:

where

lcm_site_name

is the name of the site at which the LCM is located

lcm_frame_no

is the number of the frame in which the LCM is located

lcm_no

is the number of the LCM with the faulty card

- 3 Busy the LCM unit associated with the faulty card by typing

```
>BSY UNIT lcm_unit_no
```

and pressing the Enter key.

NT6X51

in an RSC-S (DS-1) Model B LCME (continued)

where

lcm_unit_no

is the number of the LCM unit associated with the faulty NT6X51 card

Example of a MAP response:

```
LCM    RemL  00 0 ISTb  Links_00S: CSide 1 PSide 0
Unit-0: InSv  Mtce TakeOver  /RG:  0
Unit-1: ManB  Mtce          /RG:  0
              11 11 11 11 11          RG:Pref:0 InSv
Drwr:  01 23 45 67 89 01 23 45 67 89          Stby:1 InSv
. . . . .
```

At the LCE frame

4



DANGER

Card damage—transport

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom [Nortel] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.



DANGER

Static electricity damage

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the modular supervisory panel (MSP) of the LCM. This protects the equipment against damage caused by static electricity.

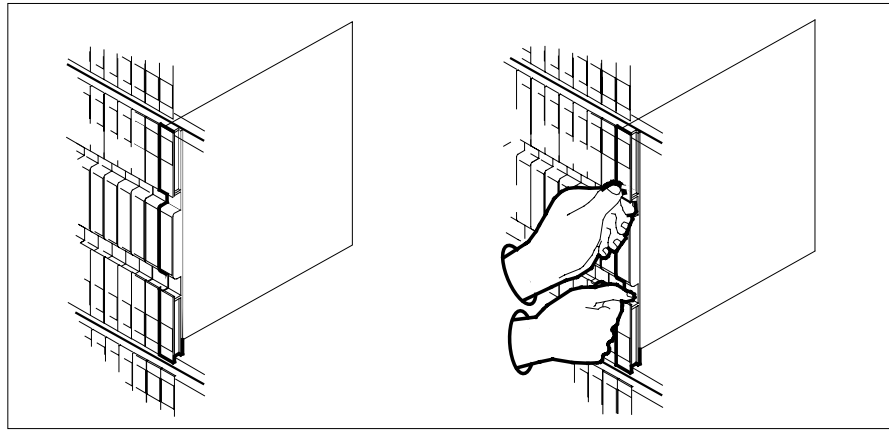
Put on a wriststrap.

5

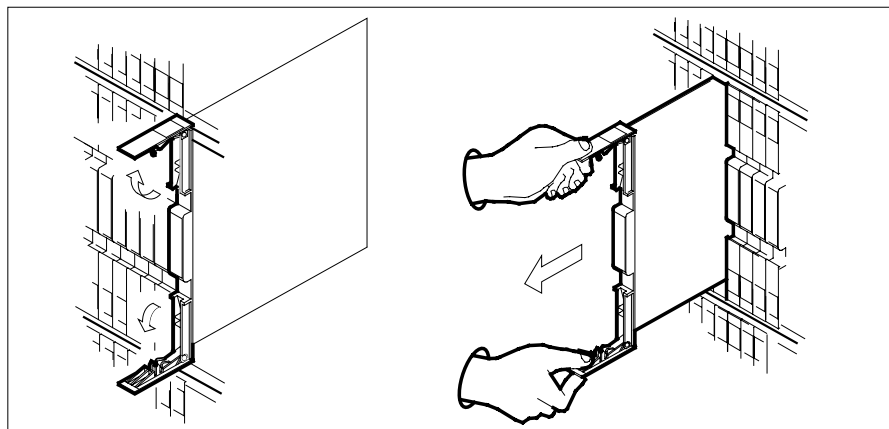
Remove the NT6X51 card as shown in the following figures.

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

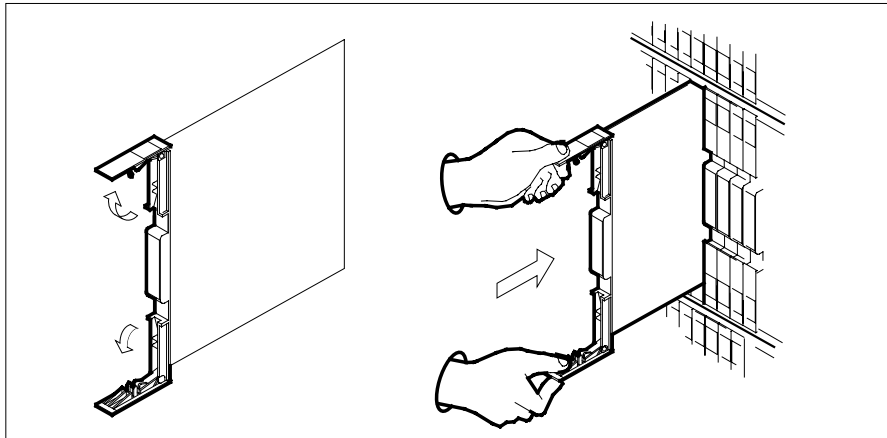
NT6X51
in an RSC-S (DS-1) Model B LCME (continued)



- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card just removed.
- 6** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X51
in an RSC-S (DS-1) Model B LCME (continued)

7

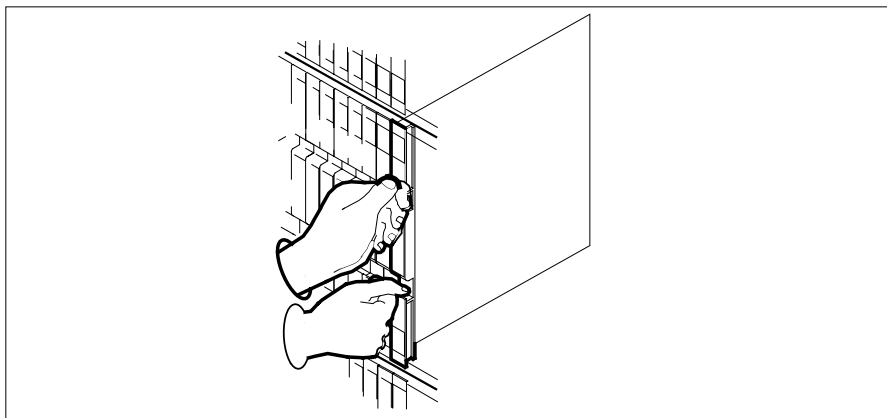
**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Seat and lock the card.

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



NT6X51

in an RSC-S (DS-1) Model B LCME (end)

- 8 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 13
other	step 9

At the MAP terminal

- 9 Load the inactive LCM unit by typing

>loadpm unit lcm_unit_no CC

and pressing the Enter key.

where

lcm_unit_no

is the number of the LCM unit busied in step 3

If load	Do
passed	step 10
failed	step 14

- 10 Return the LCM unit to service by typing

>RTS UNIT lcm_unit_no

and pressing the Enter key.

where

lcm_unit_no

is the number of the LCM unit busied in step 3

If RTS	Do
passed	step 11
failed	step 14

- 11 Send any faulty cards for repair according to local procedure.
- 12 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 15.
- 13 Return to the Alarm Clearing Procedures that directed you to this procedure and continue as directed.
- 14 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.
- 15 You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X51 in an RSC-S (PCM-30) Model A LCM

Application

Use this procedure to replace an NT6X51 card in an RSC-S LCM.

PEC	Suffixes	Name
NT6X51	AB, AC	Extended LCM Processor

Common procedures

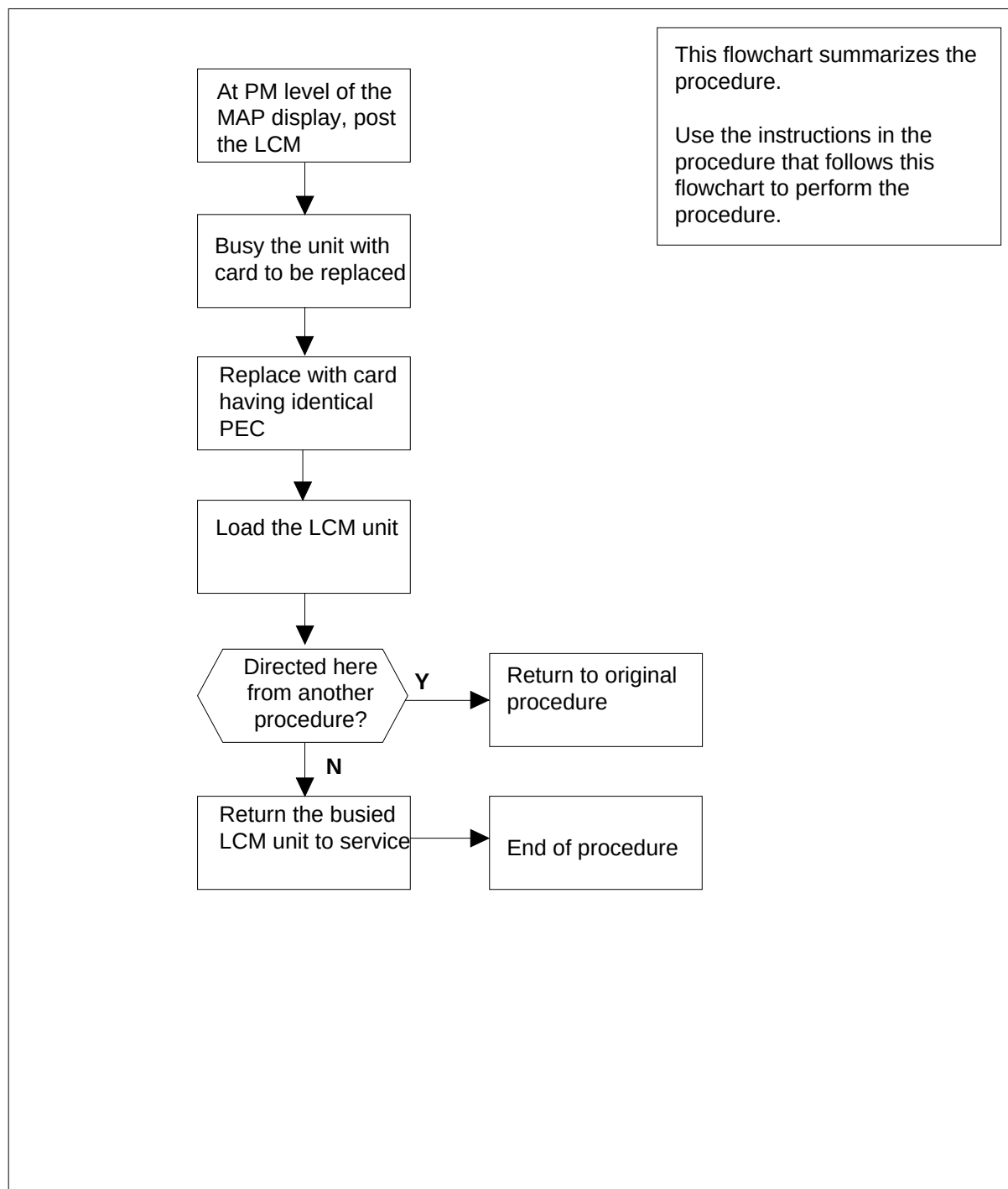
None

Action

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

NT6X51 in an RSC-S (PCM-30) Model A LCM (continued)

Summary of card replacement procedure for an NT6X51 card in RSC-S LCM



NT6X51

in an RSC-S (PCM-30) Model A LCM (continued)

Replacing an NT6X51 card in an RSC-S LCM

ATTENTION

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 your Current location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

Obtain an NT6X51 replacement card. Ensure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 2** Set the MAP to the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM lcm_site_name lcm_frame_no lcm_no
 and pressing the Enter key.

where

lcm_site_name

is the name of the site at which the LCM is located

lcm_frame_no

is the number of the frame in which the LCM is located

lcm_no

is the number of the LCM with the faulty card

- 3** Busy the LCM by typing
>BSY UNIT lcm_unit_no
 and pressing the Enter key.

where

NT6X51 in an RSC-S (PCM-30) Model A LCM (continued)

lcm_unit_no

is the number of the LCM unit

Example of a MAP response:

```
LCM    RemL  00 0 ISTb  Links_00S: CSide 1 PSide 0
Unit 0: InSv Mtce TakeOver  /RG:  0
Unit 1: ManB Mtce           /RG:  0
              11 11 11 11 11
Drwr:  01 23 45 67 89 01 23 45 67 89      RG:Pref:0 InSv
              . . . . . Stby:1 InSv
              . . . . .
```

At the LCE frame

4



DANGER

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 an 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 switch frame (Northern Telecom Corporate Standard 5028).

Store and transport circuit cards in an ESD protective container.



DANGER

Static electricity damage

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the frame supervisory panel (FSP) of the LCM. This protects the equipment against damage caused by static electricity.

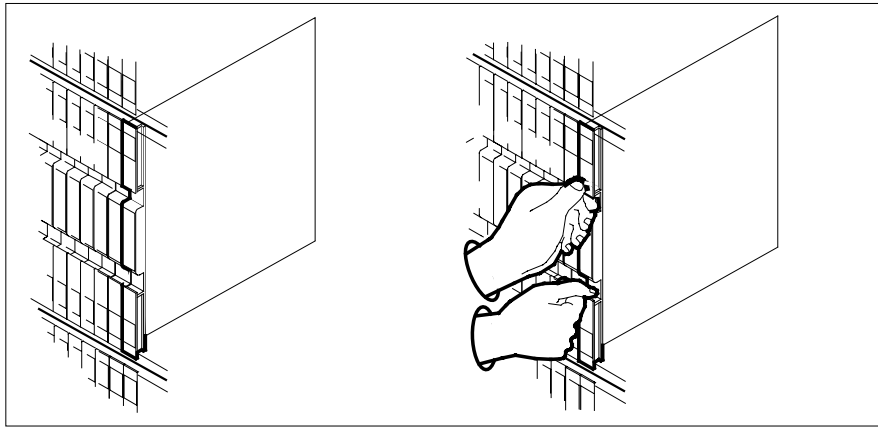
Put on a wrist strap.

5

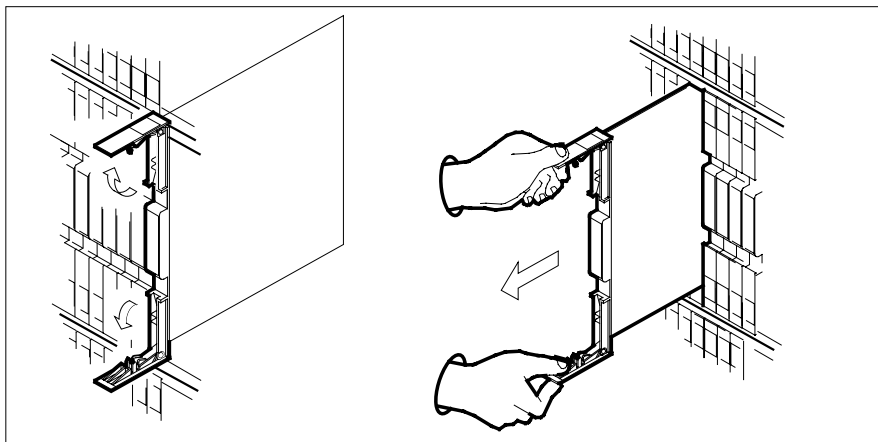
Remove the NT6X51 card as shown in the following figures.

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

NT6X51
in an RSC-S (PCM-30) Model A LCM (continued)

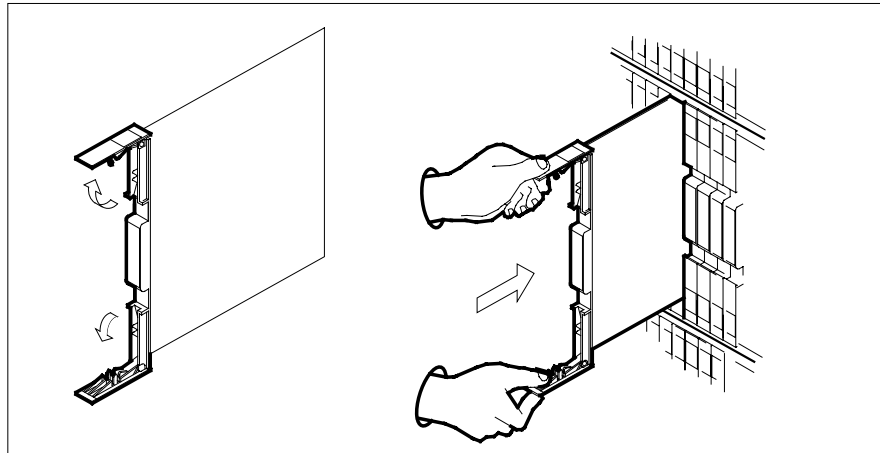


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 6** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X51 in an RSC-S (PCM-30) Model A LCM (continued)



7



DANGER

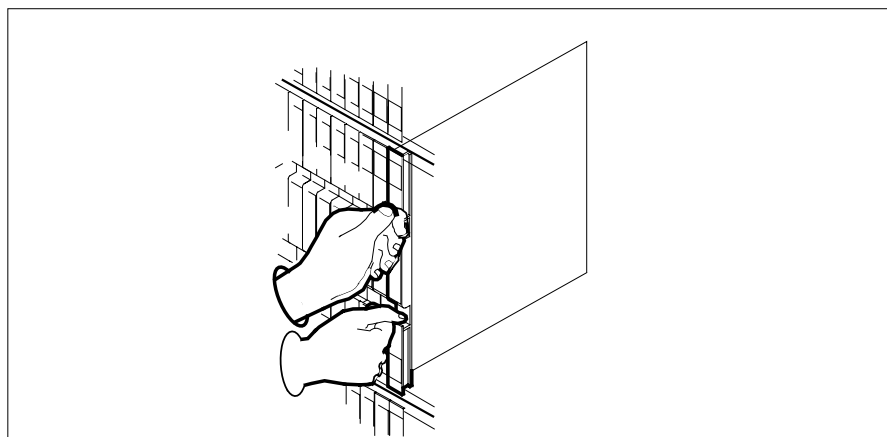
Equipment damage

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Seat and lock the card.

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



NT6X51

in an RSC-S (PCM-30) Model A LCM (continued)

- 8 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 13
other	step 9

At the MAP terminal

- 9 Load the inactive LCM unit by typing

>loadpm unit lcm_unit_no CC

and pressing the Enter key.

where

lcm_unit_no

is the number of the LCM unit busied in step 3

If load	Do
passed	step 10
failed	step 14

- 10 Return the LCM unit to service by typing

>RTS UNIT lcm_unit_no

and pressing the Enter key.

where

lcm_unit_no

is the number of the LCM unit busied in step 3

If RTS	Do
passed	step 11
failed	step 14

- 11 Send any faulty cards for repair according to local procedure.
- 12 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 15.
- 13 Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.
- 14 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

NT6X51
in an RSC-S (PCM-30) Model A LCM (end)

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

NT6X51 in an RSC-S (PCM-30) Model B LCM

Application

Use this procedure to replace an NT6X51 card in an RSC-S LCM.

PEC	Suffixes	Name
NT6X51	AB, AC	Extended LCM Processor

Common procedures

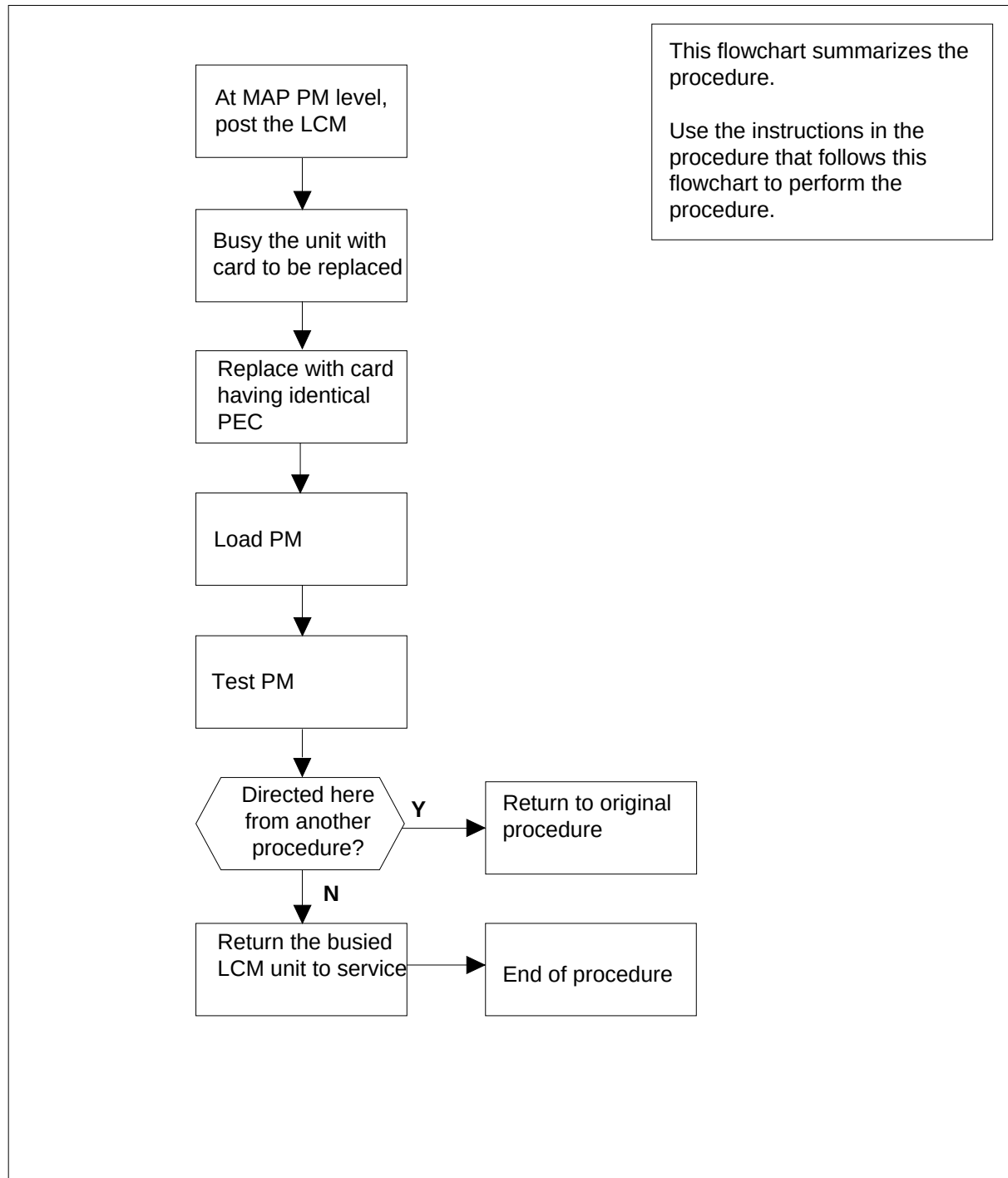
None

Action

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

NT6X51 in an RSC-S (PCM-30) Model B LCM (continued)

Summary of card replacement procedure for an NT6X51 card in RSC-S LCM



NT6X51

in an RSC-S (PCM-30) Model B LCM (continued)

Replacing an NT6X51 card in an RSC-S LCM

ATTENTION

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 your Current Location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

Obtain an NT6X51 replacement card. Ensure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 2 Set the MAP to the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM lcm_site_name lcm_frame_no lcm_no
 and pressing the Enter key.

where

lcm_site_name

is the name of the site at which the LCM is located

lcm_frame_no

is the number of the frame in which the LCM is located

lcm_no

is the number of the LCM with the faulty card

- 3 Busy the LCM by typing
>BSY UNIT lcm_unit_no
 and pressing the Enter key.

where

NT6X51 in an RSC-S (PCM-30) Model B LCM (continued)

lcm_unit_no
is the number of the LCM unit

Example of a MAP response:

```
LCM    RemL  00 0 ISTb  Links_00S: CSide 1 PSide 0
Unit 0: InSv  Mtce TakeOver  /RG:  0
Unit 1:  ManB  Mtce          /RG:  0
              11 11 11 11 11      RG:Pref:0 InSv
Drwr:  01 23 45 67 89 01 23 45 67 89      Stby:1 InSv
. . . . .
```

At the LCE frame

4



DANGER

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 an 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 switch frame (Northern Telecom Corporate Standard 5028).

Store and transport circuit cards in an ESD protective container.



DANGER

Equipment damage

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

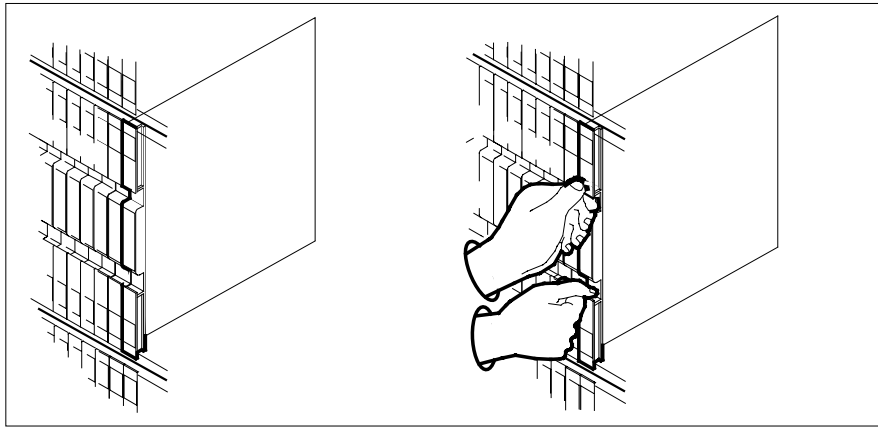
Put on a wrist strap.

5

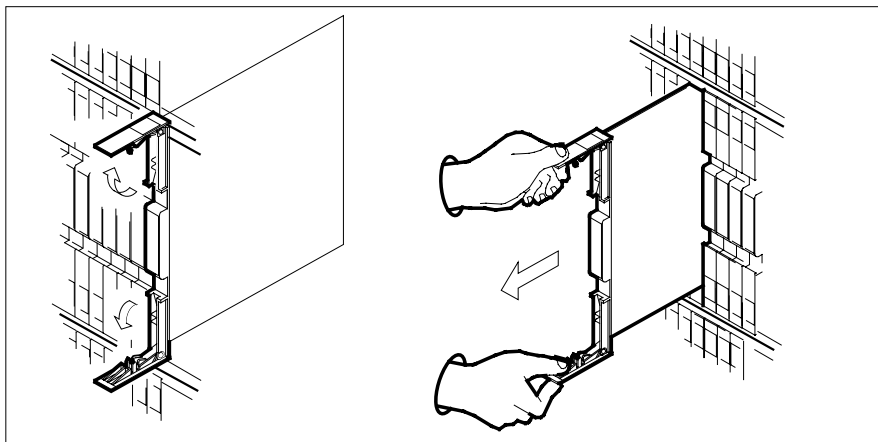
Remove the NT6X51 card as shown in the following figures.

- a Locate the card to be removed on the appropriate shelf.

NT6X51
in an RSC-S (PCM-30) Model B LCM (continued)

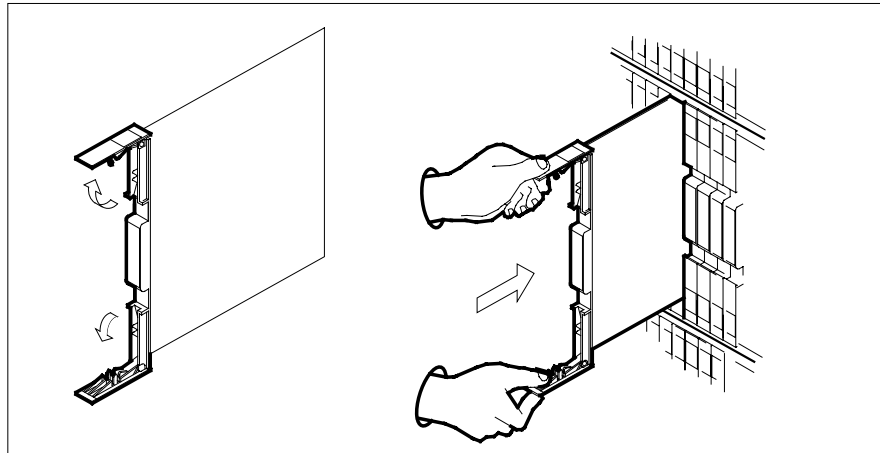


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 6** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X51 in an RSC-S (PCM-30) Model B LCM (continued)



7



DANGER

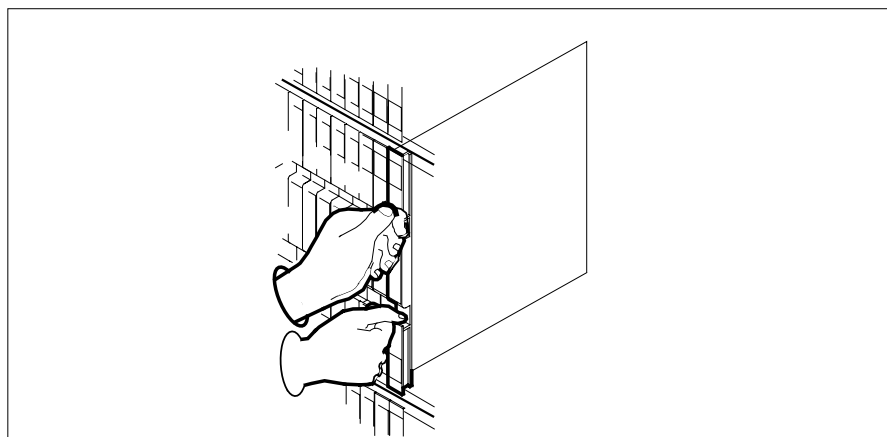
Equipment damage

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Seat and lock the card.

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



NT6X51

in an RSC-S (PCM-30) Model B LCM (continued)

- 8 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 13
other	step 9

At the MAP terminal

- 9 Load the inactive LCM unit by typing

>loadpm unit lcm_unit_no CC

and pressing the Enter key.

where

lcm_unit_no

is the number of the LCM unit busied in step 3

If load	Do
passed	step 10
failed	step 14

- 10 Return the LCM unit to service by typing

>RTS UNIT lcm_unit_no

and pressing the Enter key.

where

lcm_unit_no

is the number of the LCM unit busied in step 3

If RTS	Do
passed	step 11
failed	step 14

- 11 Send any faulty cards for repair according to local procedure.
- 12 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 15.
- 13 Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.
- 14 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

NT6X51
in an RSC-S (PCM-30) Model B LCM (end)

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

**NT6X52
in an IOPAC ILCM**

Application

Use this procedure to replace the following card in an International line concentrating module (ILCM).

PEC	Suffixes	Name
NT6X52	AA, AB	Digroup control card

Common procedures

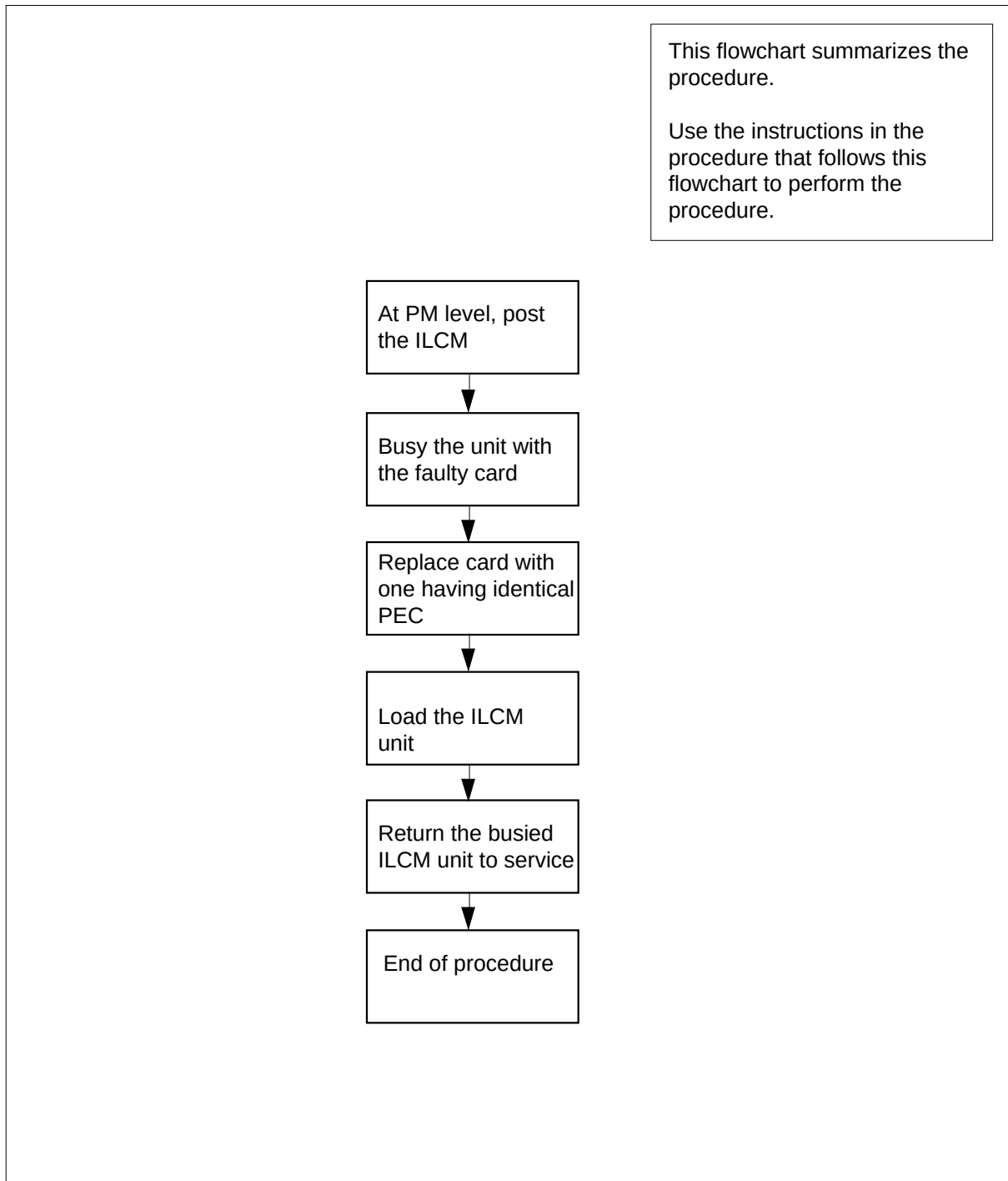
The common replacing a card procedure is referenced in this procedure.

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.

NT6X52 in an IOPAC ILCM (continued)

Summary of card replacement procedure for NT6X52 card in an ILCM shelf



NT6X52 in an IOPAC ILCM (continued)

Replacing an NT6X52 in an ILCM

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 the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 6. Otherwise, continue with step 4.

At the MAP terminal

- 4 Access the peripheral module (PM) level and post the ILCM by typing
MAPCI;MTC;PM;POST ILCM site frame lcm
and pressing the Enter key.

where

site

is the site name of the IOPAC

frame

is the frame number of the IOPAC cabinet

lcm

is the number of the ILCM

- 5 Busy the ILCM unit containing the faulty card by typing
BSY UNIT lcm_unit
and pressing the Enter key.

where

lcm_unit

is the ILCM unit to be busied (0 or 1)

At the LCM

- 6 Go to the common replacing a card procedure in this document to replace the NT6X52 card. When the card is replaced, return to this step.
- 7 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 8.
- 8 Load the ILCM unit by typing
LOADPM UNIT lcm_unit CC
and pressing the Enter key.

where

NT6X52

in an IOPAC ILCM (continued)

		lcm_unit is the ILCM unit to be loaded (0 or 1)	
		If	Do
		message loadfile not found in directory is received	step 9
		load passes	step 26
		load fails	step 29
9	Determine the type of device on which the PM load files are located.		
		If load files located on	Do
		tape	step 10
		IOC disk	step 16
		SLM disk	step 21
10	Locate the tape that contains the PM load files.		
11	Mount the tape on a magnetic tape drive.		
12	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files		
13	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files		
14	Demount the tape drive by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files		
15	Go to step 25.		

NT6X52
in an IOPAC ILCM (continued)

- 16** From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 17** Access the disk utility level of the MAP terminal by typing
>DSKUT
and pressing the Enter key.
- 18** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files obtained in step 16.
- 19** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 20** Go to step 25.
- 21** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 22** Access the disk utility level of the MAP terminal by typing
>DISKUT
and pressing the Enter key.
- 23** List the SLM file names into your user directory by typing
>LV CM;LF file_name
and pressing the Enter key.
where
file_name
is the name of the SLM disk volume containing the file to be loaded, obtained in step 21.
- 24** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25** Reload the ILCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where

NT6X52
in an IOPAC ILCM (end)

	lcm_unit is the ILCM unit to be loaded (0 or 1)						
	<table><tr><th>If</th><th>Do</th></tr><tr><td>load failed</td><td>step 29</td></tr><tr><td>load passed</td><td>step 26</td></tr></table>	If	Do	load failed	step 29	load passed	step 26
If	Do						
load failed	step 29						
load passed	step 26						
26	Return the ILCM unit to service by typing >RTS UNIT lcm_unit and pressing the Enter key. <i>where</i> lcm_unit is the ILCM busied in step 5 (0 or 1)						
	<table><tr><th>If RTS</th><th>Do</th></tr><tr><td>passed</td><td>step 27</td></tr><tr><td>failed</td><td>step 29</td></tr></table>	If RTS	Do	passed	step 27	failed	step 29
If RTS	Do						
passed	step 27						
failed	step 29						
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 30.						
29	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.						
30	You have successfully completed this procedure.						

**NT6X52
in an OPAC LCM**

Application

Use this procedure to replace the following card in a line concentrating module (LCM).

PEC	Suffixes	Name
NT6X52	AA, AB	Digroup control card

Common procedures

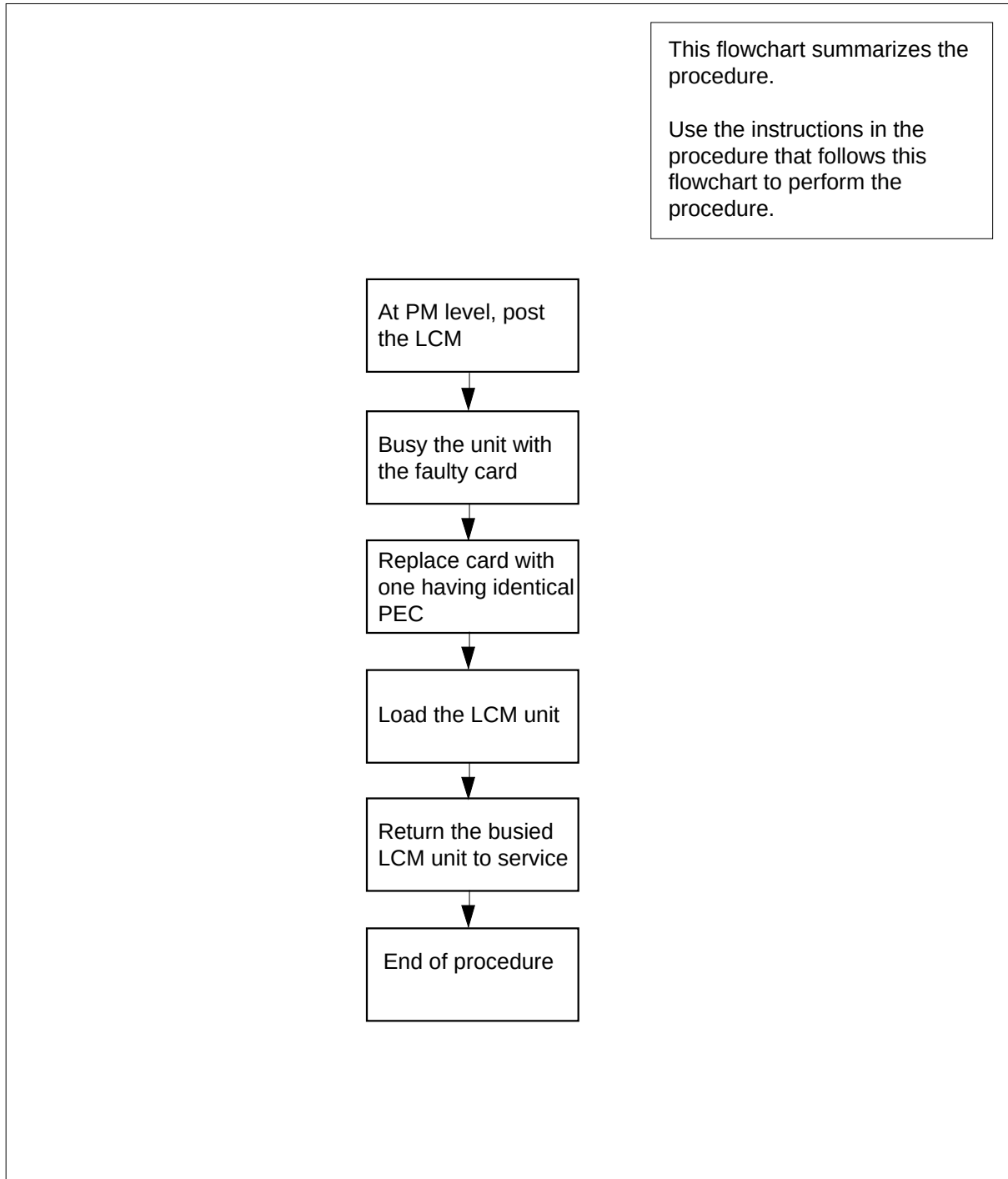
The common replacing a card procedure is referenced in this procedure.

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.

NT6X52 in an OPAC LCM (continued)

Summary of card replacement procedure for NT6X52 card in an LCM shelf



NT6X52 in an OPAC LCM (continued)

Replacing an NT6X52 in an LCM

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 the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 6. Otherwise, continue with step 4.

At the MAP terminal

- 4 Access the peripheral module (PM) level and post the LCM by typing
MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the site name of the OPAC

frame

is the frame number of the OPAC (0 to 99)

lcm

is the number of the LCM

- 5 Busy the LCM unit containing the faulty card by typing
BSY UNIT lcm_unit
and pressing the Enter key.

where

lcm_unit

is the LCM unit to be busied (0 or 1)

At the LCM

- 6 Replace the NT6X52 card using the common replacing a card procedure in this document.
- 7 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 8.
- 8 Load the LCM unit by typing
LOADPM UNIT lcm_unit CC
and pressing the Enter key.

where

NT6X52

in an OPAC LCM (continued)

		lcm_unit is the LCM unit to be loaded (0 or 1)	
		If	Do
		message loadfile not found in directory is received	step 9
		load passes	step 26
		load fails	step 29
9	Determine the type of device on which the PM load files are located.		
		If load files located on	Do
		tape	step 10
		IOC disk	step 16
		SLM disk	step 21
10	Locate the tape that contains the PM load files.		
11	Mount the tape on a magnetic tape drive.		
12	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files		
13	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files		
14	Demount the tape drive by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files		
15	Go to step 25.		

NT6X52
in an OPAC LCM (continued)

- 16** From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 17** Access the disk utility level of the MAP terminal by typing
>DSKUT
and pressing the Enter key.
- 18** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files obtained in step 16.
- 19** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 20** Go to step 25.
- 21** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 22** Access the disk utility level of the MAP terminal by typing
>DISKUT
and pressing the Enter key.
- 23** List the SLM file names into your user directory by typing
>LV CM;LF file_name
and pressing the Enter key.
where
file_name
is the name of the SLM disk volume containing the file to be loaded, obtained in step 21.
- 24** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25** Reload the LCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where

NT6X52**in an OPAC LCM (end)**

	lcm_unit is the LCM unit to be loaded (0 or 1)						
	<table><tr><th>If</th><th>Do</th></tr><tr><td>load failed</td><td>step 29</td></tr><tr><td>load passed</td><td>step 26</td></tr></table>	If	Do	load failed	step 29	load passed	step 26
If	Do						
load failed	step 29						
load passed	step 26						
26	Return the LCM unit to service by typing >RTS UNIT lcm_unit and pressing the Enter key. <i>where</i> lcm_unit is the LCM busied in step 5 (0 or 1)						
	<table><tr><th>If RTS</th><th>Do</th></tr><tr><td>passed</td><td>step 27</td></tr><tr><td>failed</td><td>step 29</td></tr></table>	If RTS	Do	passed	step 27	failed	step 29
If RTS	Do						
passed	step 27						
failed	step 29						
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 30.						
29	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.						
30	You have successfully completed this procedure.						

**NT6X52
in an OPM**

Application

Use this procedure to replace the following card in an OPM.

PEC	Suffixes	Name
NT6X52	AA, AB	Digital Control Card (DCC)

Common procedures

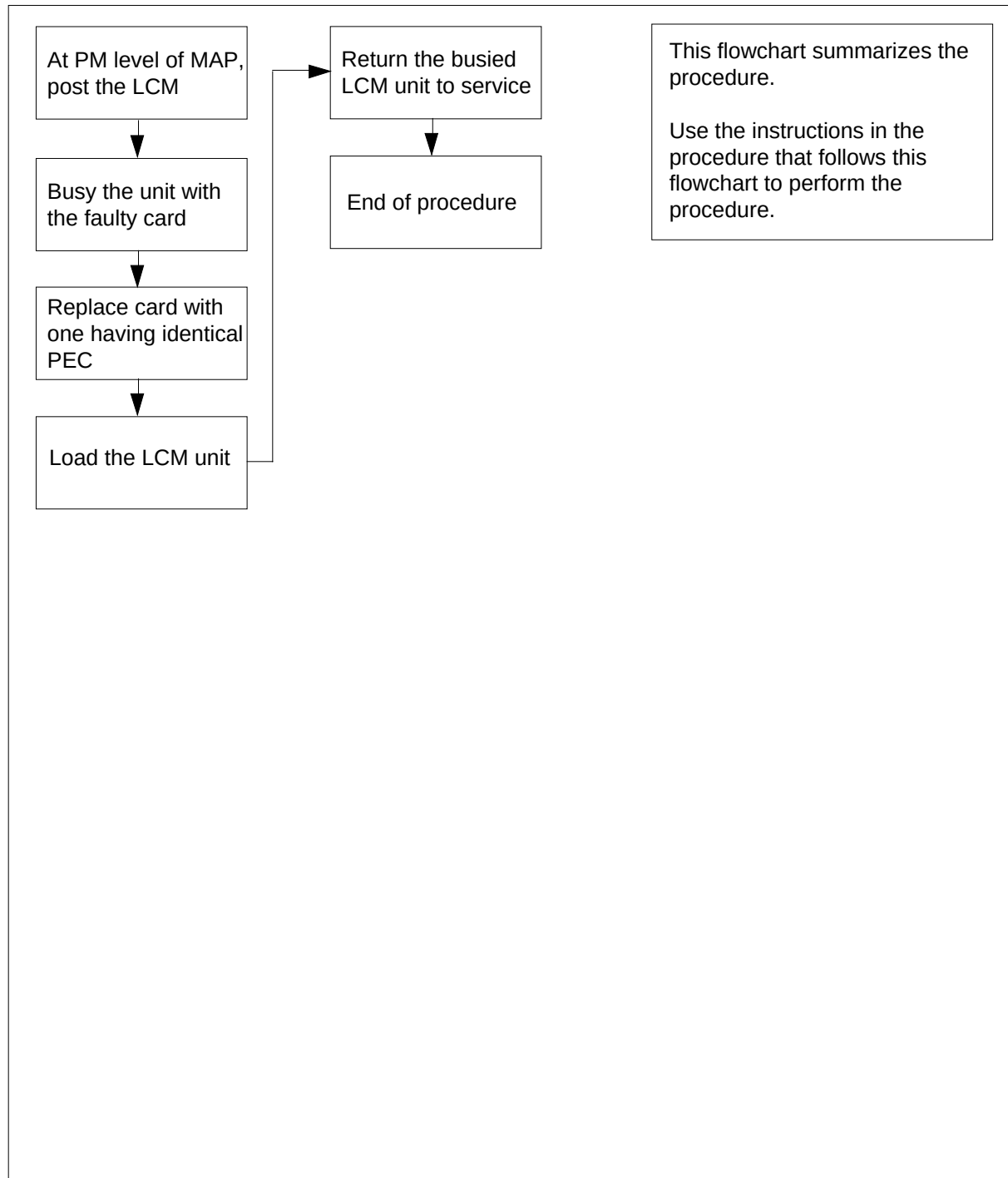
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X52 in an OPM (continued)

Summary of card replacement procedures for an NT6X52 card in an OPM



NT6X52 in an OPM (continued)

Replacing an NT6X52 card in an OPM

At your Current Location

- 1 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 5; otherwise, continue with step 3.

At the MAP display

- 3 Access the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.
where
site
is the site name of the OPM
frame
is the frame number of the OPM cabinet (0 to 511)
lcm
is the number of the LCM
- 4 Busy the LCM unit containing the faulty card by typing
>BSY UNIT lcm_unit
and pressing the Enter key.
where
lcm_unit
is the LCM unit to be busied (0 or 1)

At the OPM cabinet

- 5 Replace the NT6X52 card using the common replacing a card procedure in this document.
- 6 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 7.
- 7 Load the LCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where

NT6X52

in an OPM (continued)

	lcm_unit is the LCM unit to be loaded (0 or 1)								
	<table><tr><th>If</th><th>Do</th></tr><tr><td>message "loadfile not found in directory" is received</td><td>step 8</td></tr><tr><td>load passed</td><td>step 26</td></tr><tr><td>load failed</td><td>step 29</td></tr></table>	If	Do	message "loadfile not found in directory" is received	step 8	load passed	step 26	load failed	step 29
If	Do								
message "loadfile not found in directory" is received	step 8								
load passed	step 26								
load failed	step 29								
8	Determine the type of device on which the PM load files are located.								
	<table><tr><th>If load files are located on</th><th>Do</th></tr><tr><td>tape</td><td>step 9</td></tr><tr><td>IOC disk</td><td>step 15</td></tr><tr><td>SLM disk</td><td>step 20</td></tr></table>	If load files are located on	Do	tape	step 9	IOC disk	step 15	SLM disk	step 20
If load files are located on	Do								
tape	step 9								
IOC disk	step 15								
SLM disk	step 20								
9	Locate the tape that contains the PM load files.								
10	Mount the tape on a magnetic tape drive.								
	At the MAP display								
11	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files								
12	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files								
13	Demount the tape by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files								

NT6X52
in an OPM (continued)

- 14** Go to step 25.
- 15** From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 16** Access the disk utility level of the MAP by typing
>DSKUT
and pressing the Enter key.
- 17** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files obtained in step 15
- 18** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 19** Go to step 25.
- 20** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 21** Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 22** List the SLM disk volume names by typing
>LV CM
and pressing the Enter key.
- 23** List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 20
- 24** Leave the disk utility by typing
>QUIT
and pressing the Enter key.

NT6X52 in an OPM (end)

- 25** Reload the LCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where
lcm_unit
is the LCM unit to be loaded (0 or 1)
- | If | Do |
|-------------|---------|
| load failed | step 29 |
| load passed | step 26 |
- 26** Return the LCM unit to service by typing
>RTS UNIT lcm_unit
and pressing the Enter key.
where
lcm_unit
is the LCM busied in step 4 (0 or 1)
- | If RTS | Do |
|--------|---------|
| passed | step 27 |
| failed | step 29 |
- 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 30.
- 29** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 30** You have successfully completed this procedure.

**NT6X52
in an RLCM**

Application

Use this procedure to replace the following card in an RLCM.

PEC	Suffixes	Name
NT6X52	AA, AB	Digital Control Card (DCC)

Common procedures

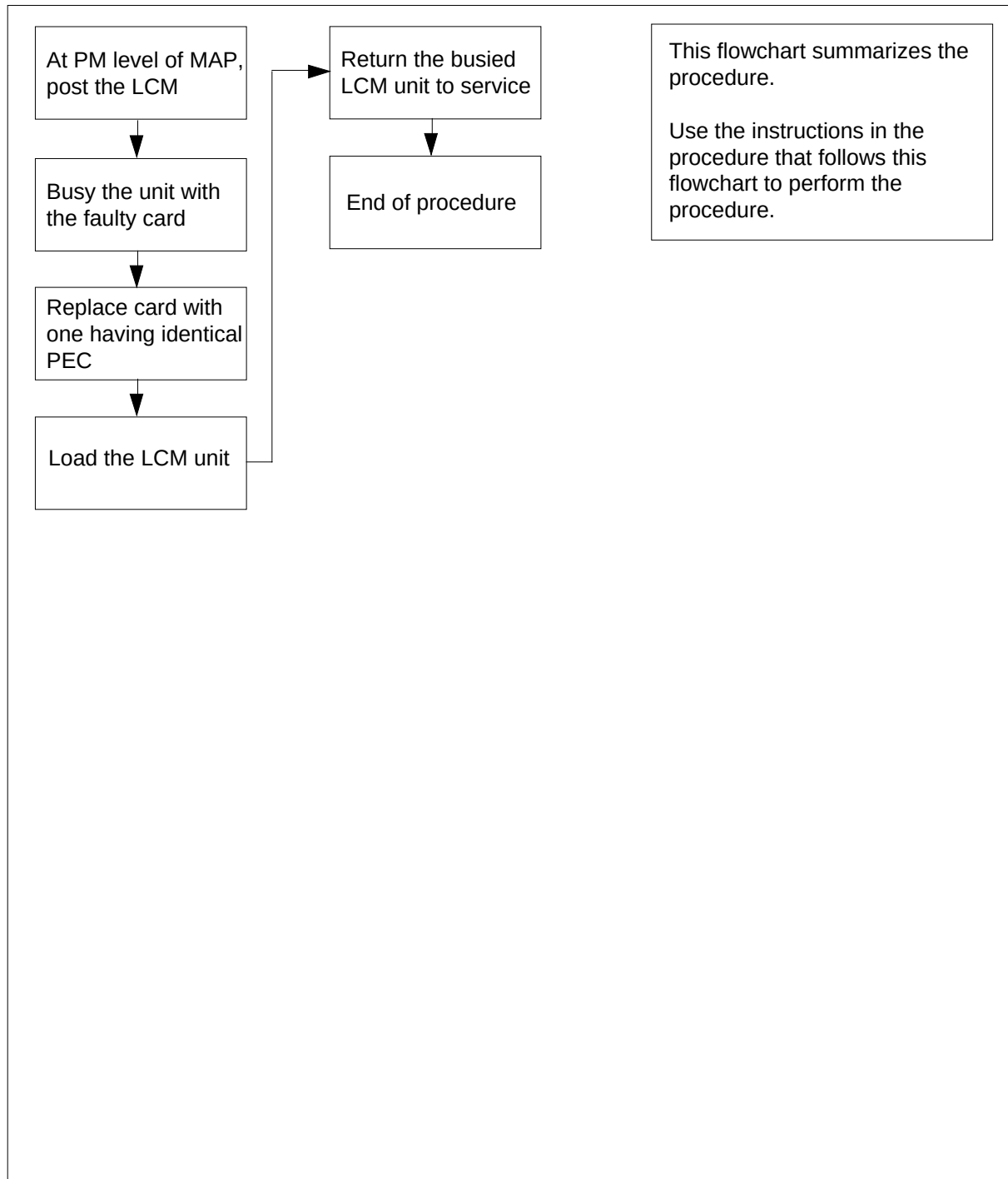
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X52 in an RLCM (continued)

Summary of card replacement procedure for an NT6X52 card in an RLCM



NT6X52 in an RLCM (continued)

Replacing an NT6X52 card in an RLCM

At your current location

- 1 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 5; otherwise, continue with step 3.

At the MAP display

- 3 Access the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.
where
site
is the site name of the RLCM
frame
is the frame number of the RLCE (0 to 511)
lcm
is the number of the LCM
- 4 Busy the LCM unit containing the faulty card by typing
>BSY UNIT lcm_unit
and pressing the Enter key.
where
lcm_unit
is the LCM unit to be busied (0 or 1)

At the RLCE

- 5 Replace the NT6X52 card using the common replacing a card procedure in this document. When the card is replaced, return to this point.
- 6 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 7.
- 7 Load the LCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where

NT6X52

in an RLCM (continued)

	lcm_unit is the LCM unit to be loaded (0 or 1)								
	<table> <tr> <th>If</th><th>Do</th></tr> <tr> <td>message "loadfile not found in directory" is received</td><td>step 8</td></tr> <tr> <td>load passed</td><td>step 26</td></tr> <tr> <td>load failed</td><td>step 29</td></tr> </table>	If	Do	message "loadfile not found in directory" is received	step 8	load passed	step 26	load failed	step 29
If	Do								
message "loadfile not found in directory" is received	step 8								
load passed	step 26								
load failed	step 29								
8	Determine the type of device on which the PM load files are located.								
	<table> <tr> <th>If load files are located on</th><th>Do</th></tr> <tr> <td>tape</td><td>step 9</td></tr> <tr> <td>IOC disk</td><td>step 15</td></tr> <tr> <td>SLM disk</td><td>step 20</td></tr> </table>	If load files are located on	Do	tape	step 9	IOC disk	step 15	SLM disk	step 20
If load files are located on	Do								
tape	step 9								
IOC disk	step 15								
SLM disk	step 20								
9	Locate the tape that contains the PM load files.								
10	Mount the tape on a magnetic tape drive.								
	At the MAP display								
11	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files								
12	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files								
13	Demount the tape by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files								

NT6X52
in an RLCM (continued)

- 14** Go to step 25.
- 15** From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 16** Access the disk utility level of the MAP by typing
>DSKUT
and pressing the Enter key.
- 17** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files obtained in step 15
- 18** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 19** Go to step 25.
- 20** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 21** Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 22** List the SLM disk volume names by typing
>LV CM
and pressing the Enter key.
- 23** List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 20
- 24** Leave the disk utility by typing
>QUIT
and pressing the Enter key.

NT6X52 in an RLCM (end)

- 25** Reload the LCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where
lcm_unit
is the LCM unit to be loaded (0 or 1)
- | If | Do |
|-------------|---------|
| load failed | step 29 |
| load passed | step 26 |
- 26** Return the LCM unit to service by typing
>RTS UNIT lcm_unit
and pressing the Enter key.
where
lcm_unit
is the LCM busied in step 4 (0 or 1)
- | If RTS | Do |
|--------|---------|
| passed | step 27 |
| failed | step 29 |
- 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 30.
- 29** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 30** You have successfully completed this procedure.

**NT6X52
in an RLCM-EDC**

Application

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

PEC	Suffixes	Card name	Shelf/frame name
NT6X52	AA	Digroup Control Card (DCC)	LCM/RLCC

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the index. The index provides a list of cards, shelves, and frames documented in this maintenance manual.

Common procedures

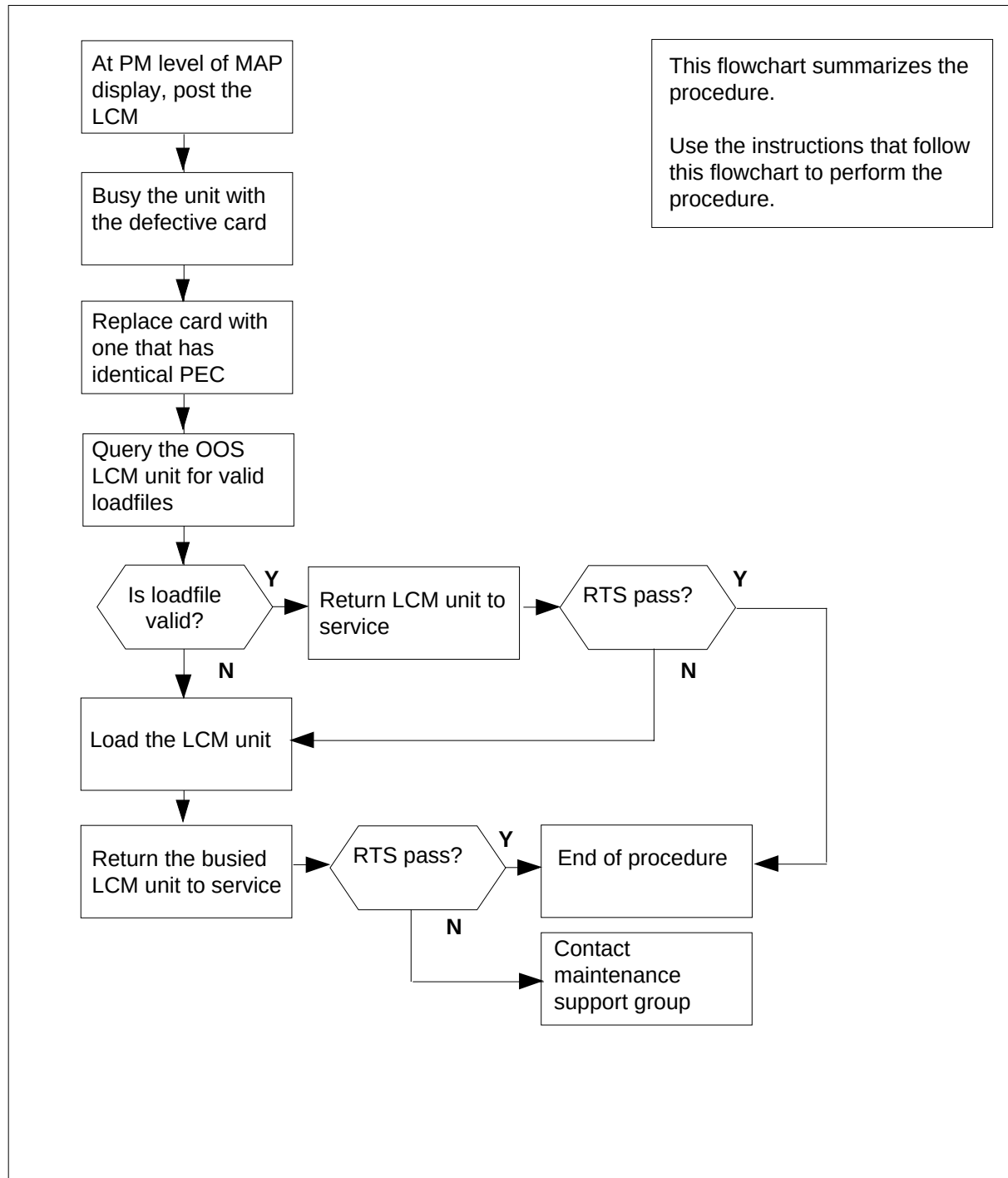
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X52 in an RLCM-EDC (continued)

Summary of replacing an NT6X52 card in LCM



NT6X52 in an RLCM-EDC (continued)

Replacing an NT6X52 card in an LCM

At your current location

- 1 Obtain a replacement card. Make sure that the replacement card has the same product equipment code (PEC) and suffix as the card to remove.
- 2 If another maintenance procedure, proceed to step 5. If this event did not occur, proceed to step 3.

At the MAP display

- 3 To access the peripheral module (PM) level and post the line concentrating module (LCM), type

>MAPCI;MTC;PM;POST LCM site cabinet lcm

and press the Enter key.

where

site

is the site name of the RLCM_EDC (alphanumeric)

cabinet

is the number of the RLCC cabinet

lcm

is the number of the LCM

- 4 To busy the LCM unit that contains the defective card, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the LCM unit (0 or 1) to busy

At the RLCC cabinet

- 5 Use the common replacing a card procedure in this document to replace the NT6X52 card.
- 6 If another maintenance procedure directed you to this procedure, return now to the procedure that directed you here. Continue as directed. If this event did not occur, proceed to step 8.
- 7 To query the out-of-service (OOS) LCM unit for valid loadfiles, type

>QUERYPM OOS

and press the Enter key.

Example of a MAP response

NT6X52

in an RLCM-EDC (continued)

```

PM Type: LCM  Int. No.: 9  Status index: 7  Node_No: 40
LCM REM1 02 0  Memory Size - Unit 0: 4M , Unit 1: 4M
ESA equipped: No, Intraswitching is Off
Loadname: LCMINV - REDC07AA
Unit0 Loads: Act- REDC07AB Stby- REDC07AA
Unit1 Loads: Act- REDC07AB *FLT* Stby- REDC07AA *FLT*
REX is ON; INCOMPLETE on SAT. 1995/10/28 at 01:35:19
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}
Unit 1 Status: {MAN_BUSY, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
REM1 01 K03 RLCM 02 04 LCM 02 0 6X04AA
Services : NEUTRAL

```

	If loadfile names	Do
	are valid	step 8
	are invalid or corrupted	step 9
8	To return the LCM unit to service, type >RTS UNIT unit_no and press the Enter key. <i>where</i> unit_no is the LCM unit (0 or 1) busied in step 4	
	If RTS	Do
	passed	step 11
	failed	step 9
9	To load the LCM unit, type >LOADPM UNIT unit_no CC and press the Enter key. <i>where</i> unit_no is the LCM unit (0 or 1) to load	
	If the load	Do
	passed	step 10
	failed	step 13

NT6X52
in an RLCM-EDC (end)

- 10** To return the LCM unit to service and switch load to the standby bank, type
>RTS UNIT lcm_unit SWLD
and press the Enter key.
where
lcm_unit
is the LCM unit (0 or 1) busied in step 4
- | If RTS | Do |
|--------|---------|
| passed | step 11 |
| failed | step 13 |
- 11** Send defective cards for repair according to local procedure.
- 12** Record the items that follow in office records:
- date the card replacement occurred
 - serial number of the card
 - indications that prompted replacement of the card
- Proceed to step 14.
- 13** For additional help in this card replacement, contact the next level of support,
- 14** This procedure is complete.

NT6X52 in an RSC LCM

Application

Use this procedure to replace the following card in an RSC LCM.

PEC	Suffixes	Name
NT6X52	AA, AB	Digital control card (DCC)

Common procedures

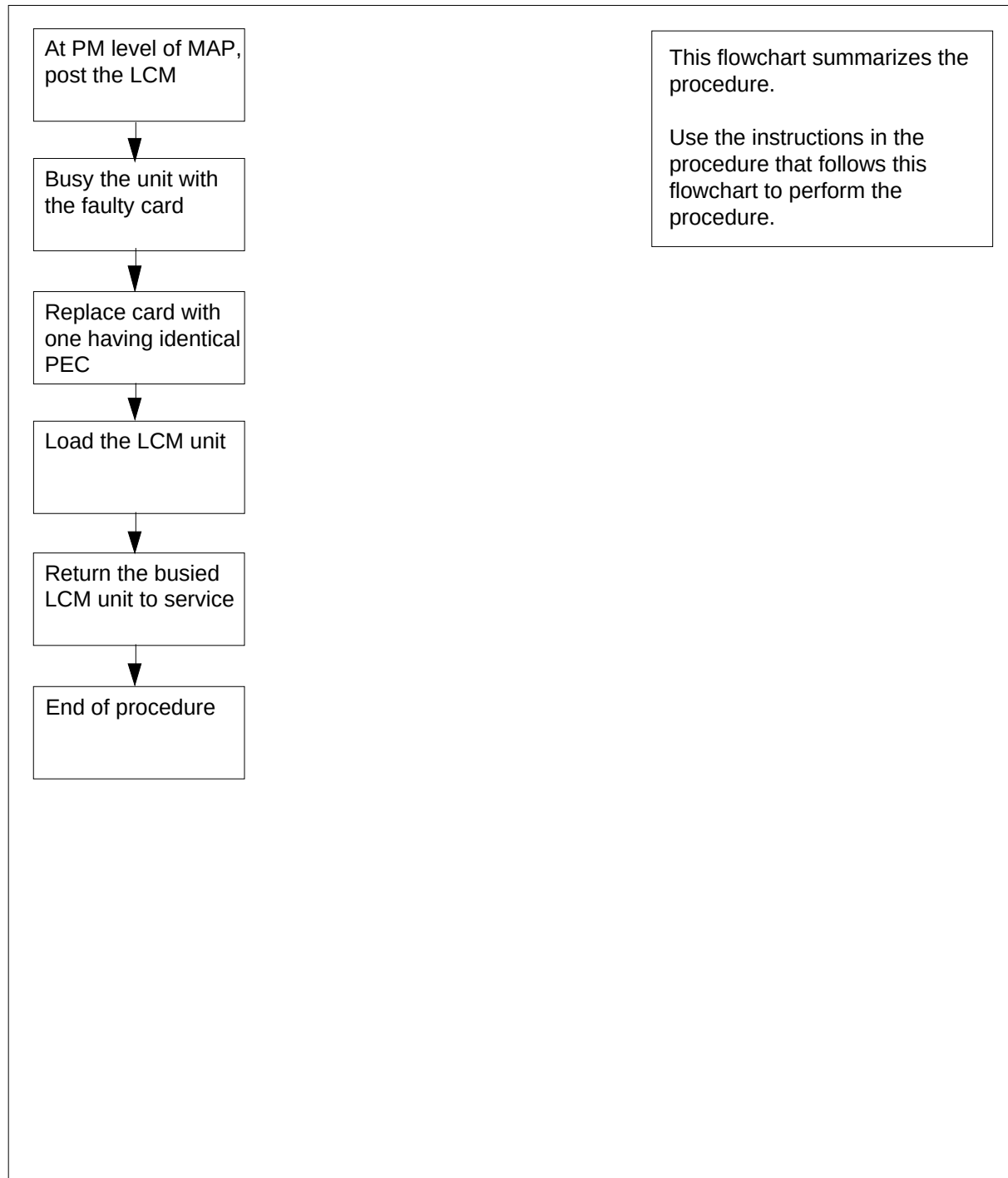
None

Action

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

NT6X52 in an RSC LCM (continued)

Summary of replacing an NT6X52 card in an in RSC LCM



NT6X52 in an RSC LCM (continued)

Replacing an NT6X52

At your Current Location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2 Obtain a replacement card. Ensure the replacement card has the same product equipment code (PEC) including suffix, as the card to be removed.

At the MAP display

- 3 Access the PM level of the MAP and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
 and pressing the Enter key.

where

site

is the name of the RSC site

frame

is the frame number of the LCE frame (0 to 511)

lcm

is the number of the LCM (0 or 1) in the LCE frame

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	0	1	0	0	0	130		
2 Post_	LCM	0	1	0	0	0	0		
3									
4 SwRg		LCM	Rem1	00 0	ISTb	Links_00S:	CSide 1	PSide 0	
5 TrnsL		Unit-0:	InSv	Mtce	TakeOver	/RG:	0		
6 Tst		Unit-1:	SysB	Mtce		/RG:	0		
7 Bsy					11 11 11 11 11	RG:Pref:0	InSv		
8 RTS		Drwr:	01 23 45 67 89	01 23 45 67 89		Stby:1	InSv		
9 OffL		..	..	..	..				
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X52
in an RSC LCM (continued)

- 4 Busy the LCM unit containing the faulty card by typing
>BSY UNIT lcm_unit
and pressing the Enter key.

where

lcm_unit
is the LCM unit to be busied (0 or 1)

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	0	1	0	0	0	130		
2 Post_	LCM	0	1	0	0	0	0		
3									
4 SwRg		LCM	Rem1	00 0	ISTb	Links_00S:	CSide 1 PSide 0		
5 Trnsl		Unit-0:	InSv	Mtce	TakeOver	/RG:	0		
6 Tst		Unit-1:	ManB	Mtce		/RG:	0		
7 Bsy					11 11 11 11 11	RG:Pref:0	InSv		
8 RTS		Drwr:	01 23 45 67 89	01 23 45 67 89		Stby:1	InSv		
9 OffL		...	...	...	...				
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X52 in an RSC LCM (continued)

At the LCE frame

5



DANGER

Card damage—transport

Take these precautions to protect the circuit cards from electrical and mechanical damage during transportation:

When handling a circuit card not in an 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.



DANGER

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 LCM. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

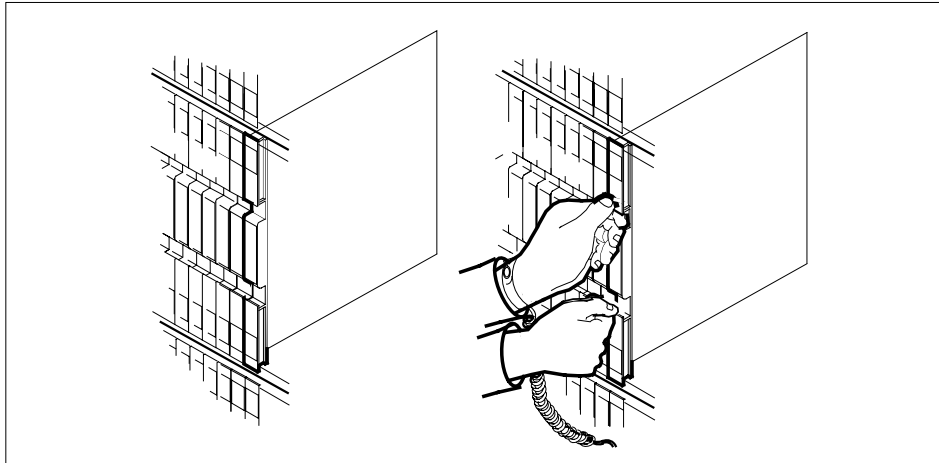
Put on a wrist strap.

6

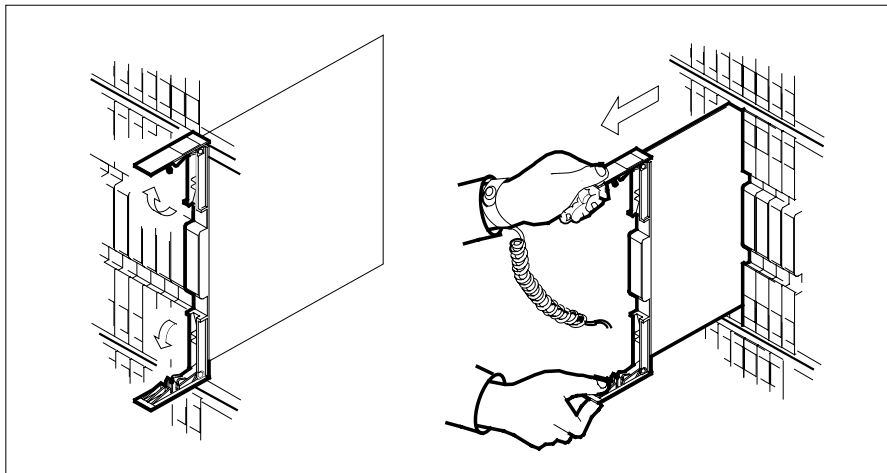
Remove the NT6X52 card as shown in the following figures.

- a Locate the card to be removed on the appropriate shelf.

NT6X52
in an RSC LCM (continued)

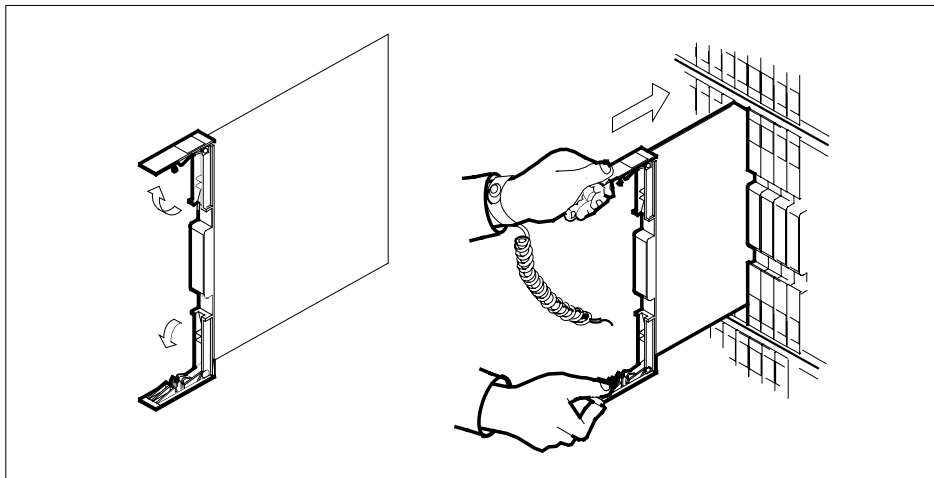


- 7 Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

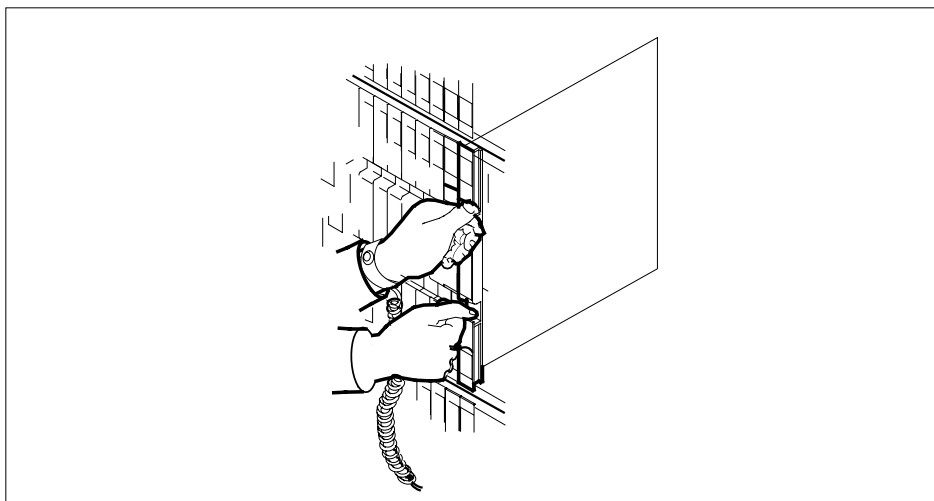


- 8 Ensure the replacement card has the same PEC including suffix, as the card you just removed.
- 9 Open the locking levers on the replacement card.
Align the card with the slots in the shelf and gently slide the card into the shelf.

NT6X52 in an RSC LCM (continued)



- 10** 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.



- 11** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
alarm clearing procedure	step 16

NT6X52 in an RSC LCM (end)

	If you entered this procedure from	Do
	other	step 12
12	Load the LCM unit by typing >LOADPM UNIT lcm_unit CC and pressing the Enter key. <i>where</i> lcm_unit is the LCM unit to be loaded (0 or 1)	
	If	Do
	load passed	step 13
	load failed	step 17
13	Return the LCM unit to service by typing >RTS UNIT lcm_unit and pressing the Enter key. <i>where</i> lcm_unit is the LCM unit, (0 or 1) busied in step 4	
	If RTS	Do
	passed	step 14
	failed	step 17
14	Send any faulty cards for repair according to local procedure.	
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 Go to step 18.	
16	Return to the <i>Alarm Clearing Procedure</i> that directed you to this procedure. If necessary, go to the point where the 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.	
17	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
18	You have successfully completed this procedure.	

NT6X52 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace an NT6X52 card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X52	AA	Digroup Control card

Common procedures

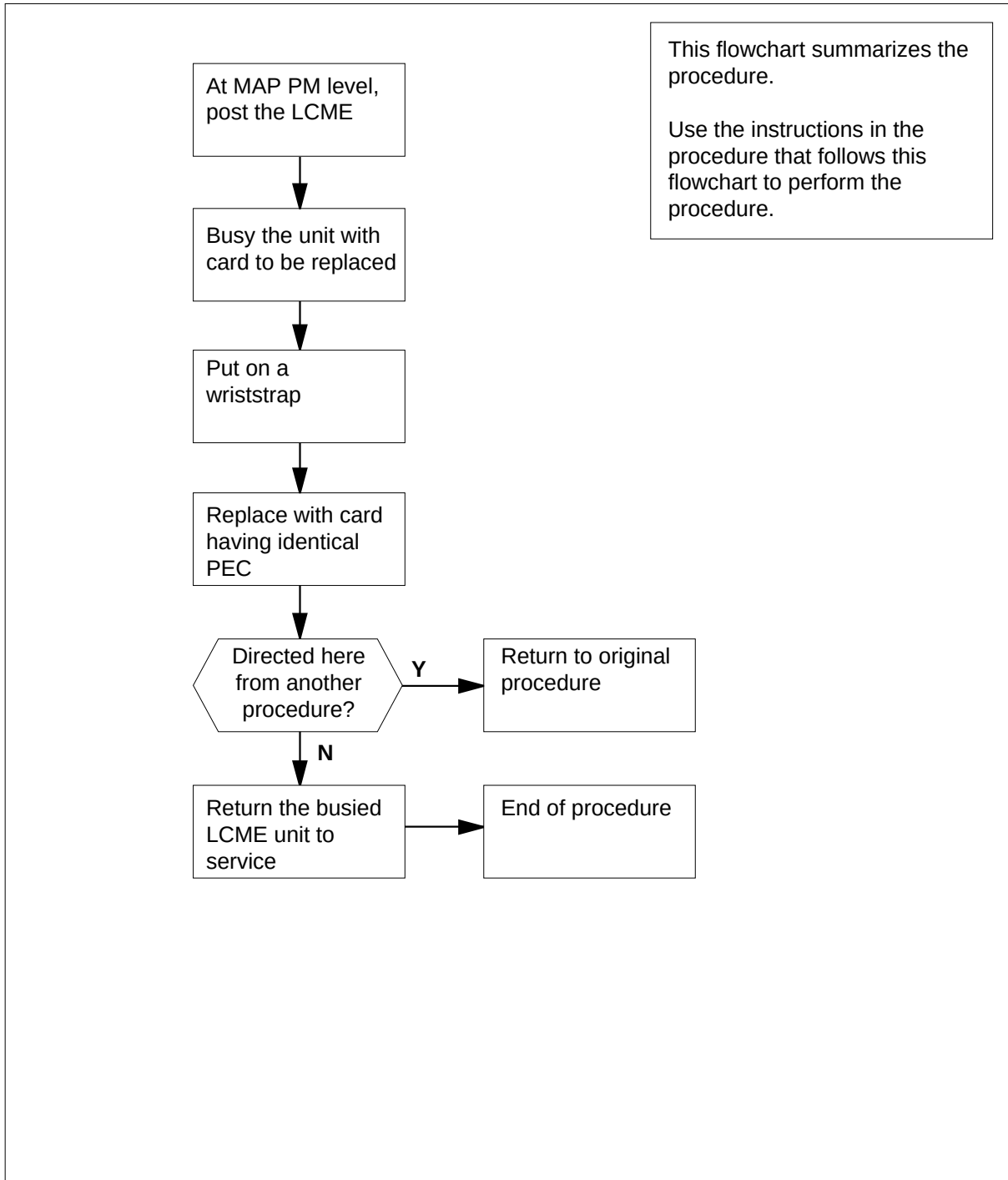
None

Action

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

NT6X52 in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NT6X52 card in RSC-S LCME



NT6X52 in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NT6X52 card in RSC-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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Set the MAP to the PM level and post the LCME by typing
**>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      Appl
.        .        .        .        1LCME      .        .        .        .        .

LCME
0 Quit      PM          0          0          0          0          0          0          130
2 Post_     LCME       0          0          0          0          0          0
3
4 Swrg_
5 Trnsl_     LCME      RemL  00 0 Links_00S:  CSide 0
6 Tst_       Unit 0:  InSv                /RG:  0
7 Bsy_       Unit 1:  InSv                /RG:  1
8 RTS_
9 OffL_      Drwr: 01 23 45 67 89 01 23 45      RG:Pref:0 InSv
10 LoadPM_  .. .. .
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18

```

NT6X52
in an RSC-S (DS-1) Model A LCME (continued)

- 4 Busy the LCME by typing
>BSY UNIT lcmc_unit_no
and pressing the Enter key.
where
lcmc_unit_no
is the number of the LCME posted in step 3
Example of a MAP response:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCME	.	.	.	.	.
LCME			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	0	1	0	0	0	130	
2	Post_	LCME	0	1	0	0	0	0	
3									
4	SwRg	LCME	RemL	00 0	ISTb	Links_00S:	CSide 1	PSide 0	
5	Trnsl	Unit-0:	InSv	Mtce	TakeOver	/RG:	0		
6	Tst	Unit-1:	ManB	Mtce		/RG:	0		
7	Bsy				11 11 11	RG:Pref:0	InSv		
8	RTS	Drwr:	01 23 45 67 89	01 23 45		Stby:1	InSv		
9	OffL	..	..	..	..				
10	LoadPM								
11	Disp_								
12	Next								
13									
14	QueryPM								
15									
16									
17									
18									

NT6X52 in an RSC-S (DS-1) Model A LCME (continued)

At the LCE frame

5



DANGER

Card damage—transport

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom [Nortel] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.



DANGER

Static electricity damage

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the frame supervisory panel (FSP) of the LCME. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wriststrap.

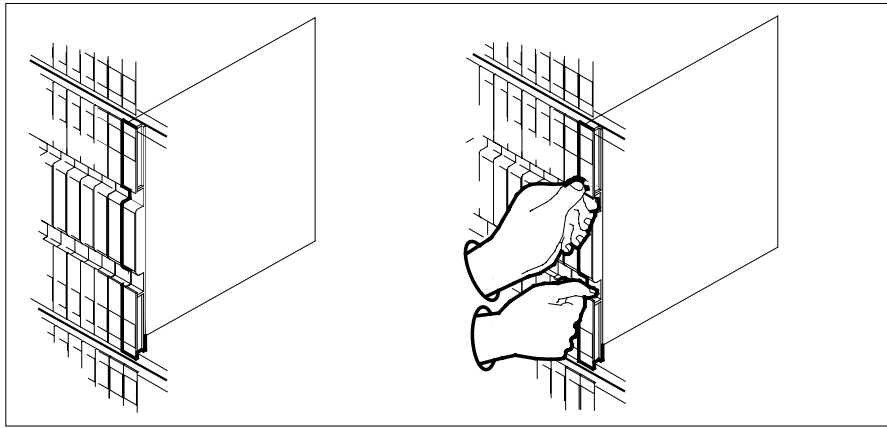
6

Remove the NT6X52 card as shown in the following figures.

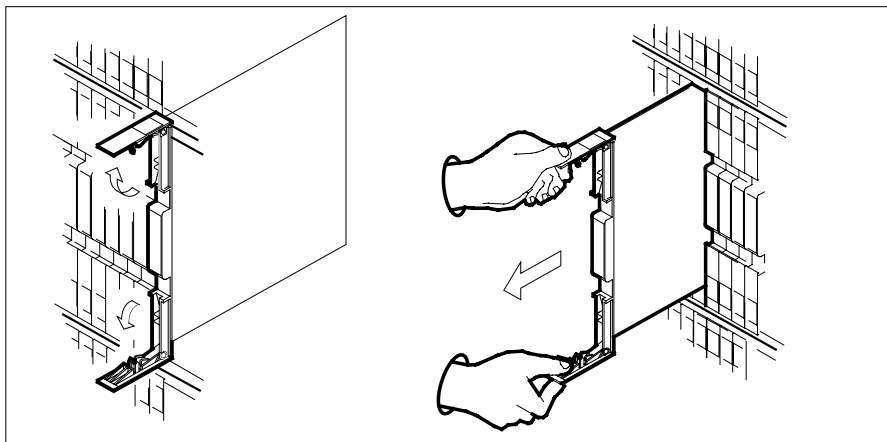
- a Locate the card to be removed on the appropriate shelf.

NT6X52

in an RSC-S (DS-1) Model A LCME (continued)

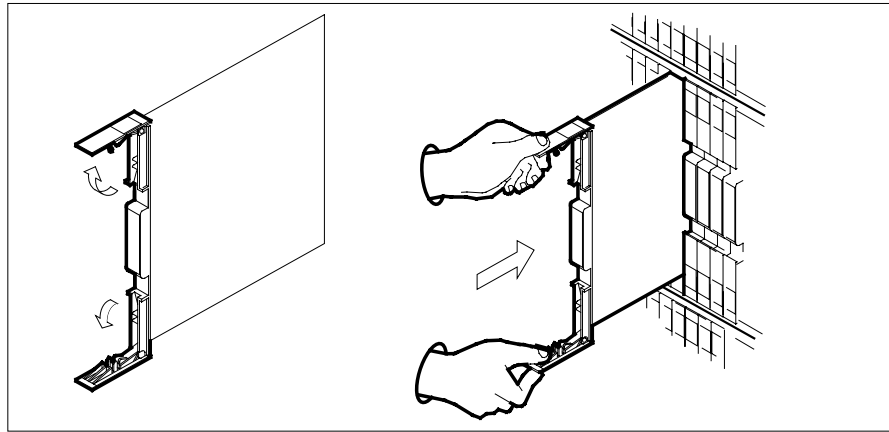


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 7** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X52 in an RSC-S (DS-1) Model A LCME (continued)



8



DANGER

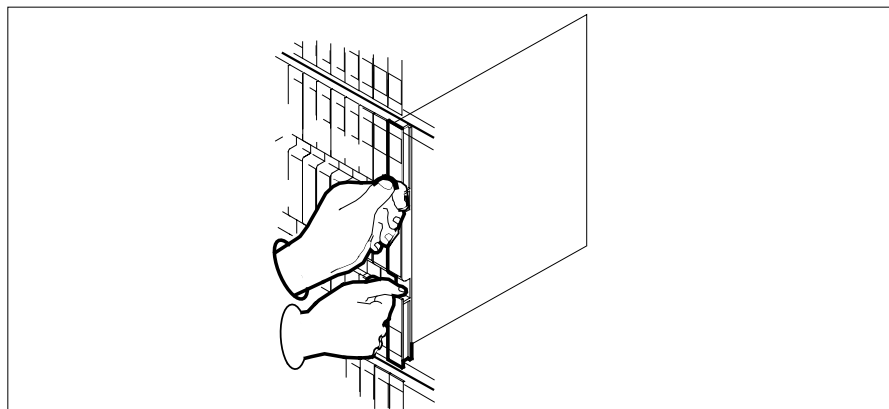
Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Seat and lock the card.

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



NT6X52

in an RSC-S (DS-1) Model A LCME (continued)

At the MAP terminal

- 9** Load the inactive LCME unit by typing
>loadpm unit lcme_unit_no CC
 and pressing the Enter key.
where
lcme_unit_no
 is the number of the LCME unit busied in step 4

If load	Do
passed	step 10
failed	step 16

- 10** Test the LCME unit by typing
>TST UNIT lcme_unit_no
 and pressing the Enter key.
where
lcme_unit_no
 is the number of the LCME unit loaded in step 9

If TST	Do
passed	step 11
failed	step 15

- 11** Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 15
other	step 12

- 12** Return the LCME unit to service by typing
>RTS UNIT lcme_unit_no
 and pressing the Enter key.
where
lcme_unit_no
 is the number of the LCME unit tested in step 10

If RTS	Do
passed	step 13

NT6X52
in an RSC-S (DS-1) Model A LCME (end)

	If RTS	Do
	failed	step 16
13	Send any faulty cards for repair according to local procedure.	
14	Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 17.	
15	Return to the procedure that directed you to this procedure. At 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 <i>Card Replacement Procedures</i> .	
16	Obtain further assistance in replacing this card by contacting operating company maintenance personnel.	
17	You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.	

NT6X52
in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NT6X52 card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X52	AA	Digroup Control card

Common procedures

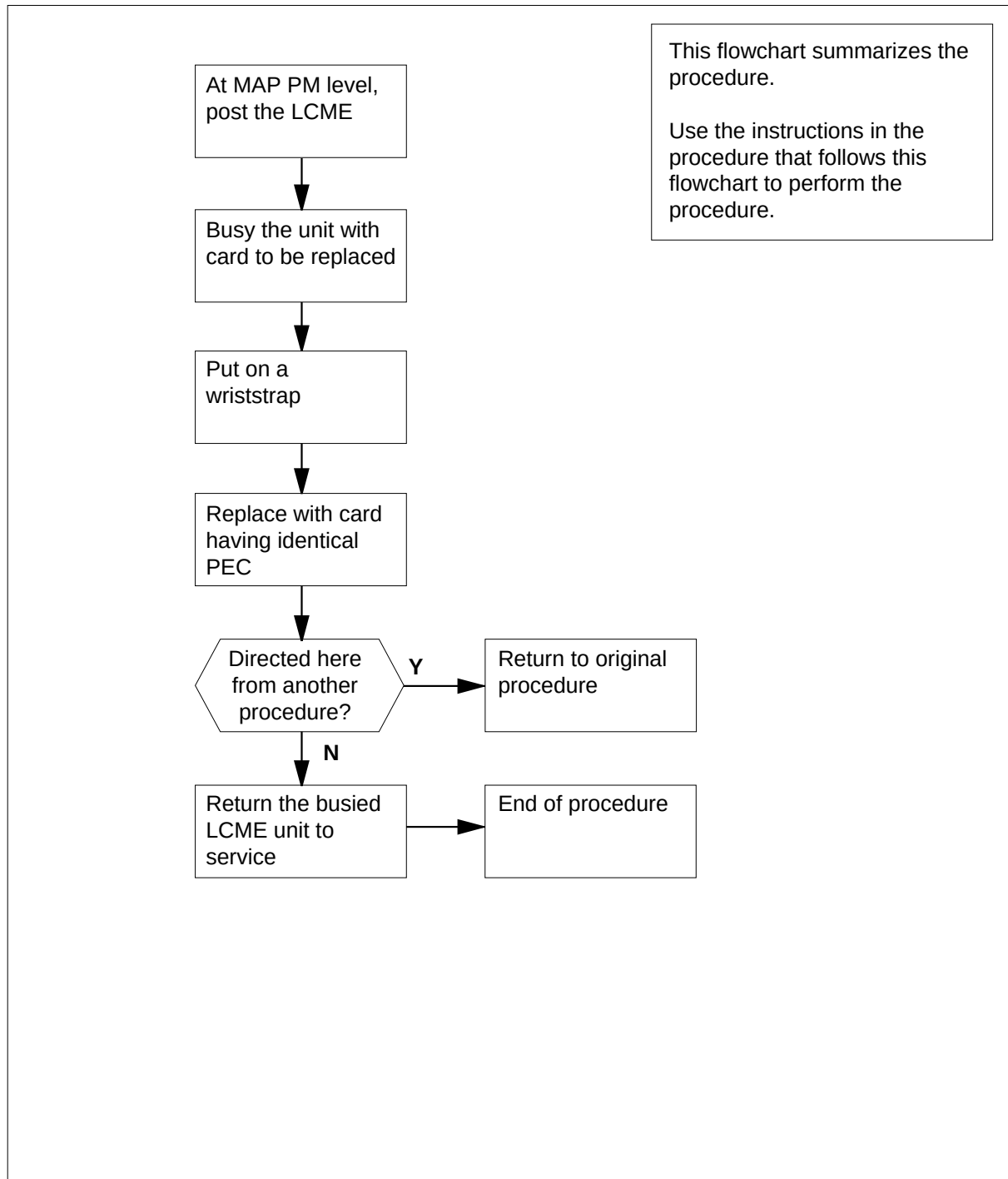
None

Action

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

NT6X52 in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NT6X52 card in RSC-S LCME



NT6X52

in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NT6X52 card in RSC-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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Set the MAP to the PM level and post the LCME by typing
**>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	Appl
.	.	.	.	.	.	.	.	.	.
LCME			SysB	ManB	OffL	CBsy	ISTb	InSv	
0 Quit	PM		0	0	0	0	0	130	
2 Post_	LCME		0	0	0	0	0	0	
3									
4 Swrg_	LCME	RemL	00 0	Links_00S:	CSide	0			
5 TrnsL_	Unit 0:	InSv		/RG:	0				
6 Tst_	Unit 1:	InSv		/RG:	1				
7 Bsy_				11 11 11		RG:Pref:0	InSv		
8 RTS_	Drwr:	01 23 45 67 89	01 23 45			Stby:1	InSv		
9 OffL_	..	..	..	..	..				
10 LoadPM_									
11 Disp_									
12 Next_									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X52
in an RSC-S (DS-1) Model B LCME (continued)

- 4 Busy the LCME by typing
 >BSY UNIT lcmc_unit_no
and pressing the Enter key.
where
 lcmc_unit_no
 is the number of the LCME posted in step 3
Example of a MAP response:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCME	.	.	.	.	.
LCME			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	0	1	0	0	0	130	
2	Post_	LCME	0	1	0	0	0	0	
3									
4	SwRg	LCME	RemL	00 0	ISTb	Links_00S:	CSide 1	PSide 0	
5	Trnsl	Unit-0:	InSv	Mtce	TakeOver	/RG:	0		
6	Tst	Unit-1:	ManB	Mtce		/RG:	0		
7	Bsy				11 11 11	RG:Pref:0	InSv		
8	RTS	Drwr:	01 23 45 67 89	01 23 45		Stby:1	InSv		
9	OffL	..	..	..	..				
10	LoadPM								
11	Disp_								
12	Next								
13									
14	QueryPM								
15									
16									
17									
18									

NT6X52
in an RSC-S (DS-1) Model B LCME (continued)

*At the LCE frame***5****DANGER****Card damage—transport**

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom [Nortel] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

**DANGER****Static electricity damage**

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the modular supervisory panel (MSP) of the LCME. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

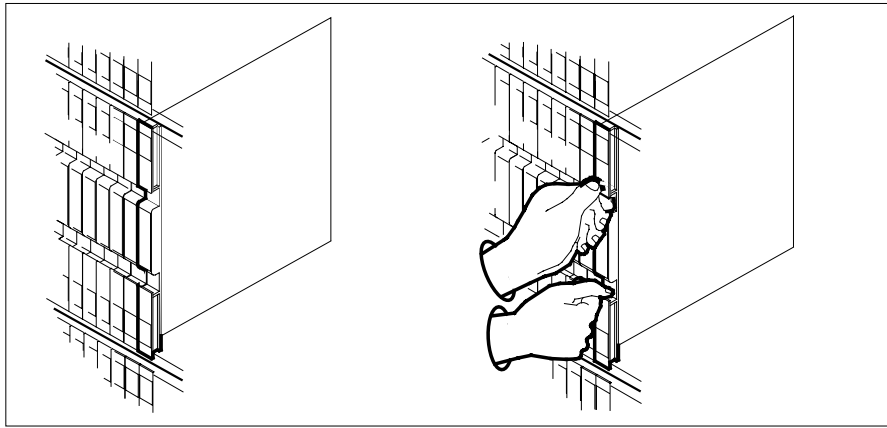
Put on a wriststrap.

6

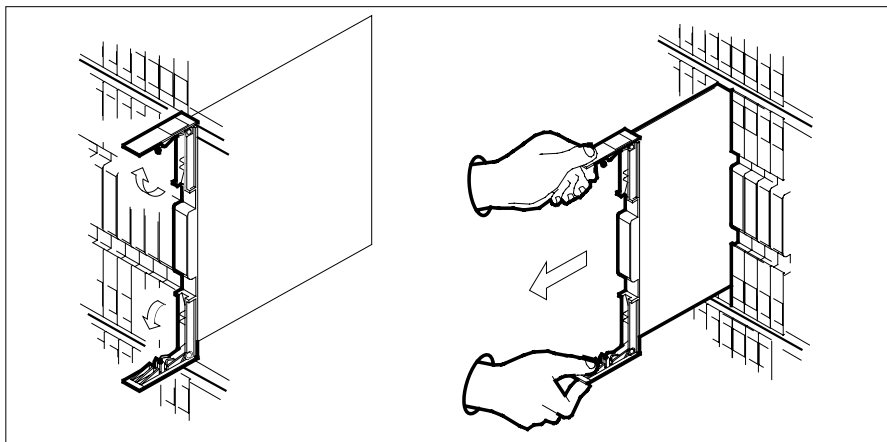
Remove the NT6X52 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.

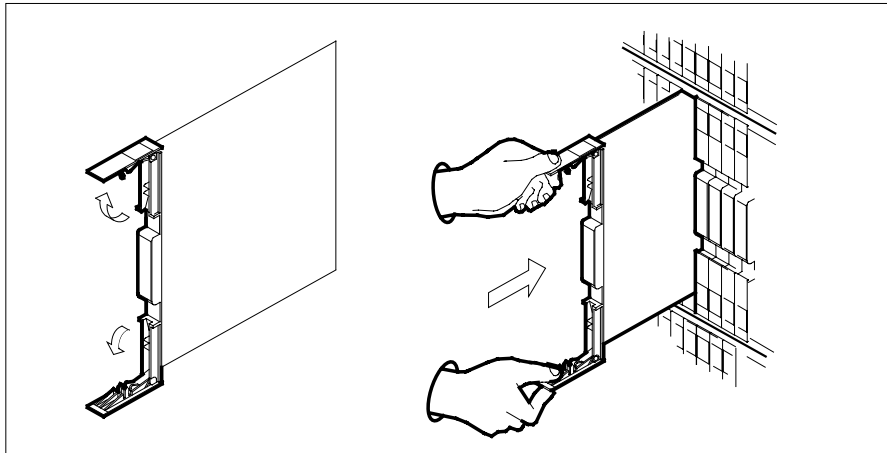
NT6X52 in an RSC-S (DS-1) Model B LCME (continued)



- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 7** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X52
in an RSC-S (DS-1) Model B LCME (continued)

8

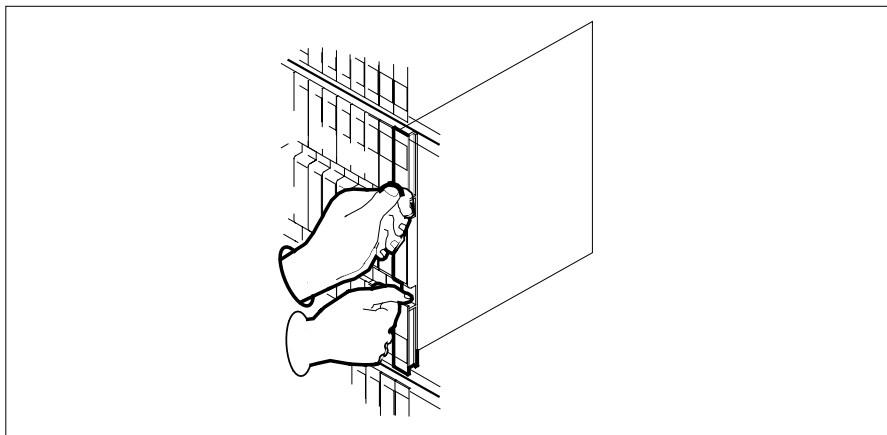
**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Seat and lock the card.

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



NT6X52

in an RSC-S (DS-1) Model B LCME (continued)

At the MAP terminal

- 9 Load the inactive LCME unit by typing
>loadpm unit lcme_unit_no CC
and pressing the Enter key.

where

lcme_unit_no

is the number of the LCME unit busied in step 4

If load	Do
passed	step 10
failed	step 16

- 10 Test the LCME unit by typing
>TST UNIT lcme_unit_no
and pressing the Enter key.

where

lcme_unit_no

is the number of the LCME unit loaded in step 9

If TST	Do
passed	step 11
failed	step 15

- 11 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 15
other	step 12

- 12 Return the LCME unit to service by typing
>RTS UNIT lcme_unit_no
and pressing the Enter key.

where

lcme_unit_no

is the number of the LCME unit tested in step 10

If RTS	Do
passed	step 13

NT6X52
in an RSC-S (DS-1) Model B LCME (end)

	If RTS	Do
	failed	step 16
13	Send any faulty cards for repair according to local procedure.	
14	Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 17.	
15	Return to the procedure that directed you to this procedure. At 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 <i>Card Replacement Procedures</i> .	
16	Obtain further assistance in replacing this card by contacting operating company maintenance personnel.	
17	You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.	

NT6X52 in an RSC-S (PCM-30) Model A LCME

Application

Use this procedure to replace an NT6X52 card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X52	AA	Digroup Control card

Common procedures

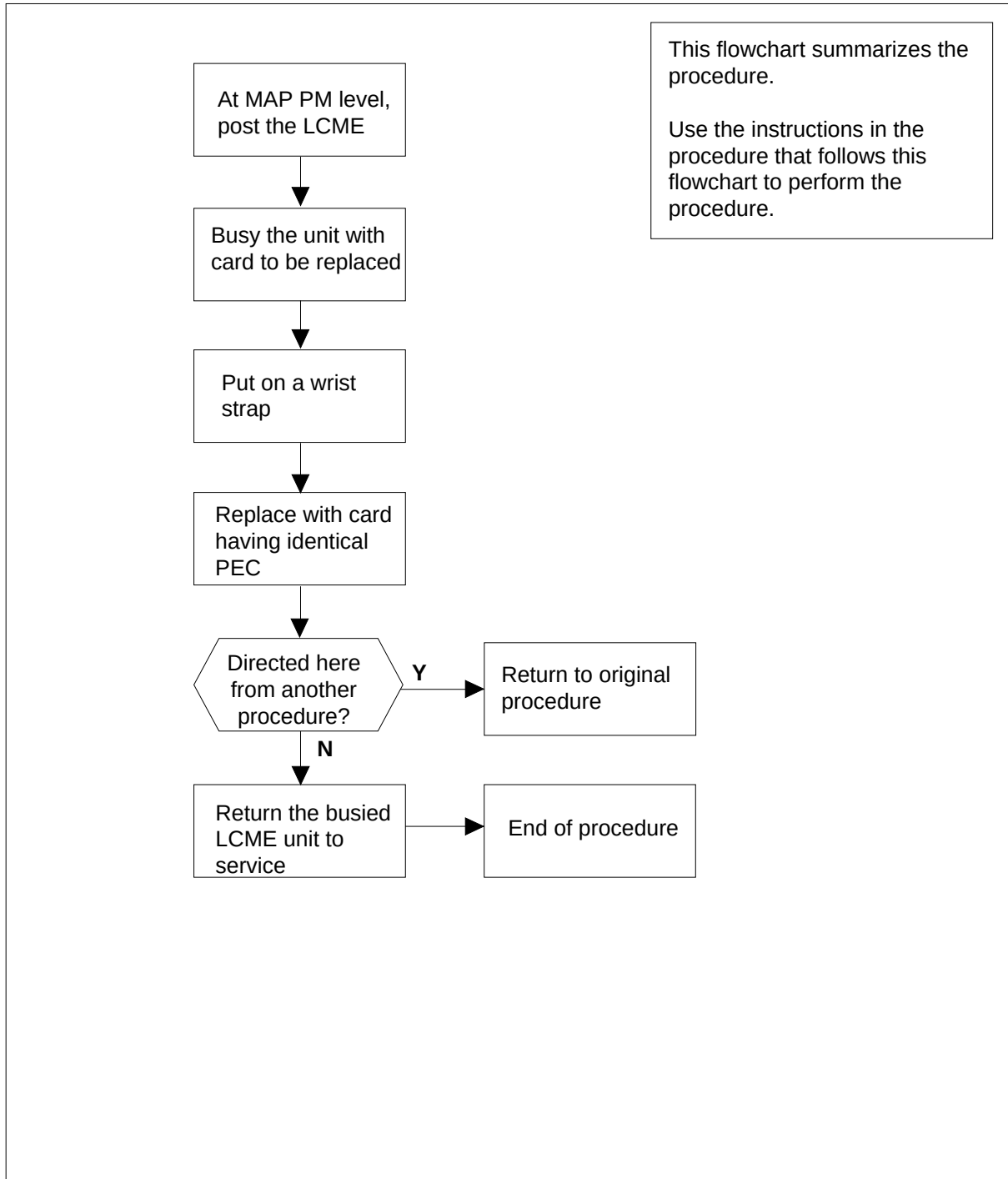
None

Action

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

NT6X52 in an RSC-S (PCM-30) Model A LCME (continued)

Summary of card replacement procedure for an NT6X52 card in RSC-S LCME



NT6X52 in an RSC-S (PCM-30) Model A LCME (continued)

Replacing an NT6X52 card in RSC-S LCME

- 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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Set the MAP to the PM level and post the LCME by typing
**>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      Appl
.       .       .       .       .       .       .       .       .       .
LCME    .       .       .       .       .       .       .       .       .       .
0 Quit  PM      0       0       0       0       0       0       130
2 Post_ LCME    0       0       0       0       0       0
3
4 Swrg_          LCME  RemL  00 0 Links_00S: CSide 0
5 TrnsL_          Unit 0:  InSv          /RG: 0
6 Tst_           Unit 1:  InSv          /RG: 1
7 Bsy_
8 RTS_          Drwr: 01 23 45 67 89 01 23 45      RG:Pref:0 InSv
9 OffL_          . . . . . Stby:1 InSv
10 LoadPM_
11 Disp_
12 Next_
13
14 QueryPM
15
16
17
18
```

NT6X52

in an RSC-S (PCM-30) Model A LCME (continued)

- 4 Busy the LCME by typing
>BSY UNIT lcmc_unit_no

and pressing the Enter key.

where

lcmc_unit_no

is the number of the LCME posted in step 3

Example of a MAP response:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCME	.	.	.	.	.
LCME			SysB	ManB	OffL	CBsy	ISTb	InSv	
0 Quit	PM		0	1	0	0	0	130	
2 Post_	LCME		0	1	0	0	0	0	
3									
4 SwRg			LCME RemL	00 0	ISTb Links_00S:	CSide 1	PSide 0		
5 Trnsl			Unit-0:	InSv Mtce TakeOver	/RG:	0			
6 Tst			Unit-1:	ManB Mtce	/RG:	0			
7 Bsy					11 11 11	RG:Pref:0	InSv		
8 RTS			Drwr: 01 23 45 67 89 01 23 45			Stby:1	InSv		
9 OffL									
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X52 in an RSC-S (PCM-30) Model A LCME (continued)

At the LCE frame

5



DANGER

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 an 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 switch frame (Northern Telecom Corporate Standard 5028).

Store and transport circuit cards in an ESD protective container.



DANGER

Equipment damage

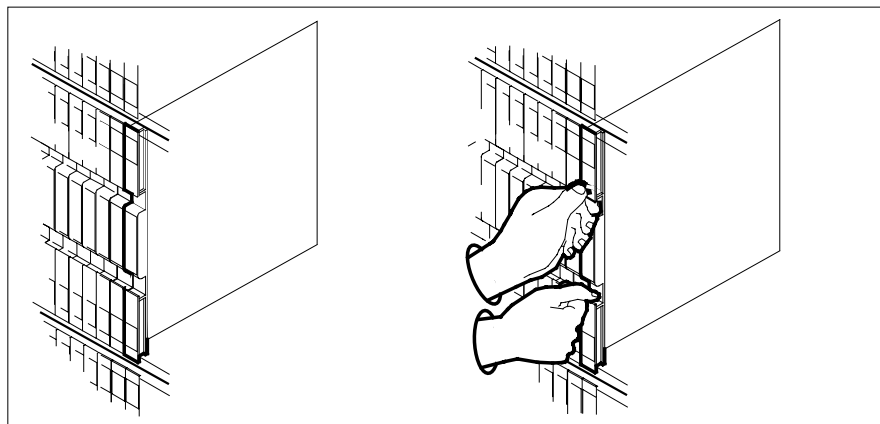
Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

6 Remove the NT6X52 card as shown in the following figures.

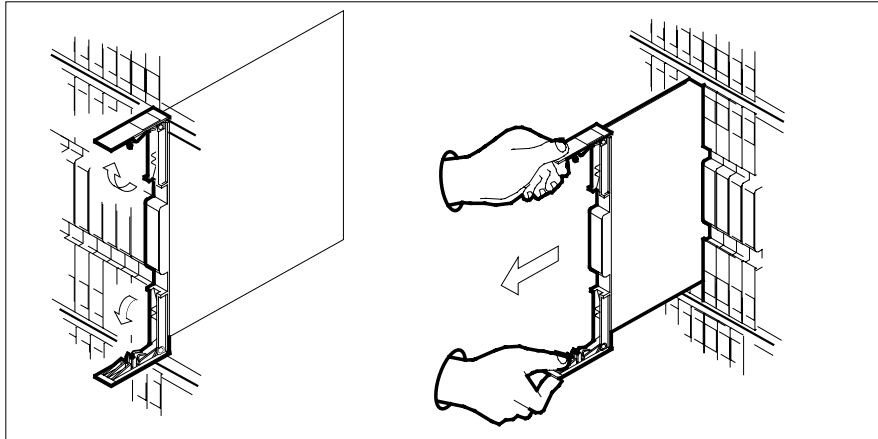
a Locate the card to be removed on the appropriate shelf.



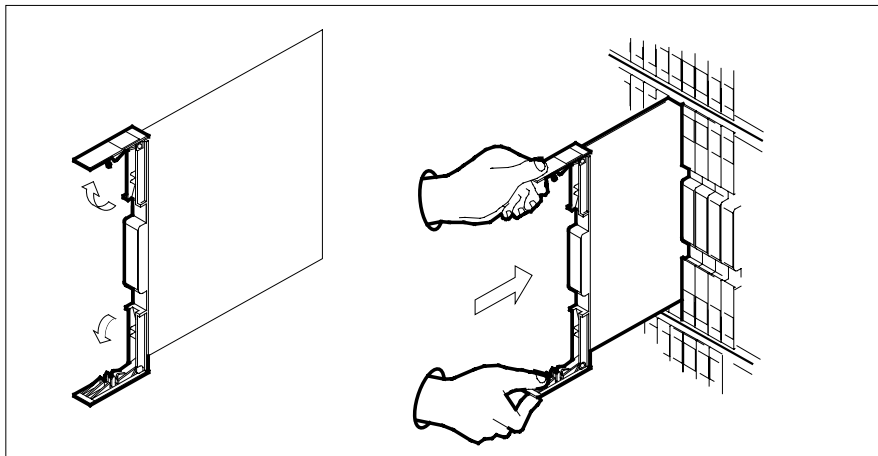
NT6X52

in an RSC-S (PCM-30) Model A LCME (continued)

- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 7** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.



NT6X52 in an RSC-S (PCM-30) Model A LCME (continued)

8



DANGER

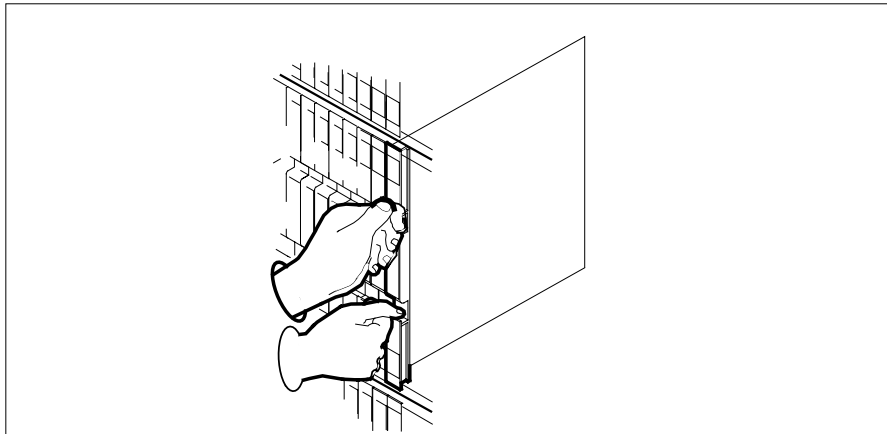
Equipment damage

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Seat and lock the card.

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



At the MAP terminal

- 9 Load the inactive LCME unit by typing
>loadpm unit lcme_unit_no CC
and pressing the Enter key.

where

lcme_unit_no

is the number of the LCME unit busied in step 4

If load	Do
passed	step 10
failed	step 16

NT6X52

in an RSC-S (PCM-30) Model A LCME (end)

- 10** Test the LCME unit by typing
>TST UNIT lcme_unit_no
 and pressing the Enter key.

where

lcme_unit_no
 is the number of the LCME unit loaded in step 9

If TST	Do
passed	step 11
failed	step 15

- 11** Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 15
other	step 12

- 12** Return the LCME unit to service by typing
>RTS UNIT lcme_unit_no
 and pressing the Enter key.

where

lcme_unit_no
 is the number of the LCME unit tested in step 10

If RTS	Do
passed	step 13
failed	step 16

- 13** Send any faulty cards for repair according to local procedure.
- 14** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 17.
- 15** Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.
- 16** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.
- 17** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X53 in an IOPAC ILCM

Application

Use this procedure to replace the following card in an International line concentrating module (ILCM).

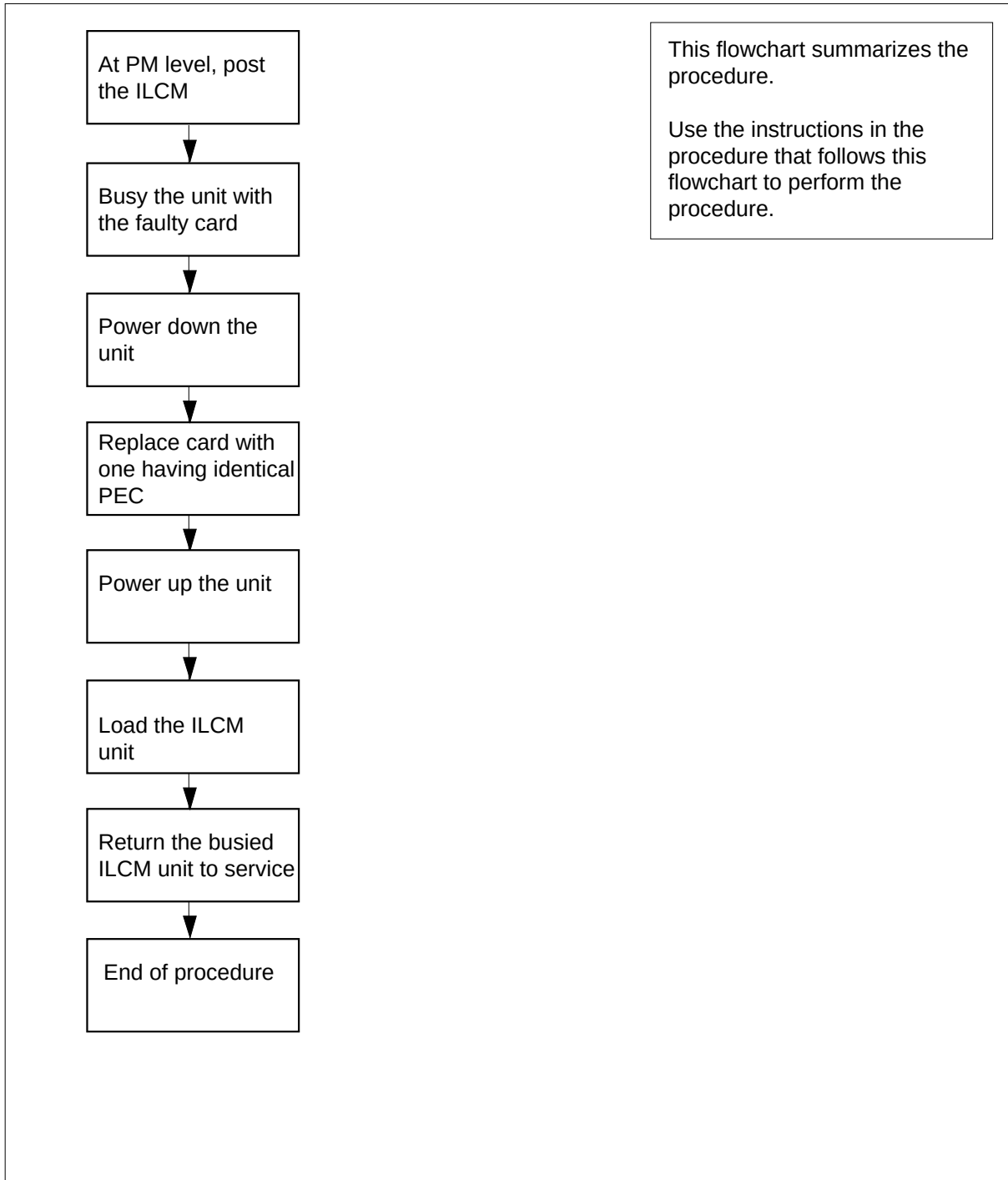
PEC	Suffixes	Name
NT6X53	AA	Power converter (5V/15V)

Common procedures

The common replacing a card procedure 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.

NT6X53
in an IOPAC ILCM (continued)**Summary of card replacement procedure for an NT6X53 in an ILCM**

NT6X53 in an IOPAC ILCM (continued)

Replacing an NT6X53 in an ILCM

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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 6. Otherwise, continue with step 4.

At the MAP terminal

- 4 Access the peripheral module (PM) level and post the ILCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the site name of the IOPAC

frame

is the frame number of the IOPAC cabinet (0 to 511)

lcm

is the number of the ILCM

- 5 Busy the ILCM unit containing the faulty card by typing
>BSY UNIT lcm_unit
and pressing the Enter key.

where

lcm_unit

is the ILCM unit to be busied (0 or 1)

At the IOPAC site

- 6 Turn the circuit breaker off for the unit in which the power converter is being replaced. Use the table below to determine which MSP circuit breaker serves the unit.

Circuit breaker	Unit	Locations
CB1	LCA 0	Bay 0 shelf 19 slot 02
CB3	LCA 1	Bay 0 shelf 32 slot 02

NT6X53 in an IOPAC ILCM (continued)

- 7 Go to the common replacing a card procedure in this document to replace the NT6X53 card. When the card is replaced, return to this step.
- 8 Power up the NT6X53 converter just inserted.
Determine the correct MSP switch for the shelf in which the power converter was replaced from the diagram below. The switches are numbered corresponding to the shelf position.

Circuit breaker	Unit FED	Locations
CB1	LCA 0	Bay 0 shelf 19 slot 02
CB3	LCA 1	Bay 0 shelf 32 slot 02

Turn the circuit breaker on for the unit with the new power converter.

- The converter fail LED on the converter will be extinguished.
- The frame fail lamp on the converter will be extinguished.

- 9 If you were directed to this procedure from the *Alarm Clearing Procedure* return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 10.

At the MAP terminal

- 10 Load the ILCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.

where

lcm_unit
is the ILCM unit to be loaded (0 or 1)

If	Do
message loadfile not found in directory is received	step 11
load passed	step 28
load failed	step 31
11 Determine the type of device on which the PM load files are located.	
If load files are located on	Do
tape	step 12
IOC disk	step 18

NT6X53 in an IOPAC ILCM (continued)

	If load files are located on	Do
	SLM disk	step 23
12	Locate the tape that contains the PM load files.	
13	Mount the tape on a magnetic tape drive.	
14	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files	
15	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files	
16	Demount the tape drive by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
17	Go to step 27.	
18	From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.	
19	Access the disk utility level of the MAP terminal by typing >DSKUT and pressing the Enter key.	
20	List the IOC file names into your user directory by typing >LISTVOL volume_name ALL and pressing the Enter key. <i>where</i> volume_name is the name of the volume that contains the PM load files obtained in step 18.	

NT6X53

in an IOPAC ILCM (continued)

- 21 Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
- 22 Go to step 27.
- 23 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 24 Access the disk utility level of the MAP terminal by typing
>DISKUT
 and pressing the Enter key.
- 25 List the SLM file names into your user directory by typing
>LV CM;LF file_name
 and pressing the Enter key.
where
 file_name
 is the name of the SLM disk volume containing the PM load files obtained in step 23.
- 26 Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
- 27 Reload the ILCM unit by typing
>LOADPM UNIT lcm_unit CC
 and pressing the Enter key.
where
 lcm_unit
 is the ILCM unit to be loaded (0 or 1)
- | If | Do |
|-------------|---------|
| load failed | step 31 |
| load passed | step 28 |
- 28 Return the ILCM unit to service by typing
>RTS UNIT lcm_unit
 and pressing the Enter key.
where

NT6X53

in an IOPAC ILCM (end)

lcm_unit

is the ILCM busied in step 5 (0 or 1)

If RTS

Do

passed

step 29

failed

step 31

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 32.

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

32 You have successfully completed this procedure.

**NT6X53
in an OPAC LCM**

Application

Use this procedure to replace the following card in a line concentrating module (LCM).

PEC	Suffixes	Name
NT6X53	AA	Power converter (5V/15V)

Common procedures

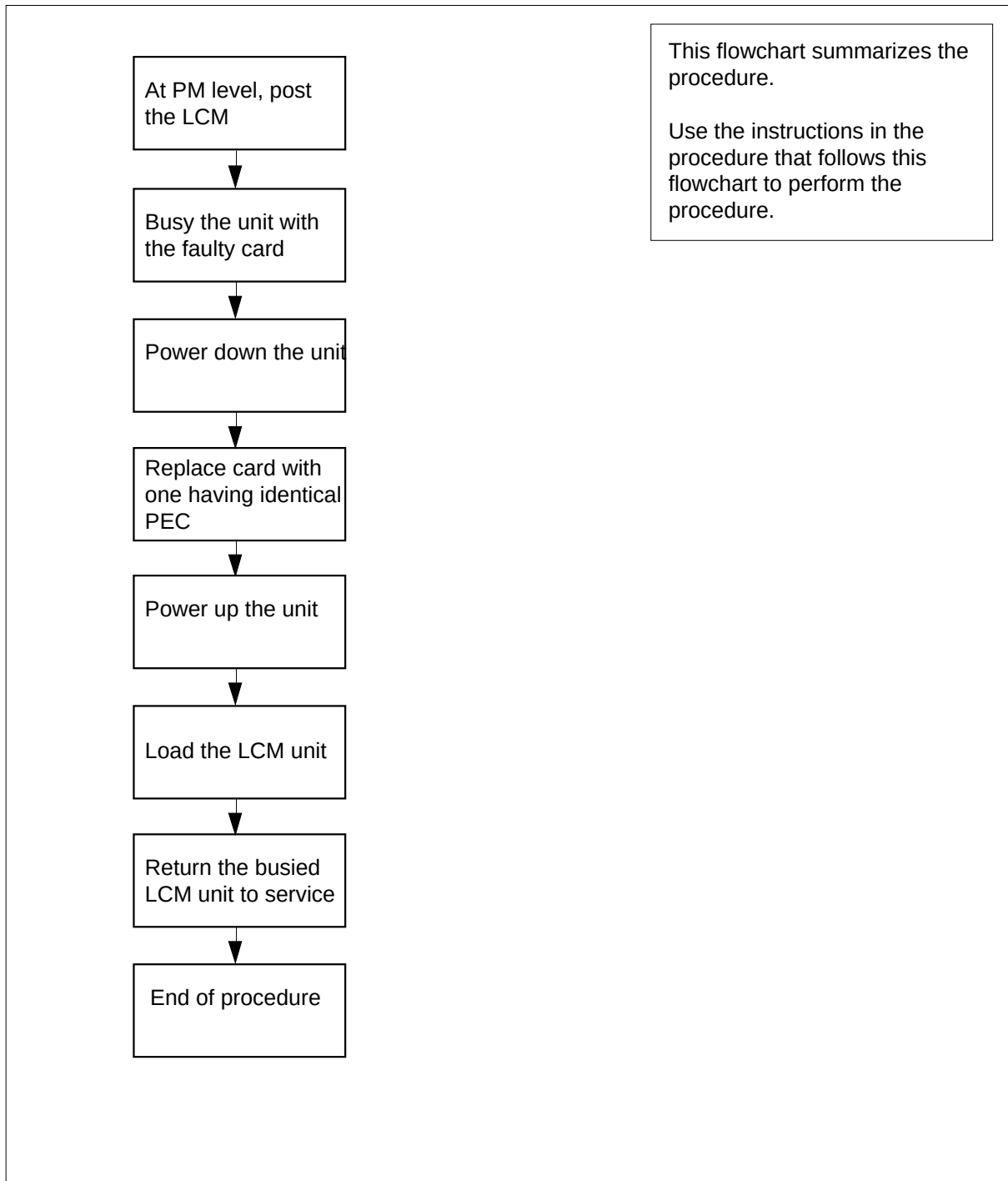
The common replacing a card procedure is referenced in this procedure.

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.

NT6X53 in an OPAC LCM (continued)

Summary of card replacement procedure for an NT6X53 in an LCM



NT6X53 in an OPAC LCM (continued)

Replacing an NT6X53 in an LCM

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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 6. Otherwise, continue with step 4.

At the MAP terminal

- 4 Access the peripheral module (PM) level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the site name of the OPAC

frame

is the frame number of the OPAC (0 to 511)

lcm

is the number of the LCM

- 5 Busy the LCM unit containing the faulty card by typing
>BSY UNIT lcm_unit
and pressing the Enter key.

where

lcm_unit

is the LCM unit to be busied (0 or 1)

At the OPAC site

- 6 Turn the circuit breaker off for the unit in which the power converter is being replaced. Use the table below to determine which MSP circuit breaker serves the unit.

Circuit breaker	Unit	Locations
CB1	LCA 0	Bay 0 slot 19-02
CB3	LCA 1	Bay 0 slot 32-02

NT6X53 in an OPAC LCM (continued)

- 7 Replace the NT6X53 card using the common replacing a card procedure in this document.
- 8 Power up the NT6X53 converter just inserted.
Determine the correct MSP switch for the shelf in which the power converter was replaced from the diagram below. The switches are numbered corresponding to the shelf position.

Circuit breaker	Unit FED	Locations
CB1	LCA 0	Bay 0 slot 19-02
CB3	LCA 1	Bay 0 slot 32-02

Turn the circuit breaker on for the unit with the new power converter.

- The converter fail LED on the converter will be extinguished.
- The frame fail lamp on the converter will be extinguished.

- 9 If you were directed to this procedure from the *Alarm Clearing Procedure* return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 10.

At the MAP terminal

- 10 Load the LCM unit by typing
>LOADPM UNIT lcm_unit
and pressing the Enter key.
where
lcm_unit
is the LCM unit to be loaded (0 or 1)

If	Do
message loadfile not found in directory is received	step 11
load passed	step 28
load failed	step 31

- 11 Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 12
IOC disk	step 18

NT6X53 in an OPAC LCM (continued)

	If load files are located on	Do
	SLM disk	step 23
12	Locate the tape that contains the PM load files.	
13	Mount the tape on a magnetic tape drive.	
14	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files	
15	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape containing the PM load files	
16	Demount the tape drive by typing >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
17	Go to step 27.	
18	From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.	
19	Access the disk utility level of the MAP terminal by typing >DSKUT and pressing the Enter key.	
20	List the IOC file names into your user directory by typing >LISTVOL volume_name ALL and pressing the Enter key. <i>where</i> volume_name is the name of the volume that contains the PM load files	
21	Leave the disk utility by typing >QUIT	

NT6X53

in an OPAC LCM (continued)

- and pressing the Enter key.
- 22** Go to step 27.
- 23** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 24** Access the disk utility level of the MAP terminal by typing
>DISKUT
 and pressing the Enter key.
- 25** List the SLM file names into your user directory by typing
>LV CM;LF file_name
 and pressing the Enter key.
where
file_name
 is the name of the SLM disk volume containing the file to be loaded
- 26** Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
- 27** Reload the LCM unit by typing
>LOADPM UNIT lcm_unit CC
 and pressing the Enter key.
where
lcm_unit
 is the LCM unit to be loaded (0 or 1)
- | If | Do |
|-------------|---------|
| load failed | step 31 |
| load passed | step 28 |
- 28** Return the LCM unit to service by typing
>RTS UNIT lcm_unit
 and pressing the Enter key.
where
lcm_unit
 is the LCM busied in step 5 (0 or 1)
- | If RTS | Do |
|--------|---------|
| passed | step 29 |
| failed | step 31 |

NT6X53
in an OPAC LCM (end)

- 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 32.
- 31** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 32** You have successfully completed this procedure.

NT6X53 in an OPM

Application

Use this procedure to replace the following card in an OPM

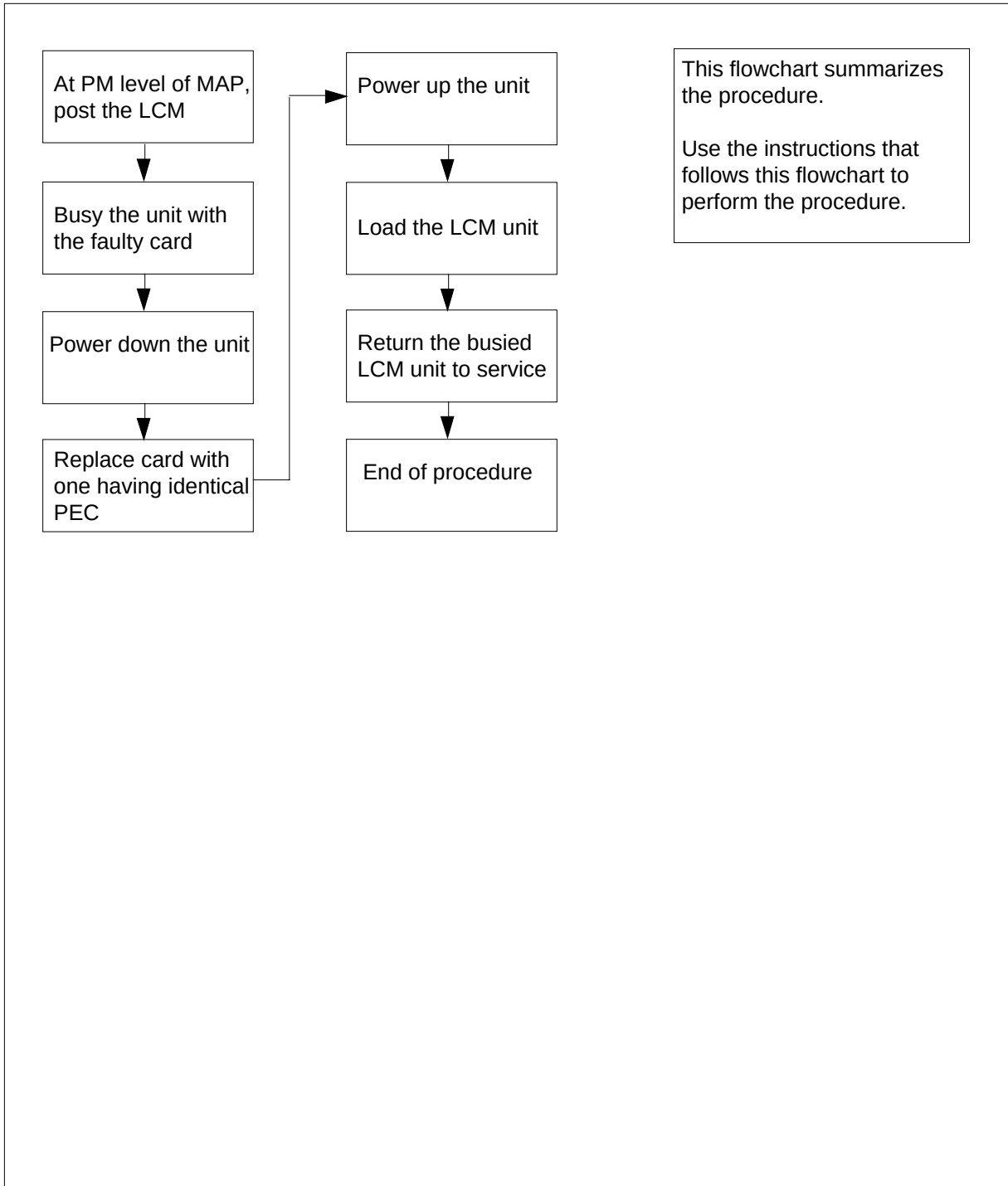
PEC	Suffixes	Name
NT6X53	AA, BA, CA	Power Converter Card (5V/15V)

Common procedures

None

Action

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

NT6X53
in an OPM (continued)**Summary of card replacement for NT6X53 card in an OPM**

NT6X53 in an OPM (continued)

Replacing an NT6X53 card in an OPM

At your Current Location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were 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 that is to be removed.

At the MAP display

- 3 Access the PM level of the MAP and post the LCM by typing

>MAPCI;MTC;PM;POST LCM site frame lcm

and pressing the Enter key.

where

site

is the name of the OPM site

frame

is the frame number of the OPM cabinet (0 to 511)

lcm

is the number of the LCM

Example of a MAP display:

```

CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.        .        .        .        1LCM      .        .        .        .        .

LCM
0 Quit      PM      0        1        0        0        0        0        130
2 Post_     LCM      0        1        0        0        0        0        0
3
4 SwRg      LCM      Rem1  00 0 ISTb  Links_00S: CSide 0 PSide 0
5 TrnsL      Unit-0: InSv Mtce TakeOver /RG: 0
6 Tst       Unit-1: SysB Mtce /RG: 0
7 Bsy      11 11 11 11 11 11 RG:Pref:0 InSv
8 RTS      Drwr: 01 23 45 67 89 01 23 45 67 89 Stby:1 InSv
9 OffL      . . . . .
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18

```

NT6X53
in an OPM (continued)

- 4 Busy the LCM unit containing the faulty card by typing
>BSY UNIT lcm_unit
and pressing the Enter key.

where

lcm_unit
is the LCM unit (0 or 1) to be busied

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	0	1	0	0	0	130		
2 Post_	LCM	0	1	0	0	0	0		
3									
4 SwRg		LCM	Rem1	00	0	ISTb	Links_00S:	CSide	0 PSide
5 Trnsl		Unit-0:	InSv	Mtce	TakeOver	/RG:	0		
6 Tst		Unit-1:	ManB	Mtce		/RG:	0		
7 Bsy						11 11 11 11 11	RG:Pref:0	InSv	
8 RTS		Drwr:	01 23 45 67 89	01 23 45 67 89			Stby:1	InSv	
9 OffL									
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X53
in an OPM (continued)

At the OPM cabinet

- 5** Turn the circuit breaker OFF for the unit in which the power converter is being replaced. Use the table below to determine which FSP circuit breaker serves the unit.

Circuit breaker	Unit FED	Locations
CB6	LCA 0	Shelf 04 slot 01 (OPM)
CB7	LCA 1	Shelf 21 slot 01 (OPM)
CB6	LCA 0	Row A bay 0 slot 01 (OPM-640)
CB6	LCA 0	Row A bay 0 slot 01 (OPM-256)
CB7	LCA 1	Row A bay 0 slot 01 (OPM-640)
CB7	LCA 1	Row A bay 0 slot 23 (OPM-256)

Note: For the NTN14AA cabinet the circuit breaker assignments are:

Circuit breaker	Unit FED	Locations
CB2	LCA 0	bay 0 slot 01
CB7	LCA 1	bay 0 slot 01

- 6** Replace the NT6X53 card as shown in the following figures.

NT6X53
in an OPM (continued)

7

**DANGER****Card damage—transport**

Take these precautions to protect the circuit cards from electrical and mechanical damage during transportation: When handling a circuit card not in an 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.

**DANGER****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 LCM. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

Take these precautions when removing or inserting a card: 1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

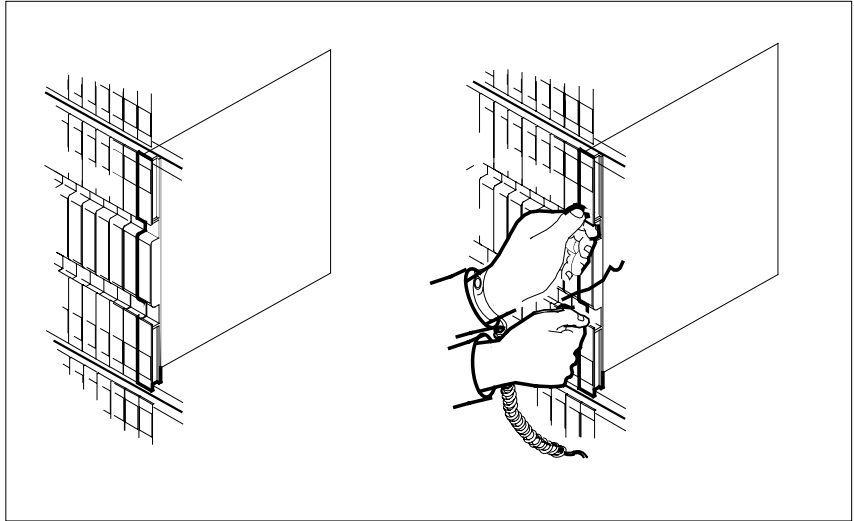
Put on a wrist strap.

8

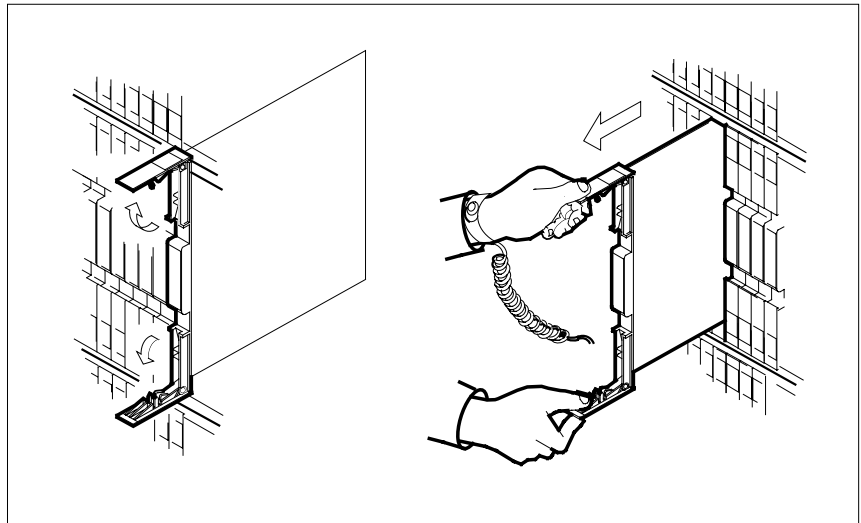
Remove the NT6X53 card as shown in the following figures.

- a Locate the card to be removed on the appropriate shelf.

NT6X53 in an OPM (continued)

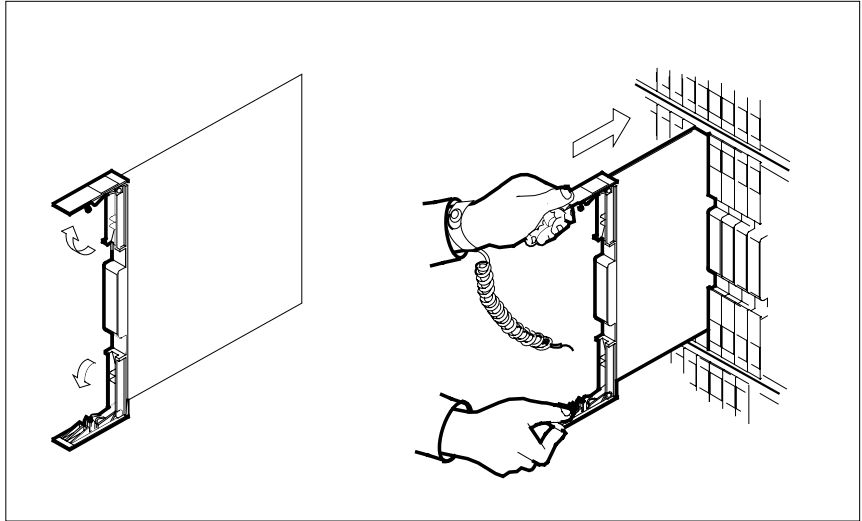


- b** Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

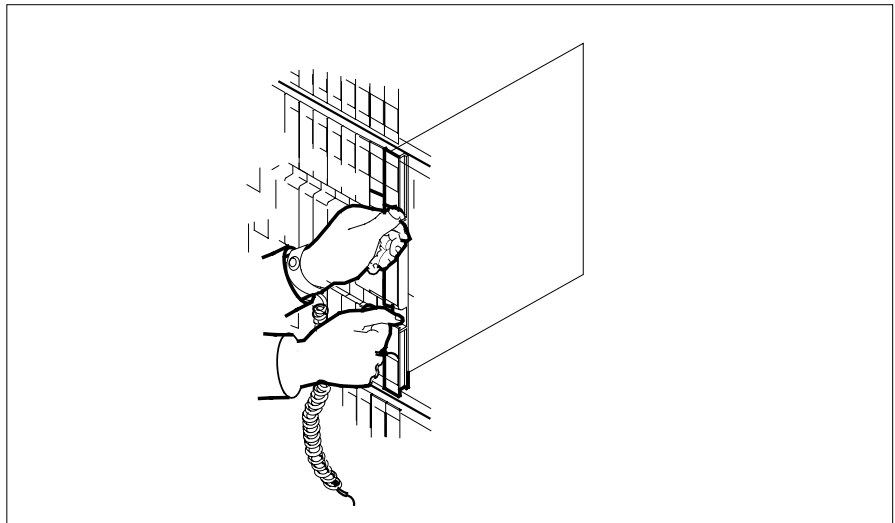


- c** Ensure that the replacement card has the same PEC including suffix, as the card you just removed.
- 9** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf and gently slide the card into the shelf.

NT6X53 in an OPM (continued)



- 10** 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.
- 11** Power up the LCM unit as follows:
1. Ensure that the power converter (NT6X53) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.
 2. Set the circuit breaker to the ON position. The converter fail LED and frame fail lamp on the FSP will be extinguished.

NT6X53

in an OPM (continued)

Determine the correct FSP switch for the shelf in which the power converter was replaced from the diagram below. The switches are numbered corresponding to the shelf position.

Circuit breaker	Unit FED	Locations
CB6	LCA 0	Shelf 04 slot 01 (OPM)
CB7	LCA 1	Shelf 21 slot 01 (OPM)
CB6	LCA 0	Row A bay 0 slot 01 (OPM-640)
CB6	LCA 0	Row A bay 0 slot 01 (OPM-256)
CB7	LCA 1	Row A bay 0 slot 01 (OPM-640)
CB7	LCA 1	Row A bay 0 slot 23 (OPM-256)

3. Turn the circuit breaker on for the unit with the new power converter.
 - a. The converter fail LED will be extinguished.
 - b. The frame fail lamp on the FSP will be extinguished.

- 12** If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 13.

At the MAP display

- 13** Load the LCM unit by typing
>LOADPM UNIT lcm_unit CC
 and pressing the Enter key.

where

lcm_unit
 is the LCM unit (0 or 1) to be loaded

If	Do
message "loadfile not found in directory" is received	step 14
load passes	step 33

NT6X53 in an OPM (continued)

	If	Do
	load fails	step 37
14	Determine the type of device on which the PM load files are located.	
	If load files are located on	Do
	tape	step 15
	IOC disk	step 21
	SLM disk	step 26
15	Locate the tape that contains the PM load files.	
	<i>At the OPM cabinet</i>	
16	Mount the tape on a magnetic tape drive.	
	<i>At the MAP display</i>	
17	Download the tape by typing >MOUNT tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files	
18	List the contents of the tape in your user directory by typing >LIST T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive containing the PM load files.	
19	Release the tape drive from your user directory by typing: >DEMOUNT T tape_no and pressing the Enter key. <i>where</i> tape_no is the number of the tape drive mounted in step 17.	
20	Go to step 31.	
21	From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.	

NT6X53

in an OPM (continued)

- 22 Access the disk utility level of the MAP by typing
>DSKUT
and pressing the Enter key.
- 23 List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 21.
- 24 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 25 Go to step 31.
- 26 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 27 Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 28 List the SLM disk volume names by typing
>LV CM
and pressing the Enter key.
- 29 List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 26.
- 30 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 31 Load the LCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where

NT6X53 in an OPM (end)

lcm_unit is the LCM unit (0 or 1) to be loaded	
If	Do
load failed	step 37
load passed	step 32
32	Use the following information to determine the next step in this procedure.
If you entered this procedure	Do
an alarm clearing procedure	step 36
other	step 33
33	Return the LCM unit to service by typing >RTS UNIT lcm_unit and pressing the Enter key. <i>where</i> lcm_unit is the LCM (0 or 1) busied in step 4
If RTS	Do
passed	step 34
failed	step 37
34	Send any faulty cards for repair according to local procedure.
35	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 38.
36	Return to the <i>Alarm Clearing Procedure</i> that directed you to this procedure. If necessary, go to the point where the 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.
37	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
38	You have successfully completed this procedure.

NT6X53 in an RLCM

Application

Use this procedure to replace the following card in an RLCM

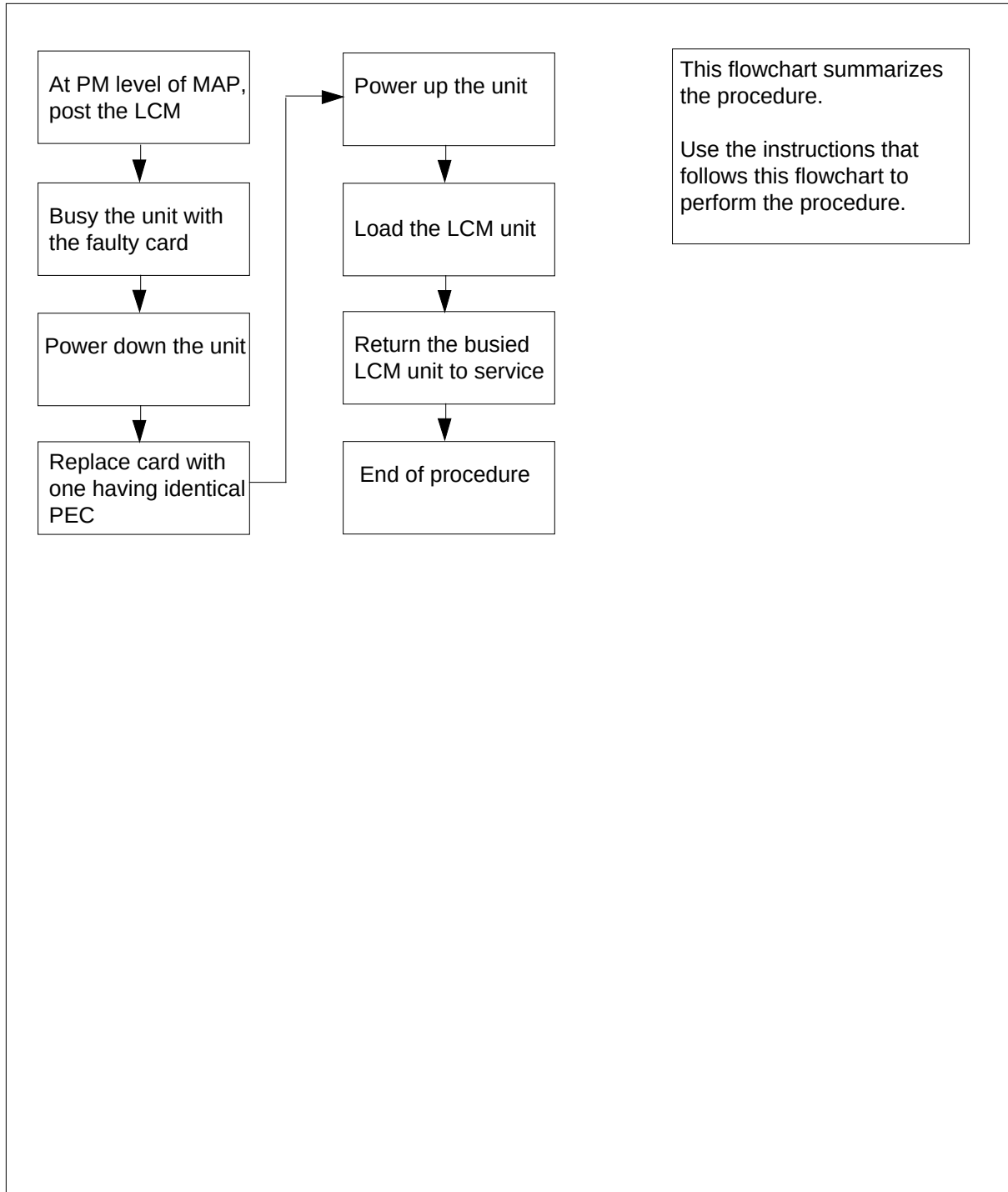
PEC	Suffixes	Name
NT6X53	AA, BA, CA	Power Converter Card (5V/15V)

Common procedures

The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X53
in an RLCM (continued)**Summary of card replacement procedure for an NT6X53 card in an RLCM**

NT6X53 in an RLCM (continued)

Replacing an NT6X53 in an RLCM

At your current location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were 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 that is to be removed.

At the MAP display

- 3 Access the PM level of the MAP and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
 and pressing the Enter key.

where

site

is the name of the RLCM site

frame

is the frame number of the RLCE frame (0 to 511)

lcm

is the number of the LCM

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	0	0	0	0	1	130		
2 Post_	LCM	0	0	0	0	1	10		
3									
4 SwRg		LCM	Rem1	00 0	ISTb	Links_00S:	CSide 0	PSide 0	
5 TrnsL		Unit-0:	InSv	Mtce	TakeOver	/RG:	0		
6 Tst		Unit-1:	SysB	Mtce		/RG:	0		
7 Bsy					11 11 11 11 11	RG:Pref:0	InSv		
8 RTS		Drwr:	01 23 45 67 89	01 23 45 67 89		Stby:1	InSv		
9 OffL									
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X53
in an RLCM (continued)

- 4 Busy the LCM unit containing the faulty card by typing
>BSY UNIT lcm_unit
and pressing the Enter key.

where

lcm_unit
is the LCM unit (0 or 1) to be busied

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	0	0	0	0	1	130		
2 Post_	LCM	0	0	0	0	1	10		
3									
4 SwRg		LCM	Rem1	00	0	ISTb	Links_00S: CSide 0 PSide 0		
5 Trnsl		Unit-0:	InSv	Mtce	TakeOver	/RG:	0		
6 Tst		Unit-1:	ManB	Mtce		/RG:	0		
7 Bsy						11 11 11 11 11	RG:Pref:0 InSv		
8 RTS		Drwr:	01 23 45 67 89	01 23 45 67 89		Stby:1	InSv		
9 OffL									
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X53 in an RLCM (continued)

At the RLCE frame

- 5 Turn the circuit breaker OFF for the unit in which the power converter is being replaced. Use the table below to determine which FSP circuit breaker serves the unit.

Circuit breaker	Unit FED	Locations
CB6	LCA 0	Shelf 04 slot 01
CB7	LCA 1	Shelf 21 slot 01

Note: For the NTNX14AA cabinet the circuit breaker assignments are:

Circuit breaker	Unit FED	Locations
CB2	LCA 0	bay 0 slot 01
CB7	LCA 1	bay 0 slot 01

6



DANGER

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 LCM. This protects the equipment against damage caused by static electricity.

Replace the NT6X53 card using the common replacing a card procedure in this document. When the card has been replaced, return to this point.

- 7 Power up the LCM unit as follows:
- Ensure that the power converter (NT6X53) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.
 - Set the circuit breaker to the ON position. The converter fail LED and frame fail lamp on the FSP will be extinguished.

NT6X53 in an RLCM (continued)

Determine the correct FSP switch for the shelf in which the power converter was replaced from the diagram below. The switches are numbered corresponding to the shelf position.

Circuit breaker	Unit FED	Locations
CB6	LCA 0	Shelf 04 slot 01
CB7	LCA 1	Shelf 21 slot 01

Note: For the NTN14AA cabinet the circuit breaker assignments are:

Circuit breaker	Unit FED	Locations
CB2	LCA 0	bay 0 slot 01
CB7	LCA 1	bay 0 slot 01

- c Turn the circuit breaker on for the unit with the new power converter.
 - a. The converter fail LED will be extinguished.
 - b. The frame fail lamp on the FSP will be extinguished.
- 8 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 9.

At the MAP display

- 9 Load the LCM unit by typing
>LOADPM UNIT lcm_unit CC
 and pressing the Enter key.
where
lcm_unit
 is the LCM unit (0 or 1) to be loaded

If	Do
message "loadfile not found in directory" is received	step 10
load passed	step 29
load failed	step 33

NT6X53 in an RLCM (continued)

- 10** Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 11
IOC disk	step 17
SLM disk	step 22

- 11** Locate the tape that contains the PM load files.

At the IOE frame

- 12** Mount the tape on a magnetic tape drive.

At the MAP display

- 13** Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 14** List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files.

- 15** Release the tape drive from your user directory by typing:

>DEMOUNT T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive mounted in step 13.

- 16** Go to step 27.

- 17** From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.

- 18** Access the disk utility level of the MAP by typing

>DSKUT

and pressing the Enter key.

NT6X53
in an RLCM (continued)

- 19** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 17.
- 20** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 21** Go to step 27.
- 22** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 23** Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 24** List the SLM disk volume names by typing
>LV CM
and pressing the Enter key.
- 25** List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 22.
- 26** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 27** Load the LCM unit by typing
>LOADPM UNIT lcm_unit CC
and pressing the Enter key.
where

NT6X53

in an RLCM (end)

lcm_unit is the LCM unit (0 or 1) to be loaded	
If	Do
load failed	step 33
load passed	step 28
28	Use the following information to determine the next step in this procedure.
If you entered this procedure	Do
an alarm clearing procedure	step 32
other	step 29
29	Return the LCM unit to service by typing >RTS UNIT lcm_unit and pressing the Enter key. <i>where</i> lcm_unit is the LCM (0 or 1) busied in step 4
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 <i>Alarm Clearing Procedure</i> that directed you to this procedure. If necessary, go to the point where the 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 higher level of support.
34	You have successfully completed this procedure.

**NT6X53
in an RLCM-EDC**

Application

Use this procedure to replace the following card identified in the following table.

PEC	Suffixes	Card name	Shelf/frame name
NT6X53	AA	Power Converter Card (5V/15V)	LCM/RLCC

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the index. The index contains a list of cards, shelves, and frames that this maintenance manual documents.

Common procedures

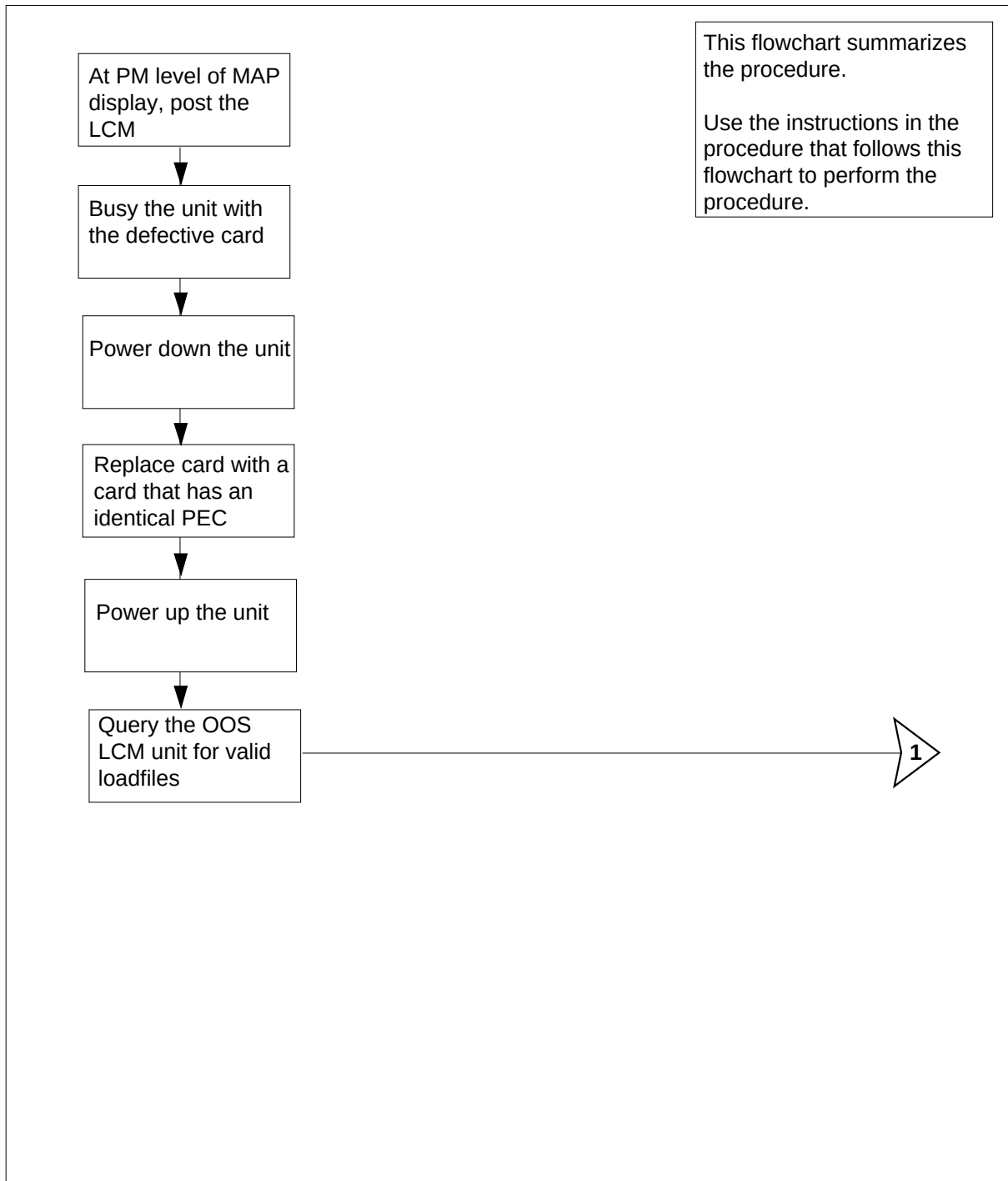
The common replacing a card procedure is referenced in this document.

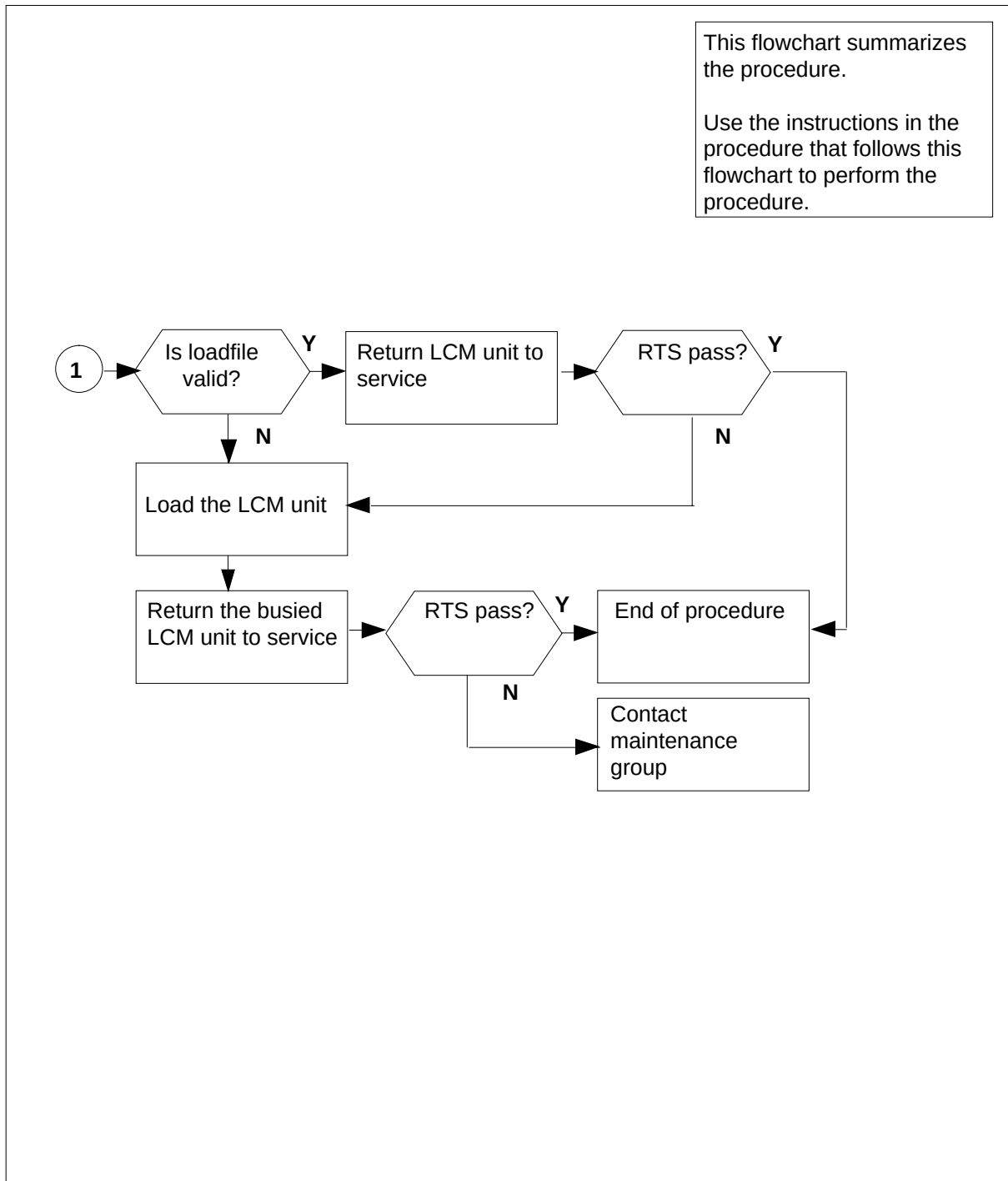
Action

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

NT6X53 in an RLCM-EDC (continued)

Summary of replacing NT6X53 card in LCM



NT6X53
in an RLCM-EDC (continued)**Summary of replacing NT6X53 card in LCM (continued)**

NT6X53 in an RLCM-EDC (continued)

Replacing an NT6X53 card in an LCM

At your current location

- 1 Proceed to step 2 if one of the following conditions applies:
 - another maintenance procedure directed you to this card replacement procedure
 - you use this procedure to verify or accept cards
 - your maintenance support group directed you to this procedure
- 2 Obtain a replacement card. Make sure that the replacement card has the same product equipment code (PEC) and suffix as the card to remove.

At the MAP display

- 3 To access the peripheral module (PM) level of the MAP terminal and post the line concentrating module (LCM), type

>MAPCI;MTC;PM;POST LCM site cabinet lcm

and press the Enter key.

where

site

is the name of the RLCM-EDC site (alphanumeric)

cabinet

is the number of the RLCC-EDC cabinet

lcm

is the number of the LCM

Example of a MAP display:

```
LCM  Rem1  00 0 ISTb  Links_00S: CSide 0 PSide 0
Unit 0:  InSv  Mtce TakeOver
Unit 1:  SysB  Mtce
              11 11 11 11 11 11 RG: Uneq
Drwr: 01 23 45 67 89 01 23 45 67 89
. . . . .
```

- 4 To busy the LCM unit that contains the defective card, type

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the LCM unit (0 or 1) to busy

NT6X53 in an RLCM-EDC (continued)

At the RLCC cabinet

- 5 Turn the circuit breaker OFF for the unit in which you must replace the power converter. Use the table below to determine which FSP circuit breaker serves the unit.

Circuit breaker	Unit FED	Locations
CB2	LCA 0	slot 01
CB7	LCA 1	slot 01

- 6 To replace the NT6X53 card, use the common replacing a card procedure in this document. When you have replaced the card, return to this point.

- 7 Power-up the LCM unit as follows:

- a Make sure that you insert the power converter (NT6X53). A major audible alarm can sound. This alarm silences when you restore power to the converter.
- b Set the circuit breaker to the ON position. The converter fail LED and frame fail lamp on the FSP are extinguished.

Determine the correct FSP switch for the shelf in which you replace the power converter, from the diagram below. The switch numbers correspond to the shelf position.

Circuit breaker	Unit FED	Locations
CB2	LCA 0	slot 01
CB7	LCA 1	slot 01

- c Turn the circuit breaker on for the unit with the new power converter.
 - i The converter fail LED extinguishes.
 - ii The frame fail lamp on the FSP extinguishes.
- 8 If another maintenance procedure directs you to this procedure, return to the procedure that directs you here. Continue as directed. If another maintenance procedure does not direct you to this procedure, proceed to step 9.

At the MAP display

- 9 To query the out-of-service (OOS) LCM unit for valid loadfiles, type
>QUERYPM OOS
 and press the Enter key.

Example of a MAP response

NT6X53 in an RLCM-EDC (continued)

```

PM Type: LCM  Int. No.: 9  Status index: 7  Node_No: 40
LCM REM1 02 0  Memory Size - Unit 0: 4M , Unit 1: 4M
ESA equipped: No, Intraswitching is Off
Loadname: LCMINV - REDC07AA
Unit0 Loads: Act- REDC07AB Stby- REDC07AA
Unit1 Loads: Act- REDC07AB  *FLT* Stby- REDC07AA  *FLT*
REX is ON; INCOMPLETE on SAT. 1995/10/28 at 01:35:19
Node Status: {OK, FALSE}
Unit 0 Status: {OK, FALSE}
Unit 1 Status: {MAN_BUSY, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqpEC
REM1 01 K03 RLCM 02 04 LCM 02 0 6X04AA
Services : NEUTRAL

```

	If loadfile names	Do
	are valid	step 10
	are invalid or corrupted	step 11
10	To return the LCM unit to service, type >RTS UNIT lcm_unit and press the Enter key. <i>where</i> lcm_unit is the LCM (0 or 1) busied in step 4	
	If RTS	Do
	passes	step 13
	fails	step 11
11	To load the LCM unit, type >LOADPM UNIT unit_no CC and press the Enter key. <i>where</i> unit_no is the LCM unit (0 or 1) you must load	
	If load	Do
	passes	step 12
	fails	step 15

NT6X53
in an RLCM-EDC (end)

- 12** To return the LCM unit to service and switch load to the standby bank, type
>RTS UNIT lcm_unit SWLD
and press the Enter key.

where

lcm_unit
is the LCM (0 or 1) busied in step 4

If RTS	Do
passes	step 13
fails	step 15

- 13** Send defective cards for repair according to local procedure.
- 14** Record the items that follow in office records:
- date that card replacement occurred
 - serial number of the card
 - indications that prompt replacement of the card
- Proceed to step 16.
- 15** For additional help, contact the next level of maintenance.
- 16** The procedure is complete.

NT6X53 in an RSC LCM

Application

Use this procedure to replace the following card in an in RSC LCM.

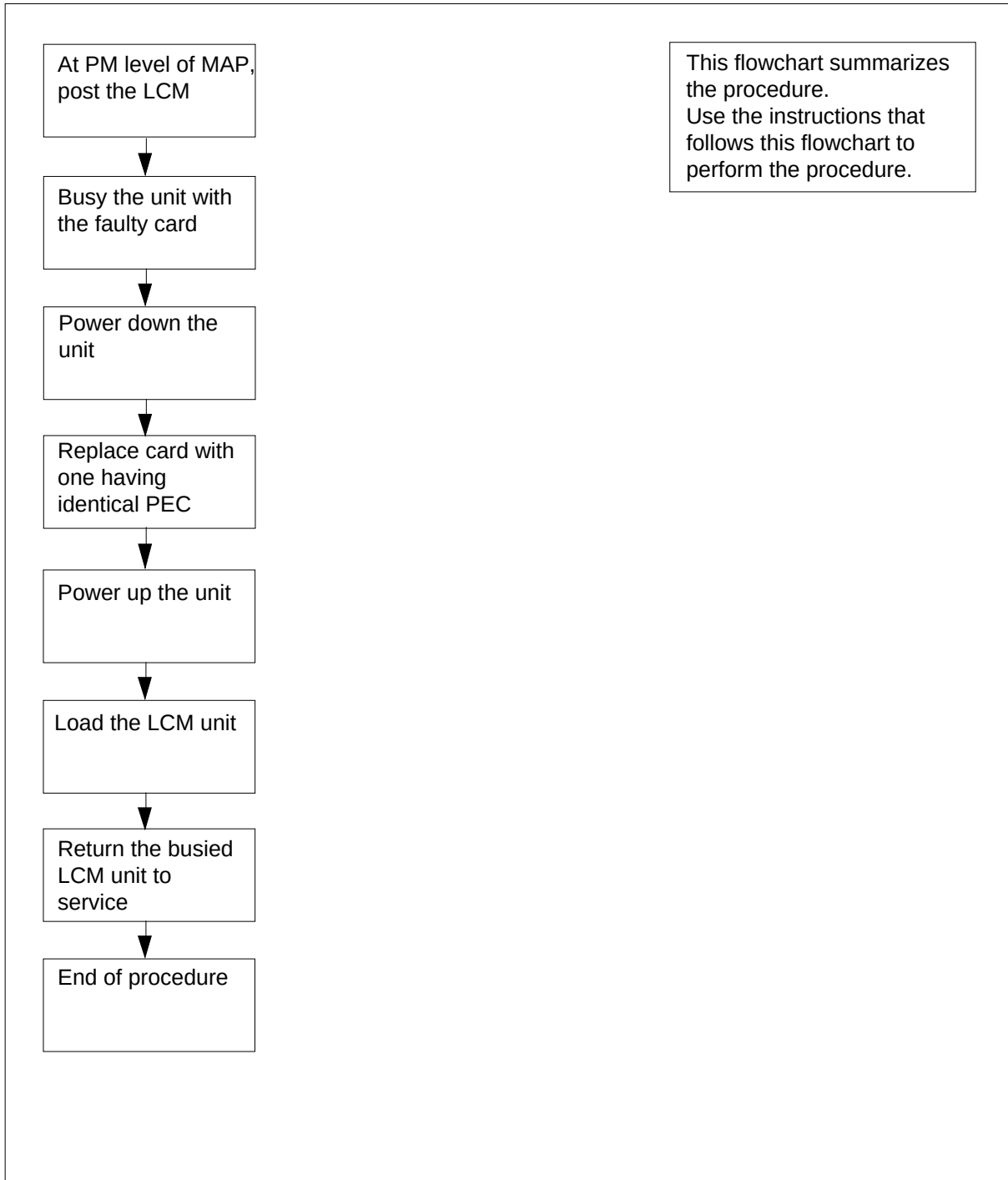
PEC	Suffixes	Name
NT6X53	AA, BA, CA	Power converter card (5V/15V)

Common procedures

None

Action

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

NT6X53
in an RSC LCM (continued)**Summary of card replacement procedure for NT6X53 card in RSC LCM**

NT6X53 in an RSC LCM (continued)

Replacing an NT6X53 in an RSC LCM

At your Current Location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2 Obtain a replacement card. Ensure the replacement card has the same product equipment code (PEC) including suffix, as the card that is to be removed.

At the MAP display

- 3 Access the PM level of the MAP display and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the RSC site

frame

is the frame number of the LCE frame (0 to 511)

lcm

is the number of the LCM (0 or 1)

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	0	1	0	0	0	130		
2 Post_	LCM	0	1	0	0	0	0		
3									
4 SwRg		LCM	Rem1	00	0	ISTb	Links_00S:	CSide	0 PSide 0
5 TrnsL		Unit-0:	InSv	Mtce	TakeOver	/RG:	0		
6 Tst		Unit-1:	SysB	Mtce	/RG:	0			
7 Bsy					11 11 11 11 11	RG:Pref:0	InSv		
8 RTS		Drwr:	01 23 45 67 89	01 23 45 67 89	Stby:1	InSv			
9 OffL		...	...	...	...				
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X53 in an RSC LCM (continued)

- 4 Busy the LCM unit containing the faulty card by typing

>BSY UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the LCM unit (0 or 1) to be busied

Example of a MAP display:

```

CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.        .        .        .        1LCM      .        .        .        .        .

LCM
0 Quit      PM      0        1        0        0        0        0        130
2 Post_     LCM      0        1        0        0        0        0
3
4 SwRg      LCM      Rem1  00 0 ISTb  Links_00S: CSide 0 PSide 0
5 TrnsL     Unit-0: InSv Mtce TakeOver /RG: 0
6 Tst       Unit-1: ManB Mtce          /RG: 0
7 Bsy
8 RTS       Drwr: 01 23 45 67 89 01 23 45 67 89 Stby:1 InSv
9 OffL      . . . . .
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18

```

At the LCE frame

- 5 Turn the circuit breaker OFF for the unit where the power converter is being replaced. Use the table below to determine which FSP circuit breaker serves the unit.

Circuit breaker	Unit FED	Locations
CB1	LCA 0 LCM 0	Shelf 04 slot 01
CB2	LCA 1 LCM 0	Shelf 21 slot 01
CB3	LCA 0 LCM 1	Shelf 38 slot 01
CB4	LCA 1 LCM 1	Shelf 55 slot 01

NT6X53 in an RSC LCM (continued)

6 Replace the NT6X53 card as shown in the following figures.

7



DANGER

Card damage—transport

Take these precautions to protect the circuit cards from electrical and mechanical damage during transportation:

When handling a circuit card not in an 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.



DANGER

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 LCM. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

Take these precautions when removing or inserting a card:

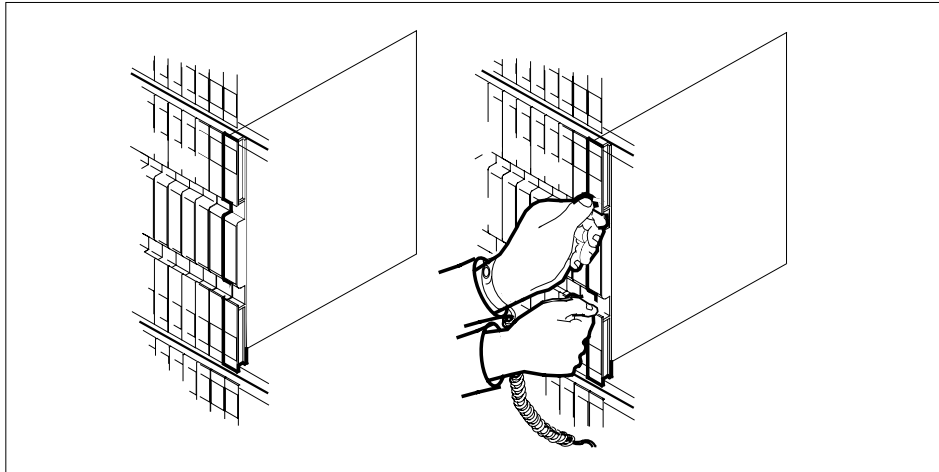
1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

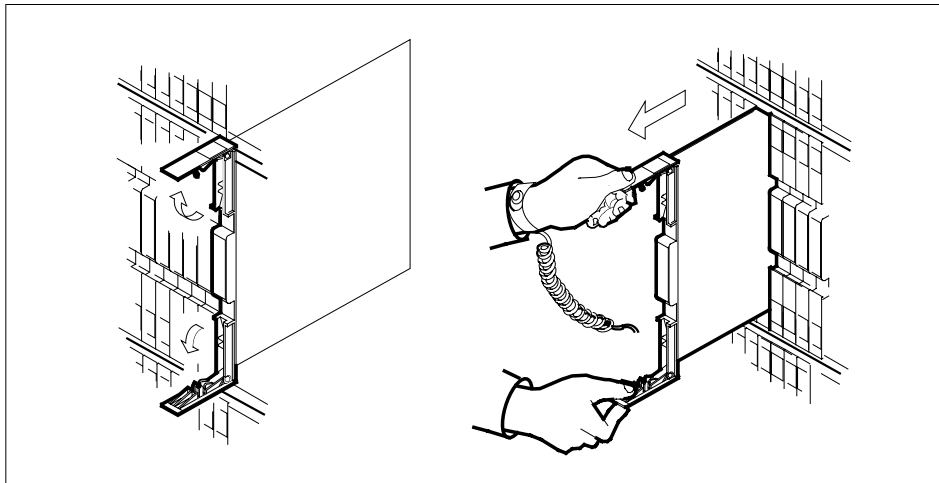
8 Remove the NT6X53 card as shown in the following figures.

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

NT6X53
in an RSC LCM (continued)

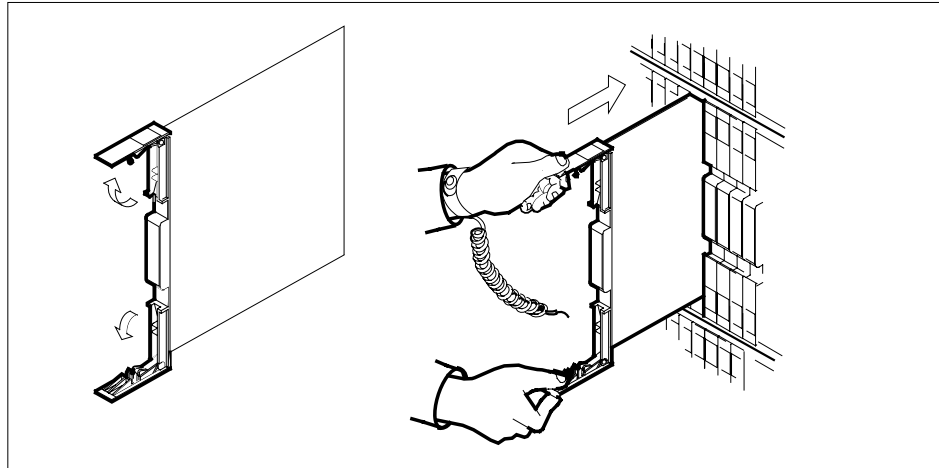


- b** Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

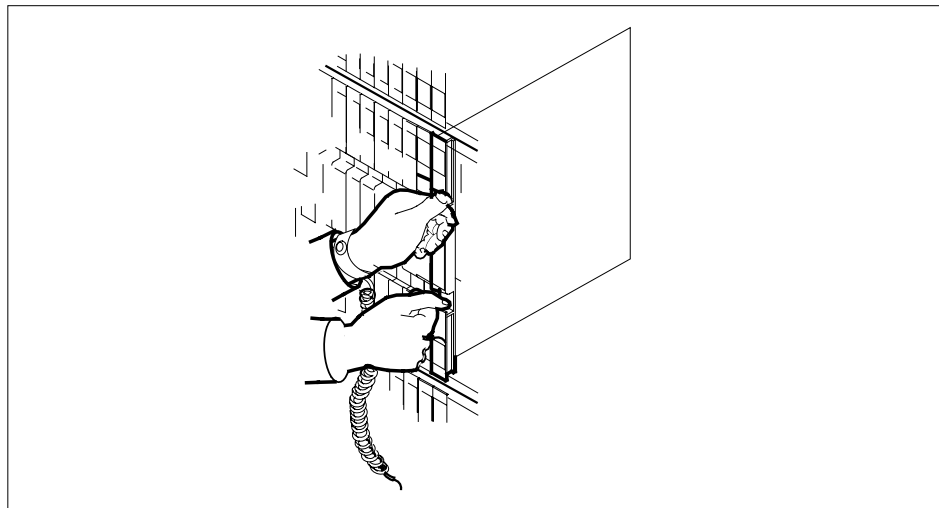


- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 9** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf and gently slide the card into the shelf.

NT6X53 in an RSC LCM (continued)



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



- 11** Power up the LCM unit as follows:
- a** Ensure the power converter (NT6X53) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.
 - b** Set the circuit breaker to the ON position. The converter fail LED and frame fail lamp on the FSP will be extinguished.

NT6X53 in an RSC LCM (continued)

Determine the correct FSP switch for the shelf where the power converter was replaced from the diagram below. The switches are numbered corresponding to the shelf position.

Circuit breaker	Unit FED	Locations
CB1	LCA 0 LCM 0	Shelf 04 slot 01
CB2	LCA 1 LCM 0	Shelf 21 slot 01
CB3	LCA 0 LCM 1	Shelf 38 slot 01
CB4	LCA 1 LCM 1	Shelf 55 slot 01

At the MAP display

- 12** Load the LCM unit by typing
>LOADPM UNIT lcm_unit CC
 and pressing the Enter key.

where

lcm_unit
 is the LCM unit (0 or 1) busied in step 4.

If	Do
load passes	step 13
load fails	step 18

- 13** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 17
other	step 14

- 14** Return the LCM unit to service by typing
>RTS UNIT lcm_unit
 and pressing the Enter key.
 where

NT6X53
in an RSC LCM (end)

lcm_unit
is the LCM (0 or 1) busied in step 4

If RTS

Do

passed

step 15

failed

step 18

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

16 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 19.

17 Return to the *Alarm Clearing Procedure* that directed you to this procedure. If necessary, go to the point where the 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.

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

19 You have successfully completed this procedure.

NT6X53 in an RSC-S (DS-1) Model A LCM(E)

Application

Use this procedure to replace an NT6X53 card in an RSC-S LCM(E).

PEC	Suffixes	Name
NT6X53	CA	Power Converter

Common procedures

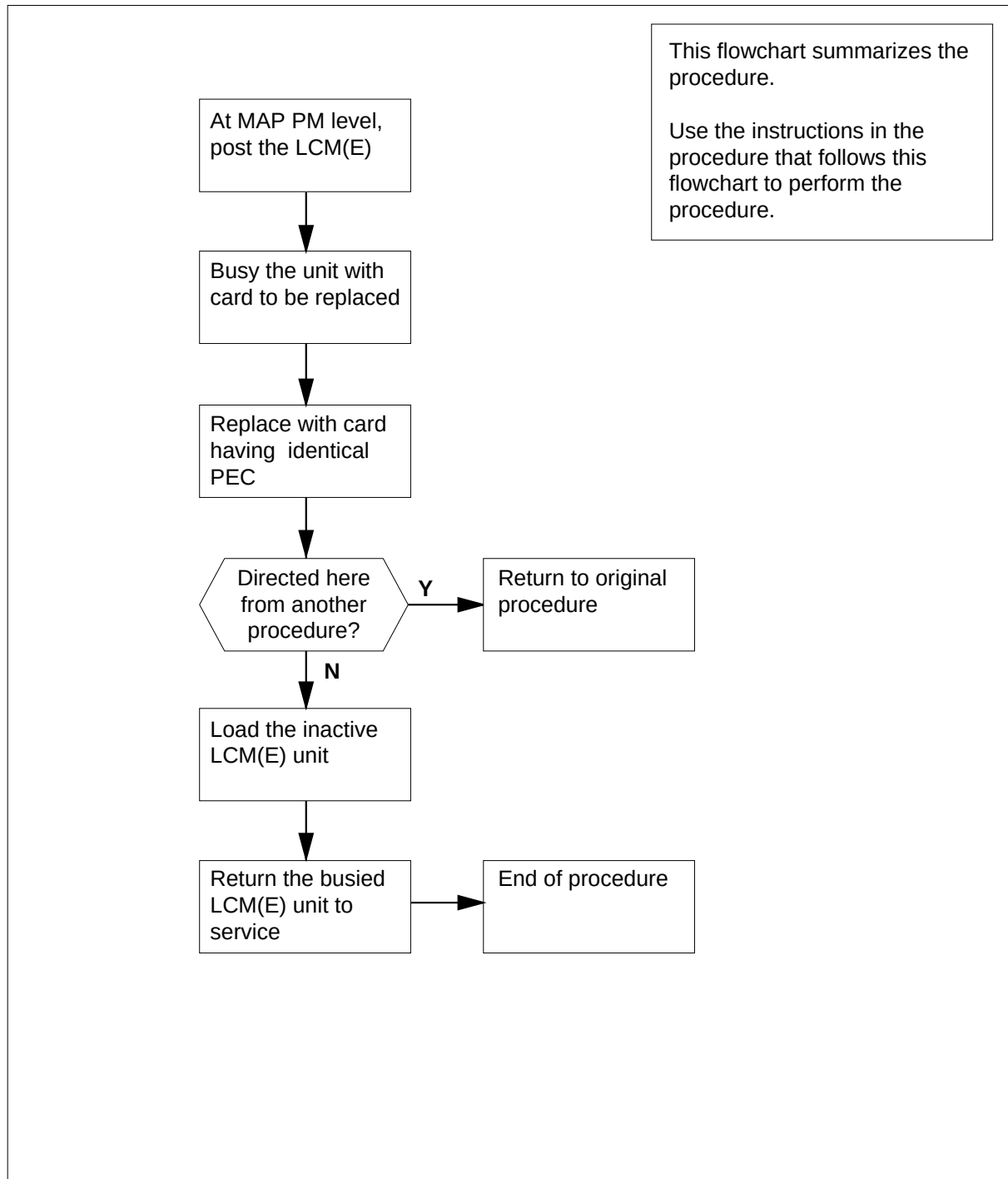
None

Action

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

NT6X53 in an RSC-S (DS-1) Model A LCM(E) (continued)

Summary of card replacement procedure for an NT6X53 card in RSC-S LCM(E)



NT6X53

in an RSC-S (DS-1) Model A LCM(E) (continued)

Replacing an NT6X53 card in RSC-S LCM(E)

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 an NT6X53 replacement card. Ensure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Set the MAP display to the PM level and post the LCM(E) unit by typing

```
>MAPCI;MTC;PM;POST LCM(E) lcm(e)_site_name
lcm(e)_frame_no lcm(e)_no
```

and pressing the Enter key.

where

lcm(e)_site_name

is the name of the site at which the LCM(E) is located

lcm(e)_frame_no

is the number of the frame in which the LCM(E) is located

lcm(e)_no

is the number of the LCM(E) with the faulty card

Example of a MAP response:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
LCME		SysB	ManB		OffL	CBsy	ISTb		InSv
0 Quit	PM	4	0		10	3	3		130
2 Post_	LCME	1	0		5	0	1		9
3									
4 Swrg_	LCME	RemL	00 0	ISTb	Links_00S:	CSide	1		
5 TrnsL_		Unit-0:	InSv			/RG:	0		
6 Tst_		Unit-1:	InSv			/RG:	0		
7 Bsy_					11 11 11			RG:Pref:0	InSv
8 RTS_		Drwr:	01 23 45 67 89	01 23 45				Stby:1	InSv
9 OffL_									
10 LoadPM_									
11 Disp_									
12 Next_									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X53
in an RSC-S (DS-1) Model A LCM(E) (continued)

- 4 Busy the LCM(E) by typing
 >BSY UNIT lcm(e)_unit_no
and pressing the Enter key.
 where
 lcm(e)_unit_no
 is the number of the LCM(E) unit
 Example of a MAP response:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCME	.	.	.	.	.
LCME		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	4	1	10	3	3	130		
2 Post_	LCME	1	1	5	0	1	9		
3									
4 SwRg	LCME	RemL	00 0	ISTb	Links_00S:	CSide	1		
5 Trnsl	Unit-0:	InSv	Mtce	TakeOver	/RG:	0			
6 Tst	Unit-1:	ManB	Mtce		/RG:	0			
7 Bsy				11 11 11	RG:Pref:0	InSv			
8 RTS	Drwr:	01 23 45 67 89	01 23 45		Stby:1	InSv			
9 OffL									
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X53

in an RSC-S (DS-1) Model A LCM(E) (continued)

At the LCE frame

5



DANGER

Card damage—transport

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom [Nortel] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.



DANGER

Static electricity damage

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the frame supervisory panel (FSP) of the LCME. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wriststrap.

- 6 Power down the shelf by setting the ON/OFF switch on the circuit breaker shelf to the OFF position. Both the converter FAIL LED and FRAME FAIL lamp on the FSP will be ON. An audible alarm may sound. If an alarm does sound, silence it by typing

>sil

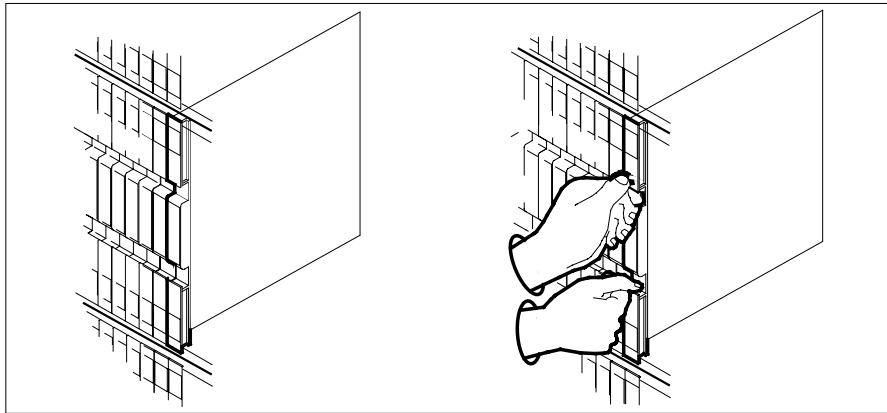
and pressing the Enter key.

- 7 Remove the NT6X53 card as shown in the following figures.

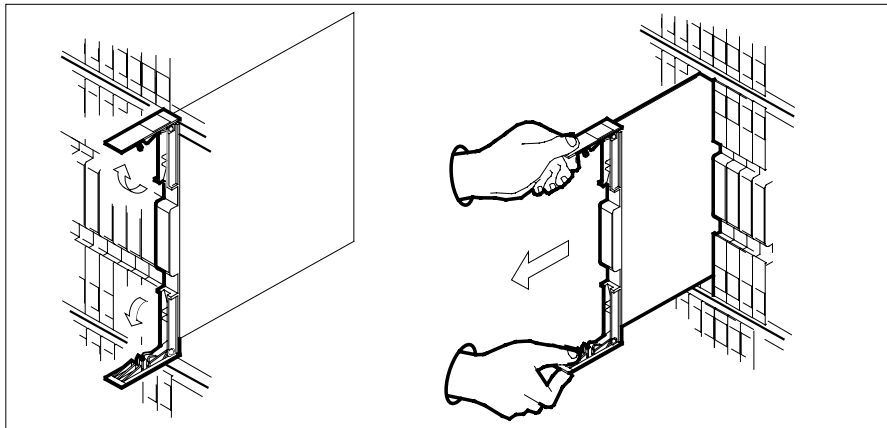
- a Locate the card to be removed on the appropriate shelf.

NT6X53

in an RSC-S (DS-1) Model A LCM(E) (continued)



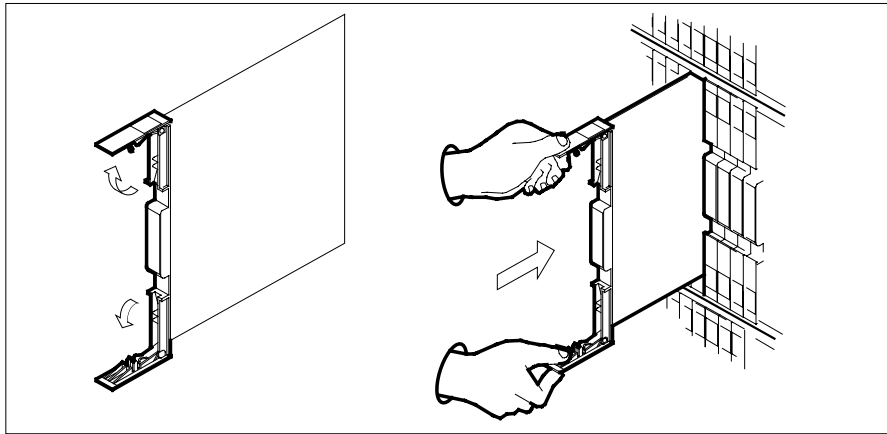
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.
- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.



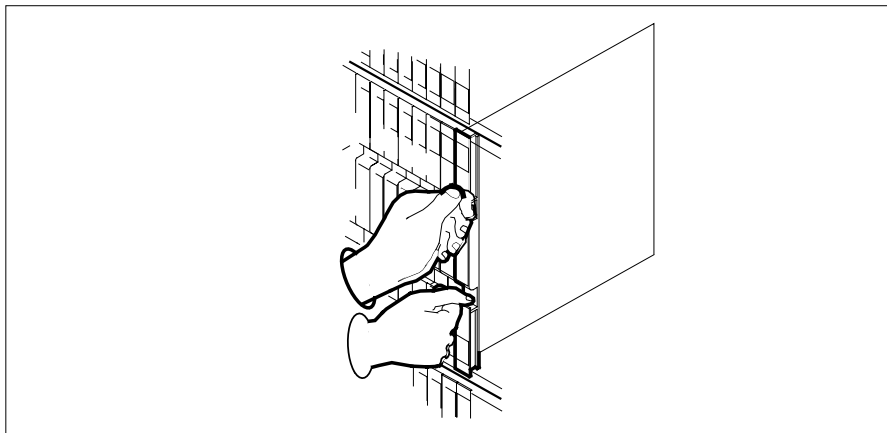
- 8** Open the locking levers on the replacement card.
 - a** Align the card with the slots in the shelf.
 - b** Gently slide the card into the shelf.

NT6X53

in an RSC-S (DS-1) Model A LCM(E) (continued)



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



- 10** Power up the LCM(E) unit as follows:
- a** Ensure the power converter (NT6X53) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.
 - b** Set the POWER switch on the circuit breaker to the ON position.

NT6X53

in an RSC-S (DS-1) Model A LCM(E) (continued)

At the MAP terminal

- 11** Load the LCM(E) unit by typing
>loadpm unit lcm(e)_unit_no CC
and pressing the Enter key.
where
lcm(e)_unit_no
is the number of the LCM(E) unit busied in step 4

If load	Do
passed	step 12
failed	step 18

- 12** Test the LCM(E) unit by typing
>TST UNIT lcm(e)_no
and pressing the Enter key.
where
lcm(e)_unit_no
is the number of the LCM(E) unit loaded in step 11

If TST	Do
passed	step 13
failed	step 17

- 13** Use the following information to determine what step to go to next in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 17
other	step 14

- 14** Return the LCM(E) unit to service by typing
>RTS UNIT lcm(e)_unit_no
and pressing the Enter key.
where

NT6X53
in an RSC-S (DS-1) Model A LCM(E) (end)

lcm(e)_unit_no

is the number of the LCM(E) unit tested in step 12

If RTS	Do
passed	step 15
failed	step 18

- 15** Send any faulty cards for repair according to local procedure.
- 16** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 19.
- 17** Return to *Alarm Clearing Procedures* or the other procedure that directed you to this procedure. At 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.
- 18** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.
- 19** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X53 in an RSC-S (DS-1) Model B LCM(E)

Application

Use this procedure to replace an NT6X53 card in an RSC-S LCM(E).

PEC	Suffixes	Name
NT6X53	CA	Power Converter

Common procedures

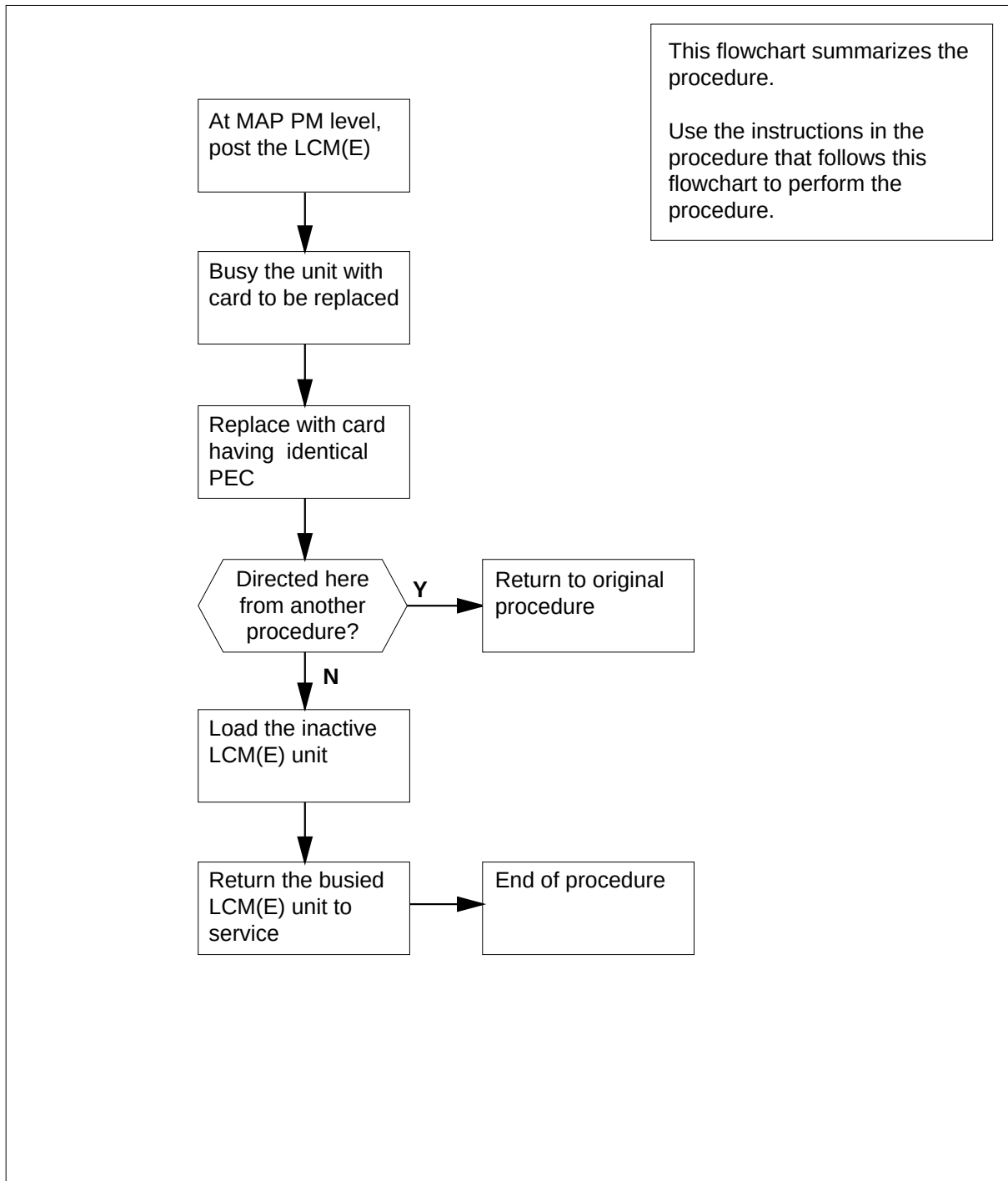
None

Action

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

NT6X53 in an RSC-S (DS-1) Model B LCM(E) (continued)

Summary of card replacement procedure for an NT6X53 card in RSC-S LCM(E)



NT6X53
in an RSC-S (DS-1) Model B LCM(E) (continued)

- 4 Busy the LCM(E) by typing
 >BSY UNIT lcm(e)_unit_no
and pressing the Enter key.
where
 lcm(e)_unit_no
 is the number of the LCM(E) unit
Example of a MAP response:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCME	.	.	.	.	.
LCME		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	4	1	10	3	3	130		
2 Post_	LCME	1	1	5	0	1	9		
3									
4 SwRg	LCME	RemL	00 0	ISTb	Links_00S:	CSide	1		
5 Trnsl	Unit-0:	InSv	Mtce	TakeOver	/RG:	0			
6 Tst	Unit-1:	ManB	Mtce		/RG:	0			
7 Bsy				11 11 11	RG:Pref:	0	InSv		
8 RTS	Drwr:	01 23 45 67 89	01 23 45		Stby:	1	InSv		
9 OffL									
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X53

in an RSC-S (DS-1) Model B LCM(E) (continued)

At the LCE frame

5



DANGER

Card damage—transport

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom [Nortel] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.



DANGER

Static electricity damage

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the modular supervisory panel (MSP) of the LCME. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

- 6 Power down the shelf by setting the ON/OFF switch on the circuit breaker shelf to the OFF position. Both the converter FAIL LED and FRAME FAIL lamp on the MSP will be ON. An audible alarm may sound. If an alarm does sound, silence it by typing

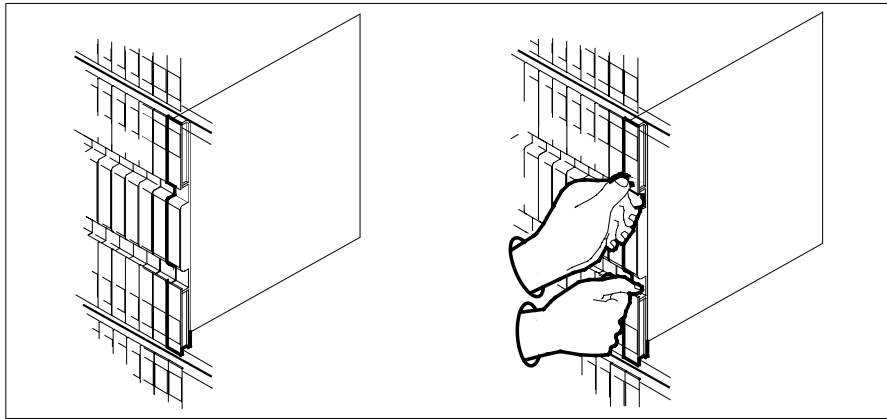
>sil

and pressing the Enter key.

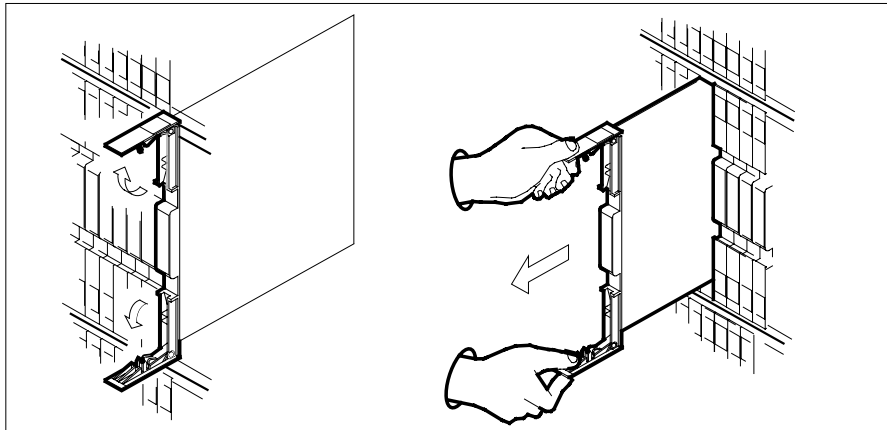
- 7 Remove the NT6X53 card as shown in the following figures.

- a Locate the card to be removed on the appropriate shelf.

NT6X53
in an RSC-S (DS-1) Model B LCM(E) (continued)

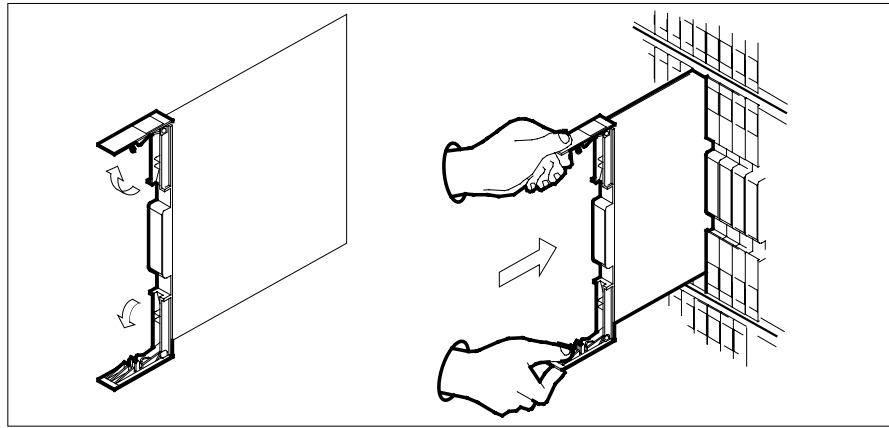


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.
- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

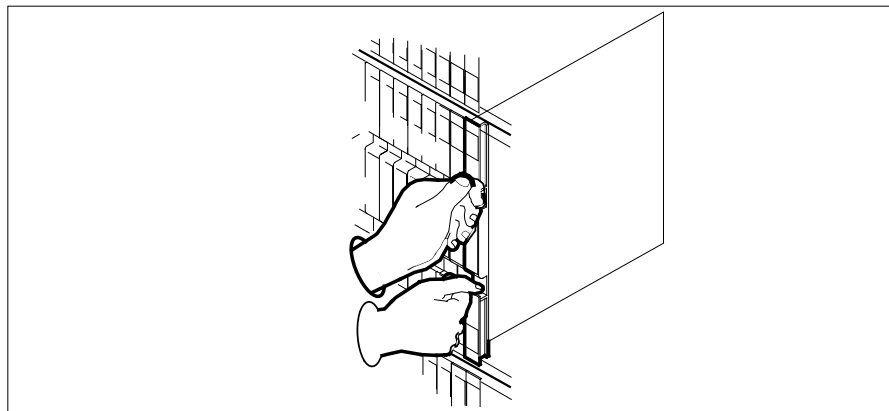


- 8** Open the locking levers on the replacement card.
 - a** Align the card with the slots in the shelf.
 - b** Gently slide the card into the shelf.

NT6X53 in an RSC-S (DS-1) Model B LCM(E) (continued)



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



- 10 Power up the LCM(E) unit as follows:
- a Ensure the power converter (NT6X53) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.
 - b Set the POWER switch on the circuit breaker to the ON position.

At the MAP terminal

- 11 Load the LCM(E) unit by typing
>LOADPM UNIT lcm(e)_unit_no CC
and pressing the Enter key.
where

NT6X53

in an RSC-S (DS-1) Model B LCM(E) (continued)

lcm(e)_unit_no

is the number of the LCM(E) unit busied in step 4

If load

Do

passed

step 12

failed

step 18

12 Test the LCM(E) unit by typing

>TST UNIT lcm(e)_no

and pressing the Enter key.

where

lcm(e)_unit_no

is the number of the LCM(E) unit loaded in step 11

If TST

Do

passed

step 13

failed

step 17

13 Use the following information to determine what step to go to next in this procedure.

If you entered this procedure from

Do

alarm clearing procedures

step 17

other

step 14

14 Return the LCM(E) unit to service by typing

>RTS UNIT lcm(e)_unit_no

and pressing the Enter key.

where

lcm(e)_unit_no

is the number of the LCM(E) unit tested in step 12

If RTS

Do

passed

step 15

failed

step 18

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

16 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 19.

NT6X53
in an RSC-S (DS-1) Model B LCM(E) (end)

- 17 Return to *Alarm Clearing Procedures* or the other procedure that directed you to this procedure. At 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.
- 18 Obtain further assistance in replacing this card by contacting operating company maintenance personnel.
- 19 You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X53
in a STAR**

Application

Use this procedure to replace the following card in a STAR.

PEC	Suffixes	Name
NT6X53	AA	Power Converter Card (5V/15V)

Common procedures

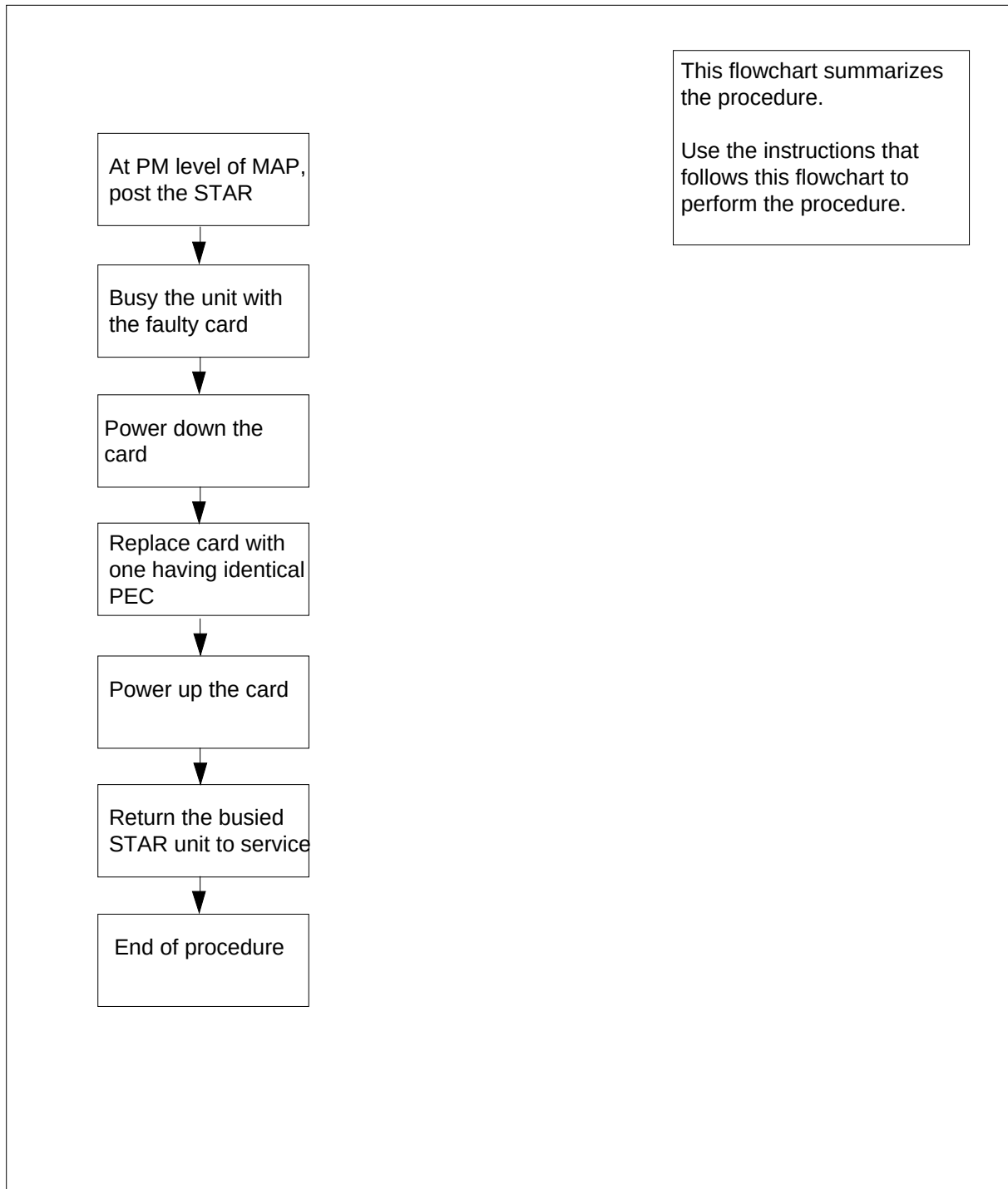
The common replacing a card procedure is referenced in this procedure.

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.

NT6X53 in a STAR (continued)

Summary of card replacement procedure for an NT6X53 card in a STAR



NT6X53 in a STAR (continued)

Replacing an NT6X53 in a STAR

At your current location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2 Get a replacement card. Make sure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP display

- 3 To access the PM level of the MAP and post the STAR, type
>MAPCI;MTC;PM;POST STAR site frame unit
and press the Enter key.

where

site

is the name of the STAR site

frame

is the frame number of the STAR (0 to 511)

unit

is 0 for the STAR

Example of a MAP display:

```

          SysB      ManB      OffL      Cbsy      ISTb      InSv
          PM        0        0        0        0        1      130
          STAR      0        0        0        0        1      10
STAR      Rem1 00 0 ISTb Links_00S: CSide 0 PSide 0
Unit 0:  InSv  Mtce TakeOver /RG: 0
Unit 1:  SysB  Mtce          /RG: 0
DRwr:          11 11 11 11 11 22 22 22 22 22 33 33 33  RG:
01 23 45 67 89 01 23 45 67 89 01 23 45 67 89 01 23 45  Pref 0 InSv
                                Stby 1 InSv
.. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. ..

```

- 4 To busy the STAR unit containing the faulty card, type
>BSY UNIT STAR_unit
and press the Enter key.

where

star_unit

is the STAR unit (0 or 1) to be busied

Example of a MAP display:

NT6X53 in a STAR (continued)

```

          SysB      ManB      OffL      Cbsy      ISTb      InSv
          PM        0        0        0        0        1        130
          STAR      0        0        0        0        1        10
STAR      Rem1     00 0 ISTb   Links_00S: CSide 0 PSide 0
Unit 0:   InSv     Mtce TakeOver /RG: 0
Unit 1:   ManB     Mtce          /RG: 0
DRwr:     11 11 11 11 11 22 22 22 22 33 33 33 RG:
01 23 45 67 89 01 23 45 67 89 01 23 45 Stby 1 InSv
.. .. .. .. .. .. .. .. .. .. .. .. .. .. .. ..

```

At the SRHE frame

- 5 Turn the circuit breaker OFF for the unit where the power converter is being replaced. Use the table below to determine which FSP circuit breaker serves the faulty power converter.

IfCircuit breaker labeled	DoNT6X53 slot number
PS00	3
PS01	5
PS10	20
PS11	18

6



DANGER

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 (FSP) of the STAR. This protects the equipment against damage caused by static electricity.

Replace the NT6X53 card using the common replacing a card procedure in this document. When the card has been replaced, return to this point.

- 7 Power up the STAR unit as follows:
- Make sure the power converter (NT6X53) is inserted. A major audible alarm may sound. This alarm is silenced when power is restored to the converter.
 - Set the circuit breaker to the ON position. The Converter Fail LED on the power converter and the MAJ LED on the FSP will be extinguished.

NT6X53 in a STAR (continued)

Determine the correct FSP circuit breaker for the power converter that was replaced from the following table.

If Circuit breaker	Do NT6X53 slot number
PS00	3
PS01	5
PS10	20
PS11	18

- c** Set the circuit breaker to the ON position for the new power converter.
- i** The Converter Fail LED on the power converter will be extinguished.
 - ii** The MAJ LED on the FSP will be extinguished.

- 8** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 12
other	step 9

- 9** To return the STAR unit to service, type

>RTS UNIT star_unit

and press the Enter key.

where

star_unit
is the STAR (0 or 1) busied in step 4

If RTS	Do
passes	step 10
fails	step 13

- 10** Send any faulty cards for repair according to local procedure.

- 11** Record the following items in office records:

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

Go to step 14.

- 12** Return to the alarm clearing procedure that directed you to this procedure. If necessary, go to the point where the faulty card list was produced, identify the

NT6X53
in a STAR (end)

next faulty card on the list, and go to the appropriate card replacement procedure for that card in this manual.

- 13** Get additional help replacing this card by contacting the personnel responsible for a higher level of support.
- 14** You have correctly completed this procedure.

**NT6X54
in an IOPAC ILCM**

Application

Use this procedure to replace the following card in an International line concentrating module (ILCM).

PEC	Suffixes	Name
NT6X54	BA	Bus interface card

Common procedures

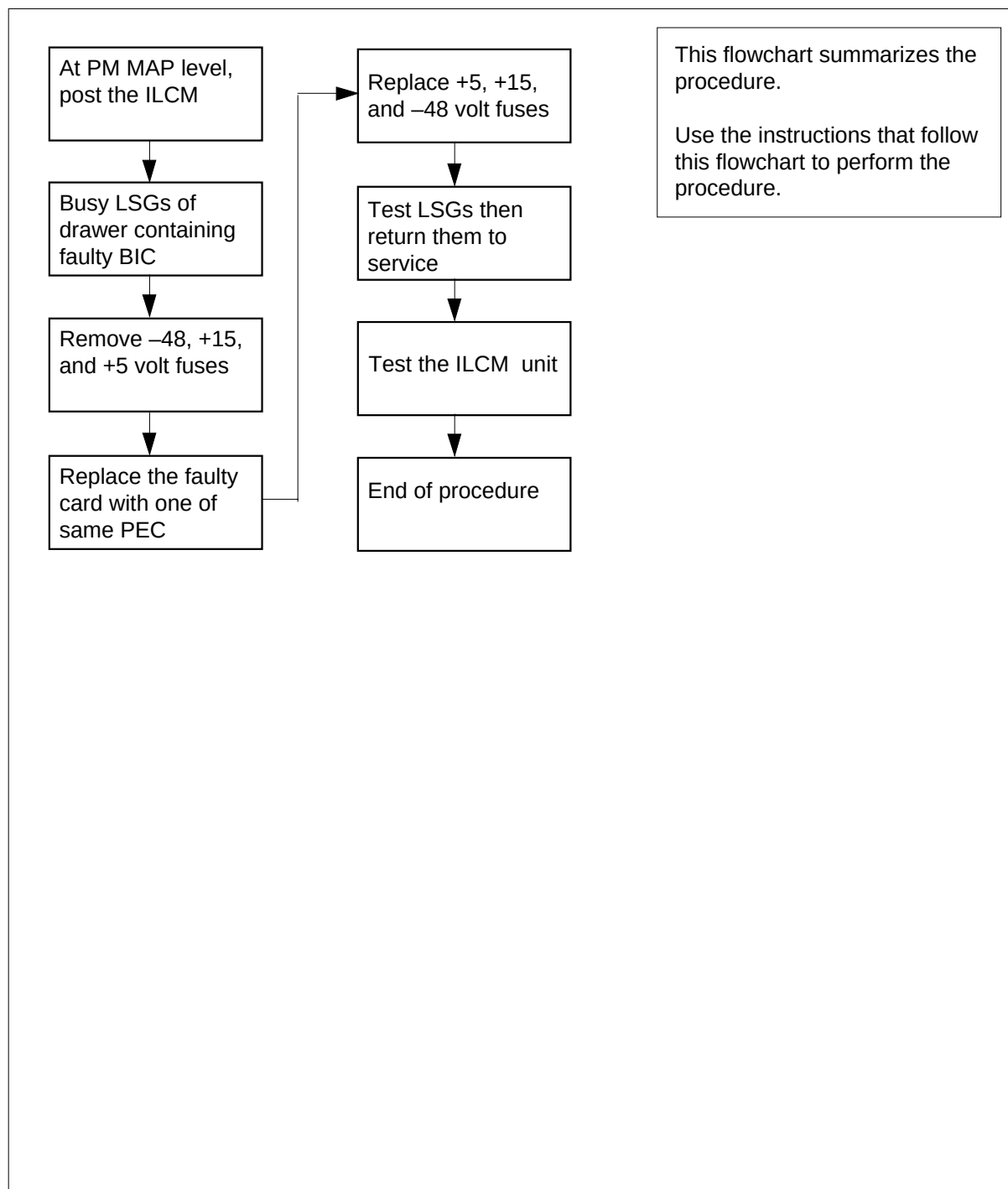
None

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.

NT6X54 in an IOPAC ILCM (continued)

Summary of card replacement procedure for NT6X54 card in an ILCM



NT6X54 in an IOPAC ILCM (continued)

Replacing an NT6X54 in an ILCM

At your Current Locatin

1

ATTENTION

If you are entering this procedure due to a loss of power in the LCM's controller (PLGC/RCO2). Check logutil for PM181 log with reason text of: DCC BIC Looparound and go to step 7.

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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 3** If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 7. Otherwise, continue with step 4.

At the MAP terminal

- 4** Access the peripheral module (PM) level of the MAP display and post the ILCM by typing

>MAP;MTC;PM;POST ILCM site frame lcm

and pressing the Enter key.

where

site

is the site name of the IOPAC

frame

is the frame number of the IOPAC cabinet

lcm

is the number of the ILCM

Example of a MAP response:

```
ILCM REM1 00 0 ISTb Links OOS: Cside 0 Pside 0
Unit 0: InSv Mtce /RG:0
Unit 1: InSv Mtce /RG:1
          11 11 11 11 11
Drwr: 01 23 45 67 89 01 23 45 67 89 RG:Pref 0 InSv
      .. .. SS .. .. .. .. .. RG:Stby 1 InSv
```

NT6X54

in an IOPAC ILCM (continued)

- 5 Check the status of the affected drawer.

If the drawer status is	Do
S, O, C, I	step 6
M	step 7

- 6 Busy both line subgroups associated with the ILCM drawer in which the card is being replaced by typing

>BSY DRWR lsg

and pressing the Enter key.

where

lsg

is one of two line subgroups associated with the drawer

Example of a MAP response;

ILCM REM1 00 0 Drwr 4 will be taken out of service
Please confirm ("YES", "Y", "NO", or "N"):

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Note: Repeat this step for the other line subgroup associated with the line drawer.

At the IOPAC cabinet

- 7 Remove the -48V fuse for the line drawer containing the faulty bus interface card.
- 8 Remove the +15V fuse for the line drawer containing the faulty bus interface card.
- 9 Remove the +5V fuse for the line drawer containing the faulty bus interface card.

If entry into this procedure is due to	Do
Loss of power in ILCM's controller	step 14
Replacement of BIC	step 12

NT6X54
in an IOPAC ILCM (continued)

10

**DANGER****Static electricity damage**

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the frame supervisory panel (FSP) of the RLCM. This protects the equipment against damage caused by static electricity.

**DANGER****Card damage—transport**

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch cabinet (Nortel [Northern Telecom] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**DANGER****Hot materials**

Exercise care when handling the line card. The line feed resistor may be very hot.

Put on a wriststrap.

11

Open the line drawer by following these substeps:

- a Face the drawer shelf and grasp the lip at the bottom of the drawer.

NT6X54 in an IOPAC ILCM (continued)

- b Push up on the drawer latch with your thumb and pull the drawer out approximately 15.0 cm (about 6.0 in).
- 12 Remove the BIC to be replaced by following these substeps:
 - a Open the locking levers on the BIC.
 - b Grasping the open locking levers, remove the card from the line drawer in one steady motion. The card will unplug from its socket.

Note: Do not use a rocking motion to remove the card.
- 13 Replace the faulty card by following these substeps:
 - a Remove the replacement card from the ESD container.
 - b Open the locking levers on the card.
 - c Position the card in its backplane socket. In one steady motion, push against the top and bottom of the card with your thumbs until the card plugs fully into the backplane socket, close and lock the locking levers.

Note: Do not use a rocking motion to insert the card.

 - d Close the line drawer.
- 14 Replace the +5V fuse for the line drawer containing the faulty bus interface card.
- 15 Replace the +15V fuse for the line drawer containing the faulty bus interface card.
- 16 Replace the -48V fuse for the line drawer containing the faulty bus interface card.
- 17 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 18.

At the MAP terminal

- 18 Test the line subgroups associated with the drawer by typing
>TST DRWR lsg
 and pressing the Enter key.
 where
 lsg
 is one of two line subgroups associated with the drawer

Note: Repeat this step for the other line subgroup associated with the line drawer.

If TST	Do
passed	step 19
failed	step 23

- 19 Return the line subgroups to service by typing
>RTS DRWR lsg

NT6X54 in an IOPAC ILCM (end)

and pressing the Enter key.

where

lsg

is one of two line subgroups associated with the drawer

Note: Repeat this step for the other line subgroup associated with the line drawer.

	If RTS	Do
	passed	step 20
	failed	step 23
20	Test the ILCM by typing >TST PM and pressing the Enter key.	
	If the TST	Do
	passed	step 21
	failed	step 23
21	Send any faulty cards for repair according to local procedure.	
22	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 24.	
23	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
24	You have successfully completed this procedure.	

NT6X54 in an OPAC LCM

Application

Use this procedure to replace the following card in a line concentrating module (LCM).

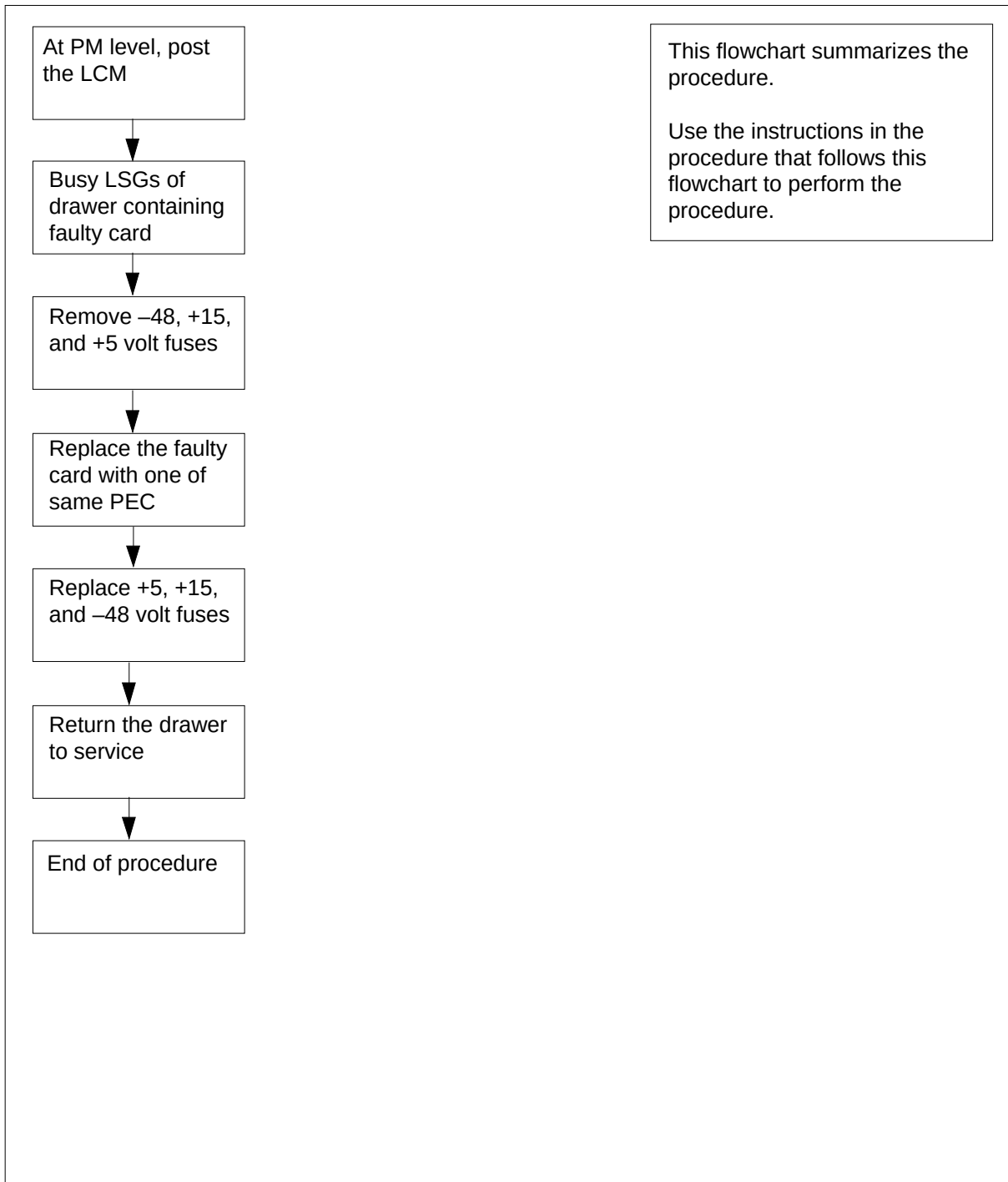
PEC	Suffixes	Name
NT6X54	AA	Bus interface card (BIC)
NT6X54	DA	ISDN drawer controller (IDC) card (BIC)
Note: Peripherals with ISDN line drawer for remotes (ILDR) must use the NT6X54DA card. ILDR is first available for remote switching center-SONET (RSC-S) and remote switching center (RSC) configurations in the NA007/XPM08 timeframe. ILDR is first available for remote line concentrating module (RLCM), outside plant module (OPM), and outside plant access cabinet (OPAC) configurations in the NA008/XPM81 timeframe.		

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.

NT6X54
in an OPAC LCM (continued)**Summary of card replacement procedure for NT6X54 card in an LCM**

NT6X54 in an OPAC LCM (continued)

Replacing an NT6X54 in an LCM

At your Current Location

1

ATTENTION

If you are entering this procedure due to a loss of power in the LCM's controller (LGC/LTC/RCC), check logutil for PM181 log with reason text of: DCC BIC Looparound and go to step 10.

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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 3** If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 10. Otherwise, continue with step 4.

At the MAP terminal

- 4** Access the peripheral module (PM) level of the MAP (maintenance and administration position) display and post the LCM by typing

>MAPCI;MTC;PM;POST LCM site frame lcm

and pressing the Enter key.

where

site

is the site name (alphanumeric) of the OPAC

frame

is the frame number (0 through 511) of the OPAC

lcm

is the number (0 through 511) of the LCM

Example of a MAP display:

NT6X54
in an OPAC LCM (continued)

```
CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.       .       .       .       1LCM      .       .       .       .       .

LCM
0 Quit      PM      0       1       0       0       0       0       130
2 Post_     LCM      0       1       0       0       0       0       0
3
4 SwRg      LCM      Rem1  00 0 ISTb  Links_00S: CSide 0 PSide 0
5 Trnsl      Unit-0:  InSv  Mtce      /RG:  0
6 Tst       Unit-1:  InSv  Mtce      /RG:  0
7 Bsy
8 RTS      Drwr: 01 23 45 67 89 01 23 45 67 89  RG:Pref:0 InSv
9 Offl      .. .. SS .. .. .. .. ..
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

Note: ILDR drawers are identified in reverse video on the MAP display.

- 5

Determine whether or not you need to access the ILD level on the MAP terminal.
If the card you are replacing is	Do
NT6X54DA	step 6
NT6X54AA	step 9
- 6

Access the ILD level on the MAP terminal by typing
>ILD
and pressing the Enter key.
- 7

Post the ILDR drawer in which the card is being replaced by typing
>POST drawer_no
and pressing the Enter key.
where
drawer_no
is the ILD drawer number (0 through 19) in the LCM
- 8

Busy both line subgroups associated with the LCM drawer in which the card is being replaced by typing
>BSY DRWR

NT6X54 in an OPAC LCM (continued)

and pressing the Enter key.

Example of a MAP response;

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

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Go to step 10.

- 9** Busy both line subgroups associated with the LCM drawer in which the card is being replaced by typing

>BSY DRWR lsg

and pressing the Enter key.

where

lsg

is one of two line subgroups (0 through 19) associated with the drawer

Example of a MAP response;

LCM REM1 00 0 Drwr 4 will be taken out of service

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

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Note: Repeat this step for the other line subgroup associated with the line drawer.

Example of a MAP display:

NT6X54
in an OPAC LCM (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	0	1	0	0	0	130		
2 Post_	LCM	0	1	0	0	0	0		
3									
4 SwRg		LCM	Rem1	00	0	ISTb	Links_00S:	CSide	0 PSide
5 TrnsL		Unit-0:	InSv	Mtce		/RG:	0		
6 Tst		Unit-1:	InSv	Mtce		/RG:	0		
7 Bsy						11 11 11 11 11	RG:Pref:0	InSv	
8 RTS		Drwr:	01 23 45 67 89	01 23 45 67 89			Stby:1	InSv	
9 OffL			 MM						
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

At the OPAC

- 10 Remove the -48V fuse for the line drawer containing the faulty bus interface card.
- 11 Remove the +15V fuse for the line drawer containing the faulty bus interface card.
- 12 Remove the +5V fuse for the line drawer containing the faulty bus interface card.

If entry into this procedure is due to	Do
replacement of BIC	step 13
loss of power in LCM's controller	step 17

13



DANGER
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 (FSP) of the RLCM. This protects the equipment against damage caused by static electricity.

NT6X54 in an OPAC LCM (continued)



DANGER

Card damage—transport

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat. Wear a wrist strap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch cabinet (Nortel [Northern Telecom] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.



DANGER

Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.



DANGER

Hot materials

Exercise care when handling the line card. The line feed resistor may be very hot.

Put on a wrist strap.

- 14 Open the line drawer by following these substeps:
 - a Face the drawer shelf and grasp the lip at the bottom of the drawer.
 - b Push up on the drawer latch with your thumb and pull the drawer out approximately 15.0 cm (about 6.0 in).
- 15 Remove the BIC to be replaced by following these substeps:
 - a Open the locking levers on the BIC.
 - b Grasping the open locking levers, remove the card from the line drawer in one steady motion. The card will unplug from its socket.

Note: Do not use a rocking motion to remove the card.
- 16 Replace the faulty card by following these substeps:
 - a Remove the replacement card from the ESD container.

NT6X54 in an OPAC LCM (continued)

- b Open the locking levers on the card.
- c Position the card in its backplane socket. In one steady motion, push against the top and bottom of the card with your thumbs until the card plugs fully into the backplane socket, close and lock the locking levers.

Note: Do not use a rocking motion to insert the card.

- d Close the line drawer.

- 17 Replace the +5V fuse for the line drawer containing the faulty bus interface card.
- 18 Replace the +15V fuse for the line drawer containing the faulty bus interface card.
- 19 Replace the -48V fuse for the line drawer containing the faulty bus interface card.
- 20 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 21.

At the MAP terminal

- 21 Determine which procedure to use to return the line subgroups to service.

If the card you are replacing is	Do
NT6X54AA	step 22
NT6X54DA	step 23

- 22 Return the line subgroups to service by typing

>RTS DRWR lsg

and pressing the Enter key.

where

lsg

is one of two line subgroups (0 through 19) associated with the drawer

Note: Repeat this step for the other line subgroup associated with the line drawer.

If RTS	Do
passed	step 24
failed	step 26

- 23 Return the line subgroups to service by typing

>RTS DRWR

NT6X54
in an OPAC LCM (end)

and pressing the Enter key.

If RTS	Do
passed	step 24
failed	step 26

- 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 27.
- 26** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 27** You have successfully completed this procedure.

**NT6X54
in an OPM**

Application

Use this procedure to replace the following card in an OPM.

PEC	Suffixes	Name
NT6X54	AA	Bus interface card (BIC)
NT6X54	DA	ISDN drawer controller (IDC) card (BIC)
Note: Peripherals with ISDN line drawer for remotes (ILDR) must use the NT6X54DA card. ILDR is first available for remote switching center-SONET (RSC-S) and remote switching center (RSC) configurations in the NA007/XPM08 timeframe. ILDR is first available for remote line concentrating module (RLCM), outside plant module (OPM), and outside plant access cabinet (OPAC) configurations in the NA008/XPM81 timeframe.		

Common procedures

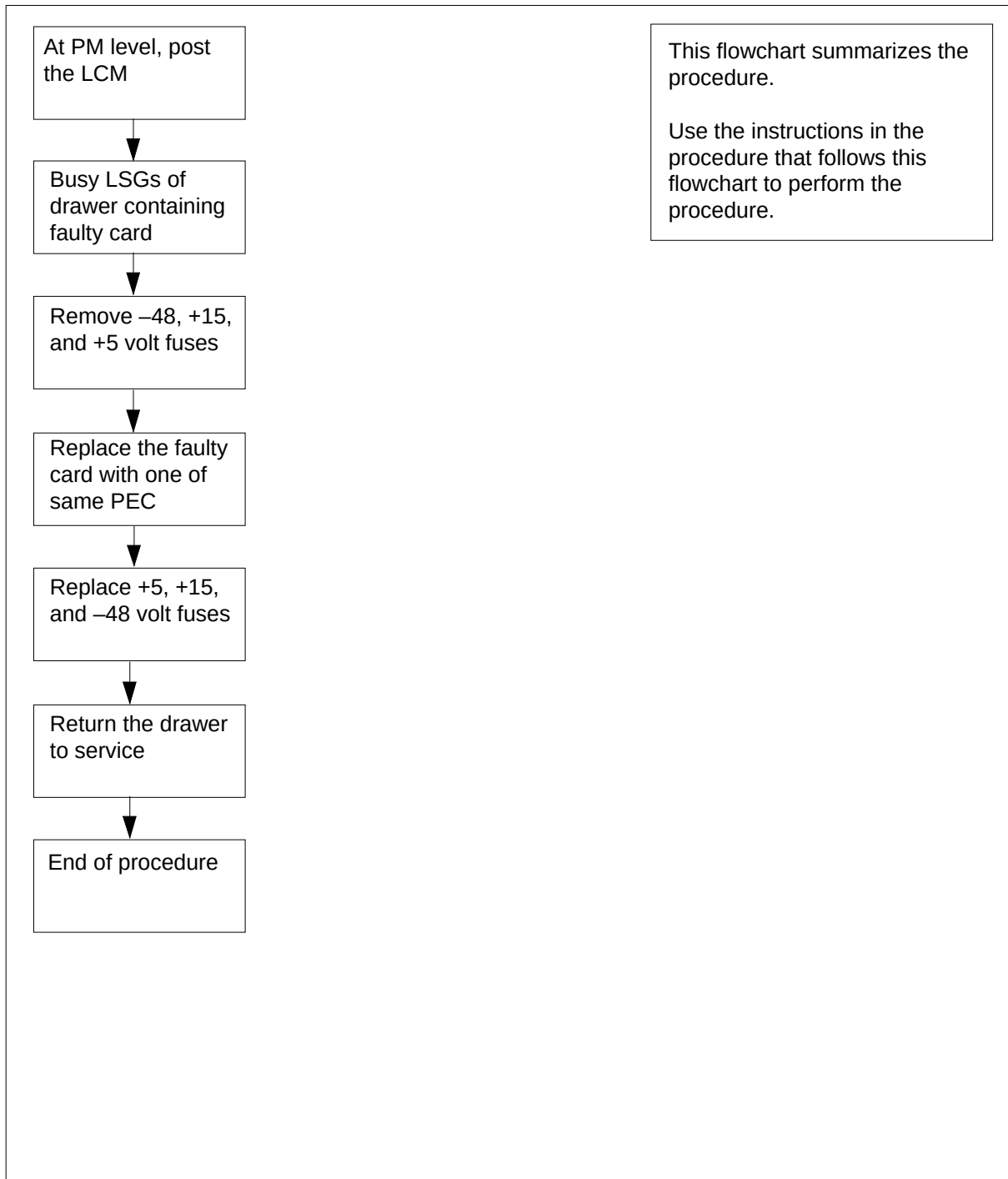
None

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.

NT6X54 in an OPM (continued)

Summary of card replacement procedure for an NT6X54 card in an OPM



NT6X54
in an OPM (continued)

Replacing an NT6X54 in an OPM***At your Current Location*****1****ATTENTION**

If you are entering this procedure due to a loss of power in the LCM's controller (LGC/LTC/RCC), check logutil for PM181 log with reason text of: DCC BIC Looparound and go to step 10.

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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 3** If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 10. Otherwise, continue with step 4.

At the MAP terminal

- 4** Access the peripheral module (PM) level of the MAP (maintenance and administration position) display and post the OPM by typing

>MAPCI;MTC;PM;POST OPM site frame opm

and pressing the Enter key.

where

site

is the site name (alphanumeric) of the OPM

frame

is the frame number (0 through 511) of the OPM cabinet

lcm

is the number (0 or 1) of the LCM

Example of a MAP display:

NT6X54 in an OPM (continued)

```

CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.        .        .        .        1LCM      .        .        .        .        .

LCM
0 Quit      PM      0        1        0        0        0        130
2 Post_     LCM      0        1        0        0        0        0
3
4 SwRg      LCM      Rem1  00 0 ISTb  Links_00S: CSide 0 PSide 0
5 Trnsl      Unit-0: InSv Mtce  /RG: 0
6 Tst        Unit-1: InsV Mtce  /RG: 0
7 Bsy
8 RTS        Drwr: 01 23 45 67 89 01 23 45 67 89  Stby:1 InSv
9 OffL
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18

```

Note: ILDR drawers are identified in reverse video on the MAP display.

- 5 Determine whether or not you need to access the ILD level on the MAP terminal.

If the card you are replacing is	Do
NT6X54DA	step 6
NT6X54AA	step 9
- 6 Access the ILD level on the MAP terminal by typing
>ILD
 and pressing the Enter key.
- 7 Post the ILDR drawer in which the card is being replaced by typing
>POST drawer_no
 and pressing the Enter key.
where
drawer_no
 is the ILD drawer number (0 through 19) in the LCM
- 8 Busy both line subgroups associated with the LCM drawer in which the card is being replaced by typing
>BSY DRWR
 and pressing the Enter key.

NT6X54
in an OPM (continued)

Example of a MAP response;

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

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Go to step 10.

- 9** Busy both line subgroups associated with the OPM drawer in which the card is being replaced by typing

>BSY DRWR lsg

and pressing the Enter key.

where

lsg

is one of two line subgroups (0 through 19) associated with the drawer

Example of a MAP response:

LCM REM1 00 0 Drwr 4 will be taken out of service

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

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Note: Repeat this step for the other line subgroup associated with the line drawer.

Example of a MAP display:

NT6X54
in an OPM (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL		CBSy	ISTb	InSv	
0	Quit	PM	0	1	0	0	0	130	
2	Post_	LCM	0	1	0	0	0	0	
3									
4	SwRg		LCM	Rem1	00	0	ISTb	Links_00S:	CSide 0 PSide 0
5	Trnsl		Unit-0:	InSv	Mtce		/RG:	0	
6	Tst		Unit-1:	InSv	Mtce		/RG:	0	
7	Bsy					11	11	11	11
8	RTS		Drwr:	01	23	45	67	89	01
9	OffL								
10	LoadPM								
11	Disp_								
12	Next								
13									
14	QueryPM								
15									
16									
17									
18									

At the OPM cabinet

- 10
- Remove the -48V fuse for the line drawer containing the faulty bus interface card.
- 11
- Remove the +15V fuse for the line drawer containing the faulty bus interface card.
- 12
- Remove the +5V fuse for the line drawer containing the faulty bus interface card.

If entry into this procedure is due to	Do
replacement of BIC	step 13
loss of power in LCM's controller	step 17

NT6X54
in an OPM (continued)

13

**DANGER****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 (FSP) of the OPM. This protects the equipment against damage caused by static electricity.

**DANGER****Card damage—transport**

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat. Wear a wrist strap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch cabinet (Nortel [Northern Telecom] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**DANGER****Hot materials**

Exercise care when handling the line card. The line feed resistor may be very hot.

Put on a wrist strap.

14

Open the line drawer by following these substeps:

- a Face the drawer shelf and grasp the lip at the bottom of the drawer.

NT6X54 in an OPM (continued)

- b** Push up on the drawer latch with your thumb and pull the drawer out approximately 15.0 cm (about 6.0 in).
- 15** Remove the BIC to be replaced by following these substeps:
- a** Open the locking levers on the BIC.
- b** Grasping the open locking levers, remove the card from the line drawer in one steady motion. The card will unplug from its socket.
- Note:** Do not use a rocking motion to remove the card.
- 16** Replace the faulty card by following these substeps:
- a** Remove the replacement card from the ESD container.
- b** Open the locking levers on the card.
- c** Position the card in its backplane socket. In one steady motion, push against the top and bottom of the card with your thumbs until the card plugs fully into the backplane socket, close and lock the locking levers.
- Note:** Do not use a rocking motion to insert the card.
- d** Close the line drawer.
- 17** Replace the +5V fuse for the line drawer containing the faulty bus interface card.
- 18** Replace the +15V fuse for the line drawer containing the faulty bus interface card.
- 19** Replace the -48V fuse for the line drawer containing the faulty bus interface card.
- 20** If you were directed to this procedure from the *Alarm clearing procedure*, return now to the main procedure that directed you here. Otherwise, continue with step 21.

At the MAP terminal

- 21** Determine which procedure to use to return the line subgroups to service.

If the card you are replacing is	Do
NT6X54AA	step 22
NT6X54DA	step 23

- 22** Return the line subgroups to service by typing
- >RTS DRWR lsg**
- and pressing the Enter key.
- where
- lsg**
- is one of two line subgroups (0 through 19) associated with the drawer

NT6X54
in an OPM (end)

Note: Repeat this step for the other line subgroup associated with the line drawer.

	If RTS	Do
	passed	step 24
	failed	step 26
23	Return the line subgroups to service by typing >RTS DRWR and pressing the Enter key.	
	If RTS	Do
	passed	step 24
	failed	step 26
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 27.	
26	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
27	You have successfully completed this procedure.	

NT6X54 in an RLCM

Application

Use this procedure to replace the following card in an RLCM.

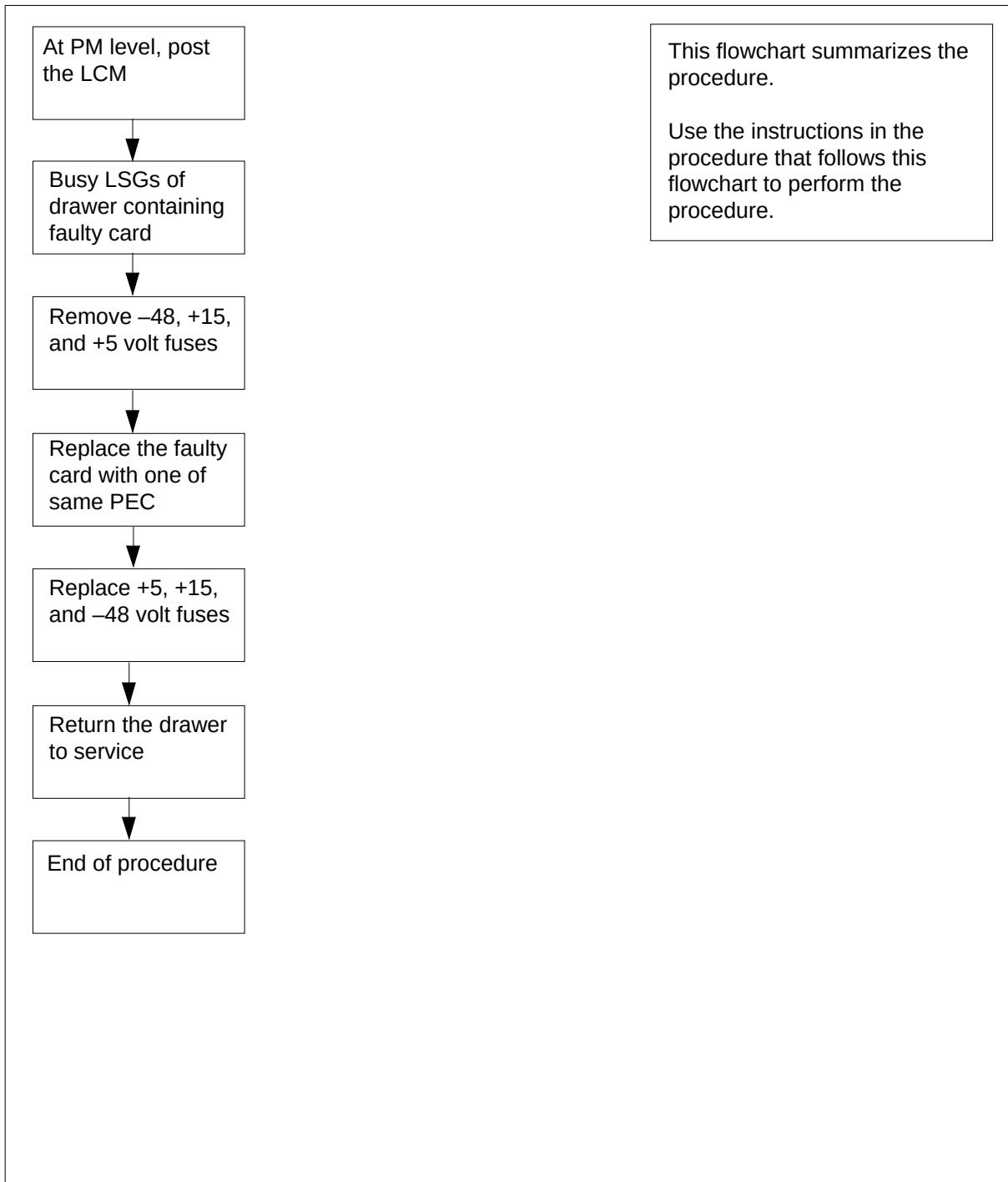
PEC	Suffixes	Name
NT6X54	AA	Bus Interface Card (BIC)
NT6X54	DA	ISDN drawer controller (IDC) card (BIC)
Note: Peripherals with ISDN line drawer for remotes (ILDR) must use the NT6X54DA card. ILDR is first available for remote switching center-SONET (RSC-S) and remote switching center (RSC) configurations in the NA007/XPM08 timeframe. ILDR is first available for remote line concentrating module (RLCM), outside plant module (OPM), and outside plant access cabinet (OPAC) configurations in the NA008/XPM81 timeframe.		

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.

NT6X54
in an RLCM (continued)**Summary of card replacement procedure for an NT6X54 card in an RLCM**

NT6X54 in an RLCM (continued)

Replacing an NT6X54 card in an RLCM

At your current location

1

ATTENTION

If you are entering this procedure due to a loss of power in the LCM's controller (LGC/LTC/RCC), check logutil for PM181 log with reason text of: DCC BIC Looparound and go to step 10.

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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 3** If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 10. Otherwise, continue with step 4.

At the MAP terminal

- 4** Access the peripheral module (PM) level of the MAP (maintenance and administration position) display and post the RLCM by typing

>MAPCI;MTC;PM;POST LCM site frame lcm

and pressing the Enter key.

where

site

is the site name (alphanumeric) of the RLCM

frame

is the frame number (0 through 511) of the RLCE

lcm

is the number (0 or 1) of the LCM

Example of a MAP display:

NT6X54
in an RLCM (continued)

```
CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.        .        .        .        1LCM      .        .        .        .        .

LCM
0 Quit      PM      0        1        0        0        0        0        130
2 Post_     LCM      0        1        0        0        0        0        0
3
4 SwRg      LCM      Rem1  00 0 ISTb  Links_00S: CSide 0 PSide 0
5 Trnsl      Unit-0:  InSv  Mtce      /RG:  0
6 Tst      Unit-1:  InSV  Mtce      /RG:  0
7 Bsy      11 11 11 11 11 RG:Pref:0 InSv
8 RTS      Drwr: 01 23 45 67 89 01 23 45 67 89 Stby:1 InSv
9 OffL      .. .. SS .. .. .. .. ..
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
```

Note: ILDR drawers are identified in reverse video on the MAP display.

- 5 Determine whether or not you need to access the ILD level on the MAP terminal.

If the card you are replacing is	Do
NT6X54DA	step 6
NT6X54AA	step 9
- 6 Access the ILD level on the MAP terminal by typing
>ILD
and pressing the Enter key.
- 7 Post the ILDR drawer in which the card is being replaced by typing
>POST drawer_no
and pressing the Enter key.
where
drawer_no
is the ILD drawer number (0 through 19) in the LCM
- 8 Busy both line subgroups associated with the LCM drawer in which the card is being replaced by typing
>BSY DRWR

NT6X54 in an RLCM (continued)

and pressing the Enter key.

Example of a MAP response;

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

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Go to step 10.

- 9** Busy both line subgroups associated with the RLCM drawer in which the card is being replaced by typing

>BSY DRWR lsg

and pressing the Enter key.

where

lsg

is one of two line subgroups (0 through 19) associated with the drawer

Example of a MAP response:

LCM REM1 00 0 Drwr 4 will be taken out of service

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

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Note: Repeat this step for the other line subgroup associated with the line drawer.

Example of a MAP display:

NT6X54
in an RLCM (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0	Quit	PM	0	1	0	0	0	130	
2	Post_	LCM	0	1	0	0	0	0	
3									
4	SwRg		LCM	Rem1	00	0	ISTb	Links_00S:	CSide 0 PSide 0
5	Trnsl		Unit-0:	InSv	Mtce		/RG:	0	
6	Tst		Unit-1:	InsV	Mtce		/RG:	0	
7	Bsy					11	11	11	11
8	RTS		Drwr:	01	23	45	67	89	01
9	OffL								
10	LoadPM								
11	Disp_								
12	Next								
13									
14	QueryPM								
15									
16									
17									
18									

At the RLCE frame

- 10
- Remove the -48V fuse for the line drawer containing the faulty bus interface card.
- 11
- Remove the +15V fuse for the line drawer containing the faulty bus interface card.
- 12
- Remove the +5V fuse for the line drawer containing the faulty bus interface card.

If entry into this procedure is due to	Do
replacement of BIC	step 13
loss of power in LCM's controller	step 17

NT6X54 in an RLCM (continued)

13



DANGER

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 (FSP) of the RLCM. This protects the equipment against damage caused by static electricity.



DANGER

Card damage—transport

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat. Wear a wrist strap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch cabinet (Nortel [Northern Telecom] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.



DANGER

Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.



DANGER

Hot materials

Exercise care when handling the line card. The line feed resistor may be very hot.

Put on a wrist strap.

14

Open the line drawer by following these substeps:

- a Face the drawer shelf and grasp the lip at the bottom of the drawer.

NT6X54 in an RLCM (continued)

- b** Push up on the drawer latch with your thumb and pull the drawer out approximately 15.0 cm (about 6.0 in).
- 15** Remove the BIC to be replaced by following these substeps:
- a** Open the locking levers on the BIC.
 - b** Grasping the open locking levers, remove the card from the line drawer in one steady motion. The card will unplug from its socket.
- Note:** Do not use a rocking motion to remove the card.
- 16** Replace the faulty card by following these substeps:
- a** Remove the replacement card from the ESD container.
 - b** Open the locking levers on the card.
 - c** Position the card in its backplane socket. In one steady motion, push against the top and bottom of the card with your thumbs until the card plugs fully into the backplane socket, close and lock the locking levers.
- Note:** Do not use a rocking motion to insert the card.
- d** Close the line drawer.
- 17** Replace the +5V fuse for the line drawer containing the faulty bus interface card.
- 18** Replace the +15V fuse for the line drawer containing the faulty bus interface card.
- 19** Replace the -48V fuse for the line drawer containing the faulty bus interface card.
- 20** If you were directed to this procedure from the *Alarm clearing procedure*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 21.

At the MAP terminal

- 21** Determine which procedure to use to return the line subgroups to service.

If the card you are replacing is	Do
NT6X54AA	step 22
NT6X54DA	step 23

- 22** Return the line subgroups to service by typing
- >RTS DRWR lsg**
- and pressing the Enter key.
- where
- lsg**
- is one of two line subgroups (0 through 19) associated with the drawer

NT6X54 in an RLCM (end)

Note: Repeat this step for the other line subgroup associated with the line drawer.

	If RTS	Do
	passed	step 24
	failed	step 26
23	Return the line subgroups to service by typing >RTS DRWR and pressing the Enter key.	
	If RTS	Do
	passed	step 24
	failed	step 26
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 27.	
26	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
27	You have successfully completed this procedure.	

**NT6X54
in an RLCM-EDC**

Application

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

PEC	Suffixes	Card name	Shelf/frame name
NT6X54	AA	Bus Interface Card (BIC)	LCM/RLCC

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the index. The index contains a list of cards, shelves, and frames that this maintenance manual documents.

Common procedures

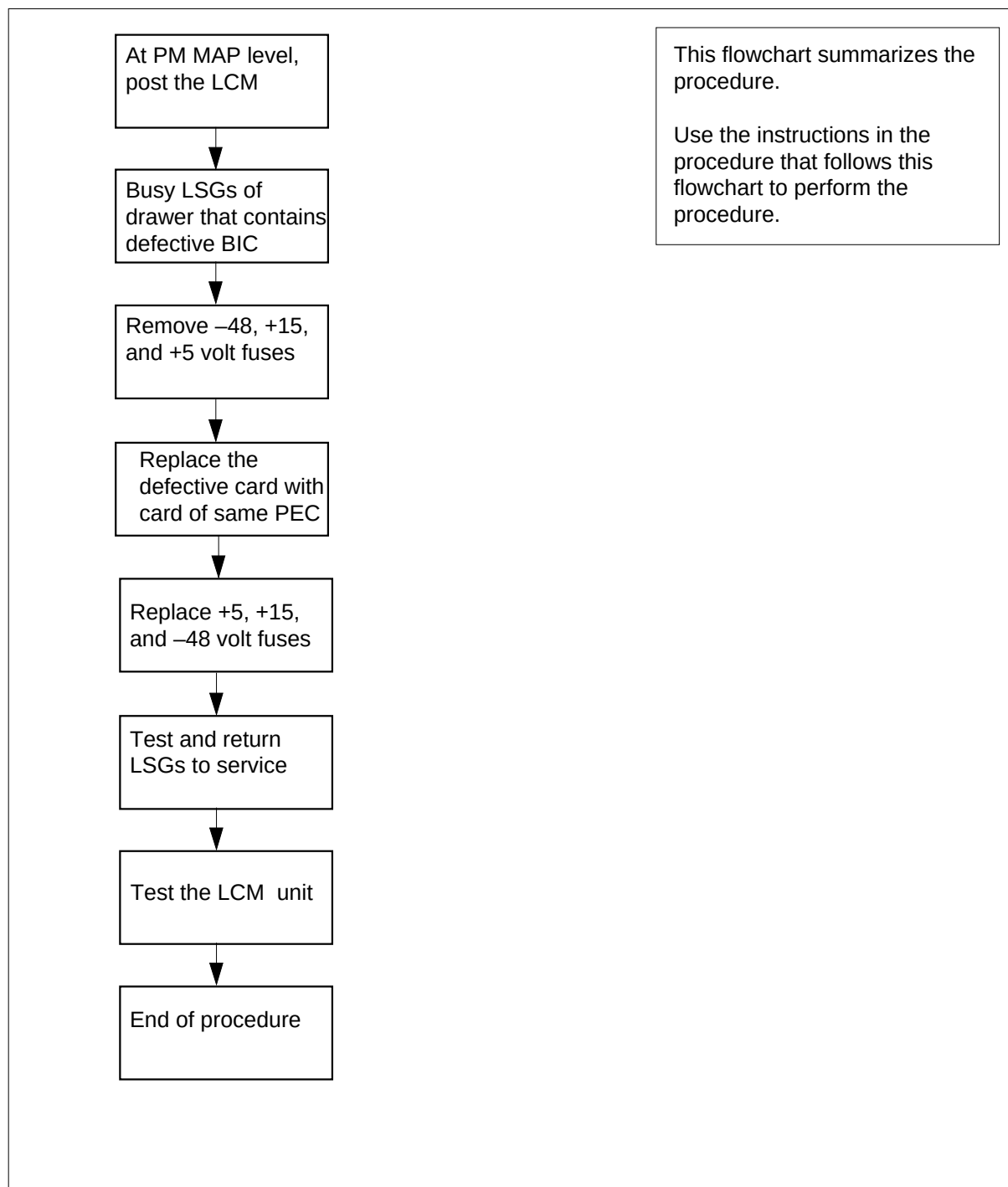
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X54 in an RLCM-EDC (continued)

Summary of replacing an NT6X54 card in LCM



NT6X54 in an RLCM-EDC (continued)

Replacing an NT6X54 in LCM

At your current location

1

ATTENTION

If you enter this procedure because of a loss of power in the LCM controller (LTC+), check logutil. Check for PM181 log with reason text: Text DCC BIC Looparound. Go to step 7.

Proceed to step 2 if one of the following conditions applies:

- another maintenance procedure directed you to this card replacement procedure
- you use the procedure to verify or accept cards
- your maintenance support group directed you to this procedure

2 Obtain a replacement card. Make sure the replacement card has the same product equipment code (PEC) and PEC suffix, as the card to remove.

3 If the *Alarm Clearing Procedures* directs you to this procedure, go to step 7. If that procedure does not direct you to this procedure, proceed to step 4.

At the MAP terminal

4 To access the peripheral module (PM) level of the MAP terminal and post the RLCM-EDC, type

>MAPCI;MTC;PM;POST LCM site cabinet lcm

and press the Enter key.

where

site

is the site name of the RLCM (alphanumeric)

cabinet

is the number of the RLCC cabinet

lcm

is the number of the LCM

Example of a MAP response:

```
LCM  REM1 00 0  ISTb  Links 00S: Cside  0 Pside  0
Unit0: InSv Mtce
Unit1: InSv Mtce
                                11 11 11 11 11 RG: Uneq
Drwr:  01 23 45 67 89 01 23 45 67 89
      .. SS .. .. .. .. .. .. .. ..
```

NT6X54 in an RLCM-EDC (continued)

- 5 Check the status of the affected drawer.

If the drawer status	Do
is S, O, C, I	step 6
is M	step 7

- 6 To busy the two line subgroups that associate with the RLCM-EDC drawer in which you replace the card, type

>BSY DRWR lsg_no

and press the Enter key.

where

lsg_no

is one of two line subgroups (0 to 19) that associates with the drawer.

Note: Repeat this step for the other line subgroup that associates with the drawer.

At the RLCC-EDC cabinet

- 7 Remove the -48V fuse for the line drawer that contains the defective bus interface card.
- 8 Remove the +15V fuse for the line drawer that contains the defective bus interface card.
- 9 Remove the +5V fuse for the line drawer that contains the defective bus interface card.

If the reason for this procedure	Do
is loss of power in LCM controller	step 11
is replacement of BIC	step 10

- 10 To replace the NT6X54 card, use the common replacing a card procedure in this document.
- 11 Replace the +5V fuse for the line drawer that contains the defective bus interface card.
- 12 Replace the +15V fuse for the line drawer that contains the defective bus interface card.
- 13 Replace the -48V fuse for the line drawer that contains the defective bus interface card.
- 14 If the *Alarm clearing procedure* directs you to this procedure, return to the main procedure that directed you here. If that procedure does not direct you to this procedure, proceed to step 15.

NT6X54 in an RLCM-EDC (continued)

At the MAP terminal

- 15** To test the line subgroups that associate with the drawer, type

>TST DRWR lsg_no

and press the Enter key.

where

lsg_no

is one of two line subgroups (0 to 19) that associate with the drawer

Note: Repeat this step for the other line subgroup that associates with the drawer.

If TST	Do
passes	step 16
fails	step 20

- 16** To return the line subgroups to service, type

>RTS DRWR lsg_no

and press the Enter key.

where

lsg_no

is one of two line subgroups (0 to 19) that associate with the drawer

Note: Repeat this step for the other line subgroup that associates with the drawer.

If RTS	Do
passes	step 17
fails	step 20

- 17** To test the RLCM-EDC unit, type

>TST UNIT unit_no

and press the Enter key.

where

unit_no is

the number of the LCM unit (0 or 1) that associates with the new NT6X54 card.

If the TST	Do
passes	step 18
fails	step 20

- 18** Send defective cards for repair according to local procedure.

NT6X54
in an RLCM-EDC (end)

- 19** Record the items that follow in office records:
- date that card replacement occurs
 - serial number of the card
 - indications that prompt replacement of the card
- Proceed to step 21.
- 20** For additional help, contact the next level of maintenance.
- 21** The procedure is complete.

**NT6X54
in an RSC**

Application

Use this procedure to replace the following card in a line concentrating module (LCM).

PEC	Suffixes	Name
NT6X54	AA	Bus interface card (BIC)
NT6X54	DA	ISDN drawer controller (IDC) card (BIC)
Note: Peripherals with ISDN line drawer for remotes (ILDR) must use the NT6X54DA card. ILDR is first available for remote switching center-SONET (RSC-S) and remote switching center (RSC) configurations in the NA007/XPM08 timeframe. ILDR is first available for remote line concentrating module (RLCM), outside plant module (OPM), and outside plant access cabinet (OPAC) configurations in the NA008/XPM81 timeframe.		

Common Procedures

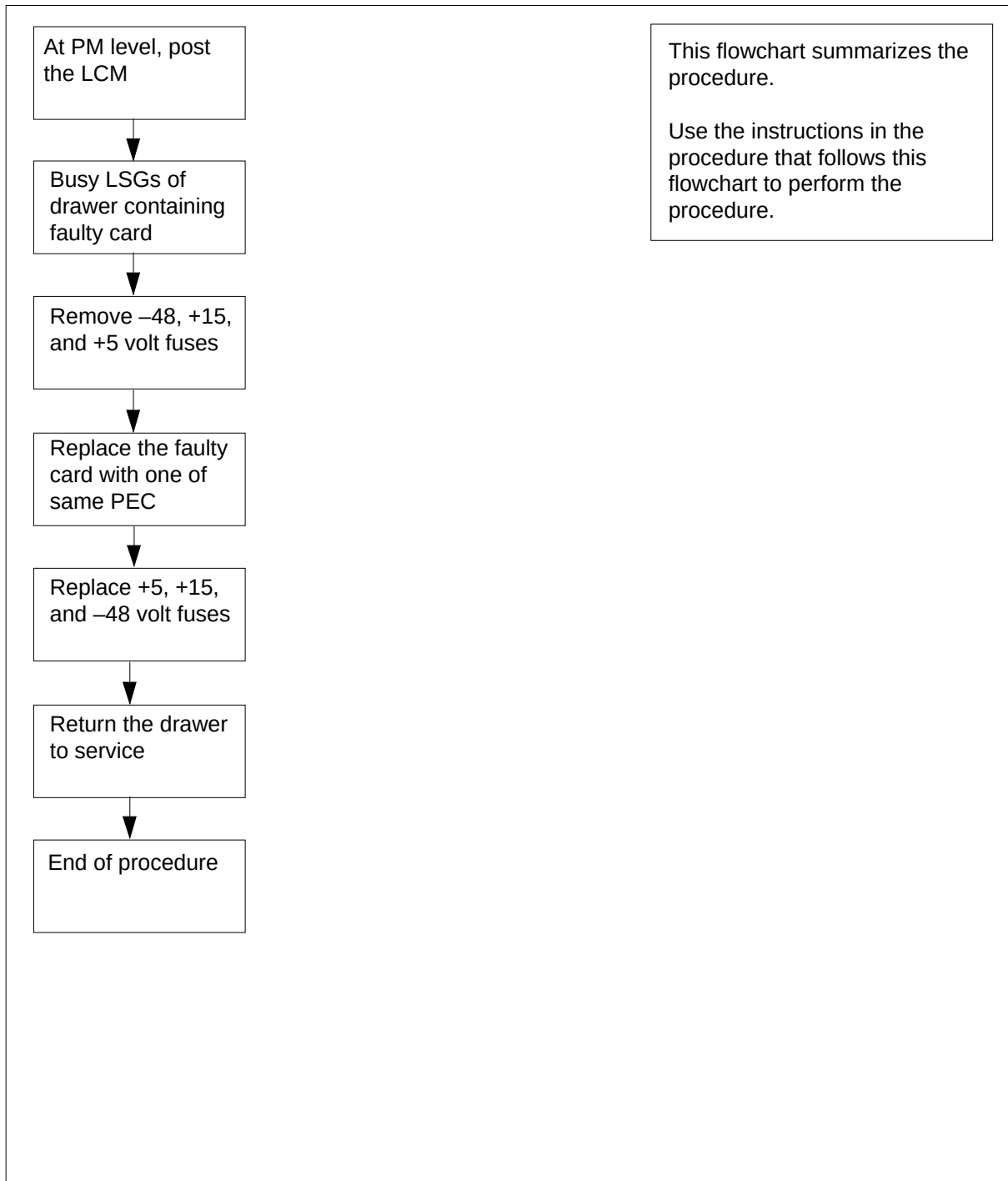
None

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.

NT6X54 in an RSC (continued)

Summary of card replacement procedure for NT6X54 card in an RSC LCM



NT6X54
in an RSC (continued)

Replacing an NT6X54 in an RSC LCM***At your Current Location*****1****ATTENTION**

If you are entering this procedure due to a loss of power in the LCM's controller (LGC/LTC/RCC). Check logutil for PM181 log with reason text of: DCC BIC Looparound and go to step 10.

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 the replacement card has the same product equipment code (PEC) including suffix, as the card that is to be removed.
- 3** If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 10. Otherwise, continue with step 4.

At the MAP terminal

- 4** Access the peripheral module (PM) level of the MAP (maintenance and administration position) display and post the LCM by typing

>MAPCI;MTC;PM;POST LCM site frame lcm

and pressing the Enter key.

where

site

is the site name (alphanumeric) of the RSC

frame

is the frame number (0 through 511) of the LCE

lcm

is the number (0 through 511) of the LCM

Example of a MAP display:

NT6X54 in an RSC (continued)

```

CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.        .        .        .        1LCM      .        .        .        .        .

LCM
0 Quit      PM      0        1        0        0        0        130
2 Post_     LCM      0        1        0        0        0        0
3
4 SwRg      LCM      Rem1  00 0 ISTb  Links_00S: CSide 0 PSide 0
5 Trnsl      Unit-0: InSv Mtce  /RG: 0
6 Tst       Unit-1: InSv Mtce  /RG: 0
7 Bsy
8 RTS      Drwr: 01 23 45 67 89 01 23 45 67 89  RG:Pref:0 InSv
9 Offl      .. .. SS .. .. .. .. ..
10 LoadPM
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18

```

Note: ILDR drawers are identified in reverse video on the MAP display.

- 5 Determine whether or not you need to access the ILD level on the MAP terminal.

If the card you are replacing is	Do
NT6X54DA	step 6
NT6X54AA	step 9

- 6 Access the ILD level on the MAP terminal by typing

>ILD

and pressing the Enter key.

- 7 Post the ILDR drawer in which the card is being replaced by typing

>POST drawer_no

and pressing the Enter key.

where

drawer_no

is the ILD drawer number (0 through 19) in the LCM

- 8 Busy both line subgroups associated with the LCM drawer in which the card is being replaced by typing

>BSY DRWR

NT6X54
in an RSC (continued)

and pressing the Enter key.

Example of a MAP response;

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

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Go to step 10.

- 9** Busy both line subgroups associated with the LCM drawer where the card is being replaced by typing

>BSY DRWR lsg

and pressing the Enter key.

where

lsg

is one of two line subgroups (0 through 19) associated with the drawer

Example of a MAP response;

LCM REM1 00 0 Drwr 4 will be taken out of service

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

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Note: Repeat this step for the other line subgroup associated with the line drawer.

Example of a MAP display:

NT6X54 in an RSC (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM		SysB	ManB	OffL	CBsy	ISTb	InSv		
0 Quit	PM	0	1	0	0	0	130		
2 Post_	LCM	0	1	0	0	0	0		
3									
4 SwRg		LCM	Rem1	00	0	ISTb	Links_00S:	CSide 0	PSide 0
5 TrnsL		Unit-0:	InSv	Mtce		/RG:	0		
6 Tst		Unit-1:	InSv	Mtce		/RG:	0		
7 Bsy						11 11 11 11 11	RG:Pref:0	InSv	
8 RTS		Drwr:	01 23 45 67 89	01 23 45 67 89			Stby:1	InSv	
9 OffL			 MM						
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

At the LCE frame

- 10** Remove the -48V fuse for the line drawer containing the faulty bus interface card.
- 11** Remove the +15V fuse for the line drawer containing the faulty bus interface card.
- 12** Remove the +5V fuse for the line drawer containing the faulty bus interface card.

If entry into this procedure is due to	Do
replacement of BIC	step 13
loss of power in LCM's controller	step 17

13



DANGER

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 (FSP) of the LCM. This protects the equipment against damage caused by static electricity.

NT6X54
in an RSC (continued)**DANGER****Card damage—transport**

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat. Wear a wrist strap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch cabinet (Nortel [Northern Telecom] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**DANGER****Hot materials**

Exercise care when handling the line card. The line feed resistor may be very hot.

Put on a wrist strap.

- 14 Open the line drawer using the following steps:
 - a Face the drawer shelf and grasp the lip at the bottom of the drawer.
 - b Push up on the drawer latch with your thumb and pull the drawer out approximately 15 cm (about 6 inches).
- 15 Remove the BIC to be replaced by following these substeps:
 - a Open the locking levers on the BIC.
 - b Grasping the open locking levers, remove the card from the line drawer in one steady motion. The card will unplug from its socket.

Note: Do not use a rocking motion to remove the card.
- 16 Replace the faulty card by following these substeps:
 - a Remove the replacement card from the ESD container.

NT6X54 in an RSC (continued)

- b** Close the locking levers on the card.
- c** Position the card in its backplane socket. In one steady motion, push against the closed locking levers with your thumbs until the card plugs fully into the backplane socket.

Note: Do not use a rocking motion to insert the card.

- d** Close the line drawer.

- 17** Replace the +5V fuse for the line drawer containing the faulty bus interface card.
- 18** Replace the +15V fuse for the line drawer containing the faulty bus interface card.
- 19** Replace the -48V fuse for the line drawer containing the faulty bus interface card.
- 20** If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 21.

At the MAP terminal

- 21** Determine which procedure to use to return the line subgroups to service.

If the card you are replacing is	Do
NT6X54AA	step 22
NT6X54DA	step 23

- 22** Return the line subgroups to service by typing

>RTS DRWR lsg

and pressing the Enter key.

where

lsg

is one of two line subgroups (0 through 19) associated with the drawer

Note: Repeat this step for the other line subgroup associated with the line drawer.

If RTS	Do
passed	step 24
failed	step 26

- 23** Return the line subgroups to service by typing

>RTS DRWR

NT6X54
in an RSC (end)

and pressing the Enter key.

If RTS

Do

passed

step 24

failed

step 26

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 27.

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

27 You have successfully completed this procedure.

NT6X54 in an RSC-S (DS-1) Model A LCM(E)

Application

Use this procedure to replace an NT6X54 card in an RSC-S LCM(E).

PEC	Suffixes	Name
NT6X54	AA	Bus Interface Card (BIC)

Common procedures

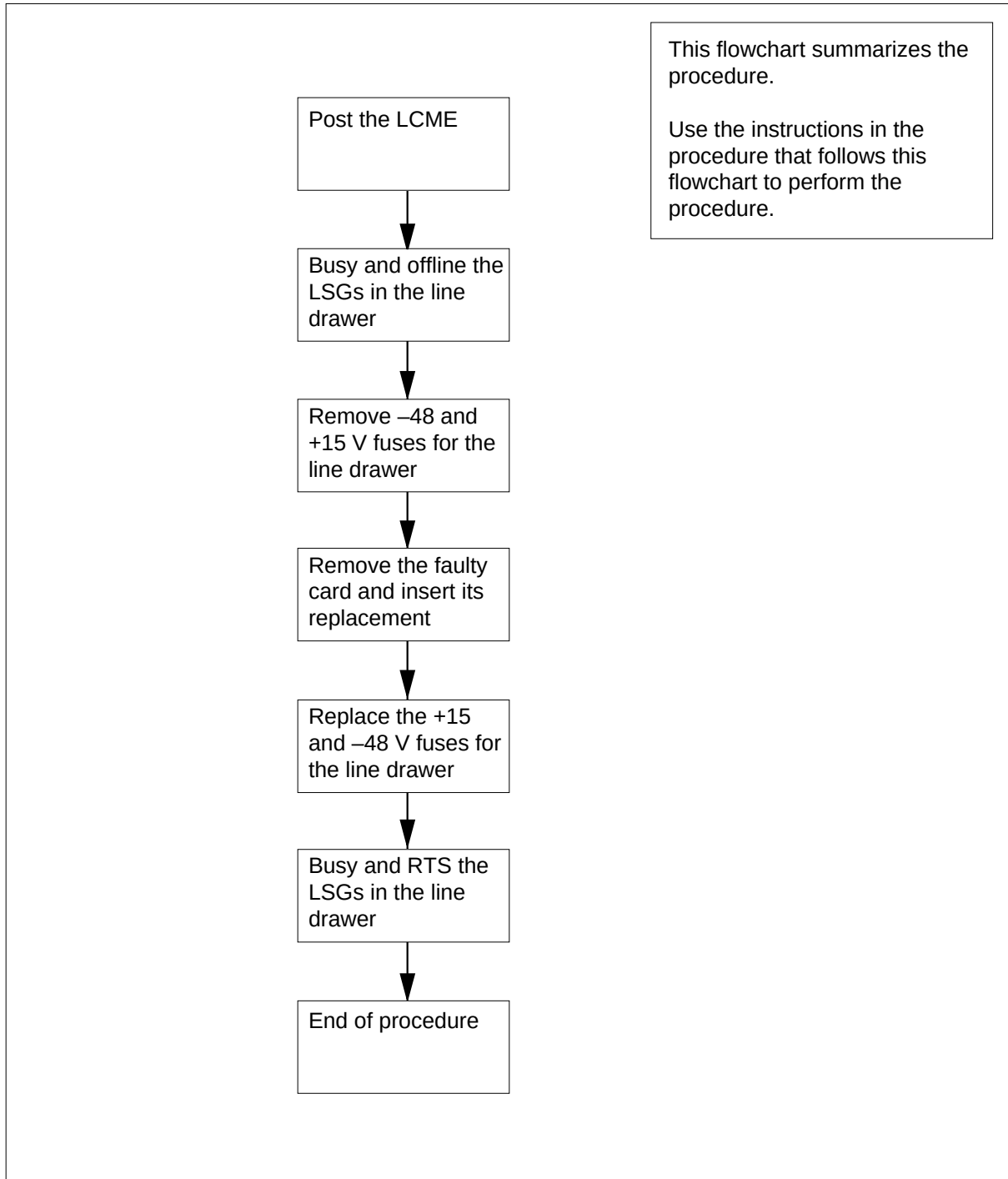
None

Action

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

NT6X54 in an RSC-S (DS-1) Model A LCM(E) (continued)

Summary of card replacement procedure for an NT6X54 card in RSC-S LCM(E)



NT6X54 in an RSC-S (DS-1) Model A LCM(E) (continued)

Replacing an NT6X54 card in RSC-S LCM(E)

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 that is to be removed.

At the MAP terminal

- 3 Post the LCME with the LCA shelf containing the card to be replaced by typing

```
>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 with the faulty card

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM			SysB	ManB	OffL	CBsy	ISTb		InSv
0 Quit	PM	0	0	0	0	0	0	130	
2 Post_	LCME	0	0	0	0	0	0	0	
3									
4 SwRg	LCME	RemL	00 0	ISTb	Links_00S:	CSide	1		
5 TrnsL	Unit0:	InSv			/RG:	0			
6 Tst	Unit1:	InSv			/RG:	0			
7 Bsy					11 11 11	RG:Pref	0 InSv		
8 RTS	Drwr:	01 23 45 67 89	01 23 45		RG:Stby:	1 InSv			
9 OffL									
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X54

in an RSC-S (DS-1) Model A LCM(E) (continued)

- 4 Busy both line subgroups (LSG) associated with the LCME drawer in which the card is being replaced by typing

>BSY DRWR lsg

and pressing the Enter key.

where

lsg

is a line subgroup associated with the drawer

Example of a MAP response:

Please confirm ("YES" or "NO")

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Repeat this step for other line subgroups associated with the drawer.

- 5 Offline the LSGs busied in step 4 by typing

>OFFL DRWR lsg

and pressing the Enter key.

where

lsg

is a line subgroup busied in step 4

At the LCE frame

- 6 Remove the -48V fuse for the line drawer containing the bus interface card (BIC) to be replaced.
- 7 Remove the +15V fuse for the line drawer containing the BIC to be replaced.
- 8



DANGER

Card damage—transport

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch cabinet (Northern Telecom [Nortel] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

NT6X54

in an RSC-S (DS-1) Model A LCM(E) (continued)



DANGER

Static electricity damage

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the frame supervisory panel (FSP) of the LCME. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wriststrap.

9

Open the line drawer by following these substeps:

- a Face the drawer shelf and grasp the lip at the bottom of the drawer.
- b Push up on the drawer latch with your thumb and pull the drawer out approximately 15.0 cm (about 6.0 in).

10



DANGER

Hot materials

Exercise care when handling the line card. The line feed resistor may be very hot.

Remove the BIC to be replaced by following these substeps:

- a Open the locking levers on the BIC.
- b Grasping the open locking levers, remove the card from the line drawer in one steady motion. The card will unplug from its socket.

Note: Do not use a rocking motion to remove the card.

11

Replace the faulty card by following these substeps:

- a Remove the replacement card from the ESD container.
- b Close the locking levers on the card.

NT6X54

in an RSC-S (DS-1) Model A LCM(E) (continued)

- c** Position the card in its backplane socket. In one steady motion, push against the closed locking levers with your thumbs until the card plugs fully into the backplane socket.

Note: Do not use a rocking motion to insert the card.

- d** Close the line drawer.

- 12** Replace the +15V fuse associated with the line drawer.
- 13** Replace the -48V fuse associated with the line drawer.
- 14** Use the following information to determine what step to go to next in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 19
other	step 15

At the MAP terminal

- 15** Busy the offline LSGs associated with the LCME drawer by typing
>BSY DRWR lsg
 and pressing the Enter key.

where

lsg

is a line subgroup associated with the drawer

Repeat this step for other LSGs associated with the drawer.

- 16** Return the LSGs to service by typing
>RTS DRWR lsg
 and pressing the Enter key.

where

lsg

is a line subgroup associated with the drawer

If RTS	Do
passed	step 17
failed	step 20

- 17** Send any faulty cards for repair according to local procedure.
- 18** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 21.
- 19** Return to *Alarm Clearing Procedures* or the other procedure that directed you to this procedure. At the point where a faulty card list was produced, identify

NT6X54
in an RSC-S (DS-1) Model A LCM(E) (end)

- 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 higher level of support.
 - 21** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X54 in an RSC-S (DS-1) Model B LCM(E)

Application

Use this procedure to replace an NT6X54 card in an RSC-S LCM(E).

PEC	Suffixes	Name
NT6X54	AA	Bus Interface Card (BIC)

Common procedures

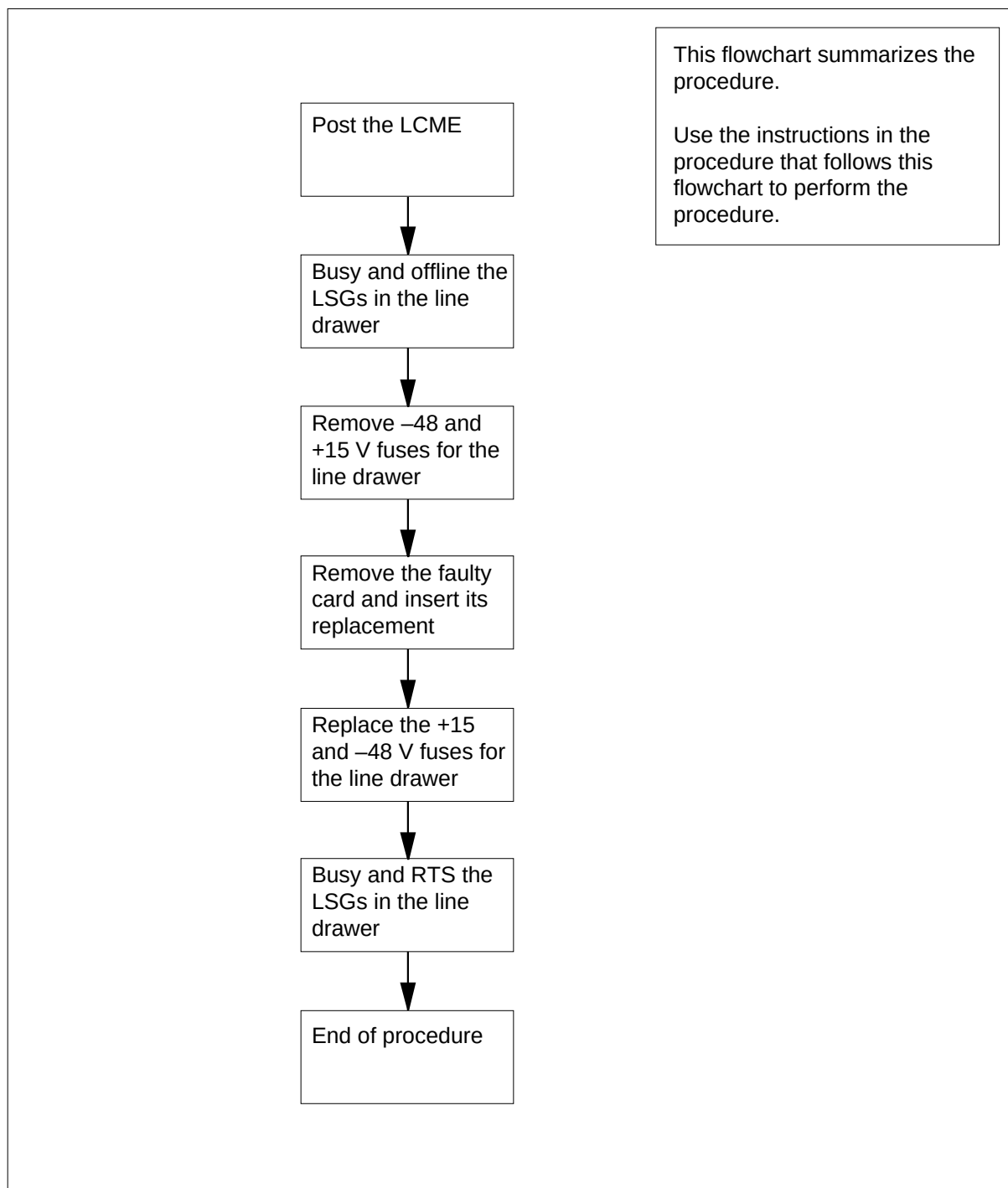
None

Action

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

NT6X54 in an RSC-S (DS-1) Model B LCM(E) (continued)

Summary of card replacement procedure for an NT6X54 card in RSC-S LCM(E)



NT6X54

in an RSC-S (DS-1) Model B LCM(E) (continued)

Replacing an NT6X54 card in RSC-S LCM(E)

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 that is to be removed.

At the MAP terminal

- 3 Post the LCME with the LCA shelf containing the card to be replaced by typing

```
>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 with the faulty card

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1LCM	.	.	.	.	.
LCM			SysB	ManB	OffL	CBsy	ISTb		InSv
0 Quit	PM		0	0	0	0	0		130
2 Post_	LCME		0	0	0	0	0		0
3									
4 SwRg	LCME	RemL	00 0	ISTb	Links_00S:	CSide	1		
5 Trns1	Unit0:	InSv			/RG:	0			
6 Tst	Unit1:	InSv			/RG:	0			
7 Bsy					11 11 11	RG:Pref	0 InSv		
8 RTS	Drwr:	01 23 45 67 89	01 23 45		RG:Stby:	1 InSv			
9 OffL									
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

NT6X54

in an RSC-S (DS-1) Model B LCM(E) (continued)

- 4 Busy both line subgroups (LSG) associated with the LCME drawer in which the card is being replaced by typing

>BSY DRWR lsg

and pressing the Enter key.

where

lsg

is a line subgroup associated with the drawer

Example of a MAP response:

Please confirm ("YES" or "NO")

Confirm the system prompt by typing

>YES

and pressing the Enter key.

Repeat this step for other line subgroups associated with the drawer.

- 5 Offline the LSGs busied in step 4 by typing

>OFFL DRWR lsg

and pressing the Enter key.

where

lsg

is a line subgroup busied in step 4

At the LCE frame

- 6 Remove the -48V fuse for the line drawer containing the bus interface card (BIC) to be replaced.
- 7 Remove the +15V fuse for the line drawer containing the BIC to be replaced.
- 8



DANGER

Static electricity damage

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the modular supervisory panel (MSP) of the LCME. This protects the equipment against damage caused by static electricity.

NT6X54
in an RSC-S (DS-1) Model B LCM(E) (continued)

**DANGER****Card damage—transport**

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch cabinet (Northern Telecom [Nortel] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**DANGER****Hot materials**

Exercise care when handling the line card. The line feed resistor may be very hot.

Put on a wriststrap.

- 9 Open the line drawer by following these substeps:
 - a Face the drawer shelf and grasp the lip at the bottom of the drawer.
 - b Push up on the drawer latch with your thumb and pull the drawer out approximately 15.0 cm (about 6.0 in).
- 10 Remove the BIC to be replaced by following these substeps:
 - a Open the locking levers on the BIC.
 - b Grasping the open locking levers, remove the card from the line drawer in one steady motion. The card will unplug from its socket.

Note: Do not use a rocking motion to remove the card.
- 11 Replace the faulty card by following these substeps:
 - a Remove the replacement card from the ESD container.

NT6X54

in an RSC-S (DS-1) Model B LCM(E) (continued)

- b Close the locking levers on the card.
- c Position the card in its backplane socket. In one steady motion, push against the closed locking levers with your thumbs until the card plugs fully into the backplane socket.

Note: Do not use a rocking motion to insert the card.

- d Close the line drawer.

- 12 Replace the +15V fuse associated with the line drawer.
- 13 Replace the -48V fuse associated with the line drawer.
- 14 Use the following information to determine what step to go to next in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 19
other	step 15

At the MAP terminal

- 15 Busy the offline LSGs associated with the LCME drawer by typing
>BSY DRWR lsg
and pressing the Enter key.
where

lsg

is a line subgroup associated with the drawer

Repeat this step for other LSGs associated with the drawer.

- 16 Return the LSGs to service by typing
>RTS DRWR lsg
and pressing the Enter key.
where

lsg

is a line subgroup associated with the drawer

If RTS	Do
passed	step 17
failed	step 20

- 17 Send any faulty cards for repair according to local procedure.
- 18 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 21.

NT6X54

in an RSC-S (DS-1) Model B LCM(E) (end)

- 19** Return to *Alarm Clearing Procedures* or the other procedure that directed you to this procedure. At 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 higher level of support.
- 21** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X54 in a STAR

Application

Use this procedure to replace the following card in a STAR.

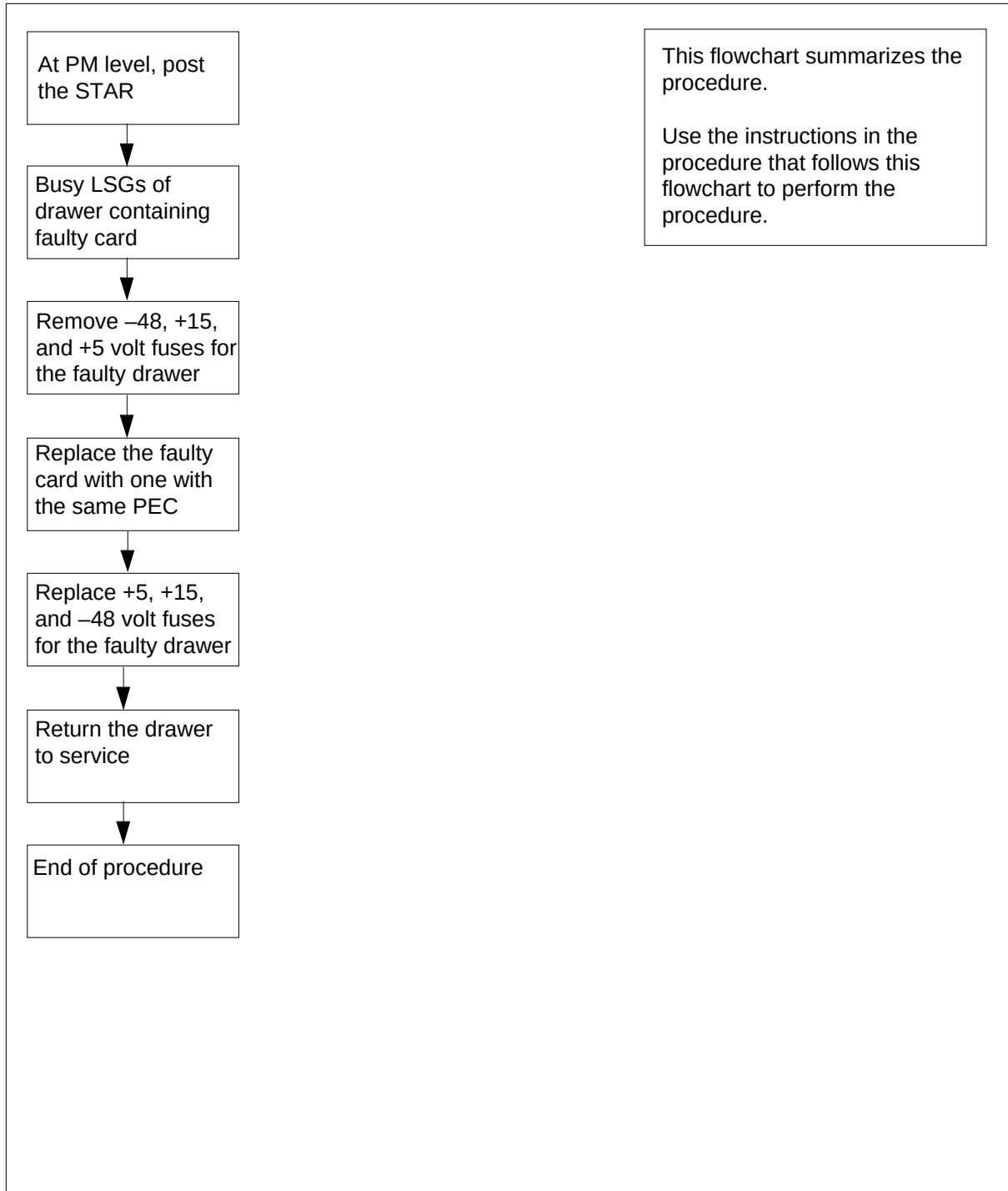
PEC	Suffixes	Name
NT6X54	AA	Bus interface card (BIC)
NT6X54	DA	ISDN drawer controller (IDC) card (BIC)
Note: The ISDN line drawer for remotes (ILD-R) must use the NT6X54DA card.		

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.

NT6X54
in a STAR (continued)**Summary of card replacement procedure for an NT6X54 card in a STAR**

NT6X54 in a STAR (continued)

Replacing an NT6X54 card in an STAR

At your current location

1

ATTENTION

If you are entering this procedure because of a loss of power in the STAR's NTTR77AA RCP card, check logutil for PM181 log with reason text of: DCC BIC Looparound and go to step 12.

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** Get a replacement card. Make sure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 3** If you were directed to this procedure from an alarm clearing procedure in this manual, go to step 12. Otherwise, continue with step 4.

At the MAP terminal

- 4** To access the peripheral module (PM) level of the MAP (maintenance and administration position) display and post the STAR, type

>MAPCI;MTC;PM;POST STAR site frame unit

and press the Enter key.

where

site

is the site name (alphanumeric) of the STAR

frame

is the frame number (0 through 511) of the STAR

unit

is 0 for the STAR

Example of a MAP display:

NT6X54
in a STAR (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	1STAR	.	.	.	.	.
STAR			SysB	ManB		Offl	CBsy	ISTb	InSv
0 Quit		PM	0	1		0	0	0	130
2 Post_		STAR	0	1		0	0	0	0
3 Listset									
4 SwRg	STAR	Rem1	00	0	ISTb	Links_OOS:	CSide	0	PSide
5 Trnsl	Unit 0:	InSv	Mtce		/RG:	0			
6 Tst	Unit 1:	InsV	Mtce		/RG:	0			RG
7 Bsy			11	11	11	11	11	22	22
8 RTS	01	23	45	67	89	01	23	45	67
9 Offl	..	..	SS	..	..	..	..	..	..
10 LoadPM									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16									
17									
18									

Note: ILD-R drawers are identified in reverse video on the MAP display.

- 5 Determine whether or not you need to access the ILD level on the MAP terminal.

If the card you are replacing is	Do
NT6X54DA	step 6
NT6X54AA	step 10
- 6 To access the ILD level on the MAP terminal, type
>ILD
and press the Enter key.
- 7 To post the ILD-R drawer in which the card is being replaced, type
>POST drawer_no
and press the Enter key.
where
drawer_no
is the ILD drawer number (0 through 17) in the STAR

NT6X54 in a STAR (continued)

- 8 To busy both line subgroups associated with the STAR drawer where the card is being replaced, type
>BSY DRWR
 and press the Enter key.
Example of a MAP response:

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

- 9 To confirm the system prompt, type
>YES
 and press the Enter key.
 Go to step 12.

- 10 To busy both line subgroups associated with the STAR drawer where the card is being replaced, type
>BSY DRWR lsg
 and press the Enter key.
where

lsg

is one of two line subgroups (0 through 35) associated with the drawer

Example of a MAP response:

STAR REM1 00 0 Drwr 4 will be taken out of service
 Please confirm ("YES," "Y," "NO," or "N"):

- 11 To confirm the system prompt, type
>YES
 and press the Enter key.

Note: Repeat this step for the other line subgroups associated with the line drawer.

Example of a MAP display:

```
STAR Rem1 00 0 ISTb Links_OOS: CSide 0 PSide 0 UMP OOS: 0
Unit 0: InSv Mtce /RG: 0
Unit 1: InSv Mtce /RG: 0 RG:
Drwr: 11 11 11 11 11 22 22 22 22 22 33 33 33 Pref 0 InSv
01 23 45 67 89 01 23 45 67 89 01 23 45 67 89 01 23 45 Stby 1 InSv
.. .. MM .. .. .. .. .. .. .. .. .. .. .. .. .. .. ..
```

At the SRHE frame

- 12 Remove the -48V fuse for the line drawer containing the faulty bus interface card.

Note: The line drawer fuses are grouped and labeled as +5 V, +15 V, and -48 V and are numbered from 1 to 18. The line drawers are numbered from 1 to 18. Any +5 V, +15 V, or -48 V fuse in position 1 is associated with line

NT6X54 in a STAR (continued)

drawer 1 and any fuse in position 2 is associated with line drawer 2, and so forth.

- 13 Remove the +15V fuse for the line drawer containing the faulty bus interface card. The +15 V fuse for the line drawer is numbered the same as the -48 V fuse removed in step 12.
- 14 Remove the +5V fuse for the line drawer containing the faulty bus interface card. Determine the correct fuse number by using the table in step 12.

If entry into this procedure is because of	Do
replacement of BIC	step 15
loss of power in STAR's controller	step 19

15



WARNING

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 (FSP) of the STAR. This protects the equipment against damage caused by static electricity.



WARNING

Card damage—transport

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat. Wear a wrist strap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch cabinet (Nortel Networks Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

NT6X54 in a STAR (continued)



WARNING

Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.



DANGER

Hot materials

Exercise care when handling the line card. The line feed resistor may be very hot.

Put on a wrist strap.

- 16 To open the line drawer, follow these substeps:
 - a Face the drawer shelf and grasp the lip at the bottom of the drawer.
 - b Push up on the drawer latch with your thumb and pull the drawer out approximately 15.0 cm (about 6.0 in).
- 17 To remove the BIC to be replaced, follow these substeps:
 - a Open the levers on the BIC.
 - b Grasp the open locking levers and remove the card from the line drawer in one steady motion. The card will unplug from its socket.

Note: Do not use a rocking motion to remove the card.
- 18 To replace the card with faults, follow these substeps:
 - a Remove the replacement card from the ESD container.
 - b Close the levers on the card.
 - c Position the card in its backplane socket. In one steady motion, push against the top and bottom of the card with your thumbs until the card plugs fully into the backplane socket.

Note: Do not use a rocking motion to insert the card.
 - d Close the line drawer.
- 19 Replace the +5V fuse for the line drawer containing the faulty bus interface card.
- 20 Replace the +15V fuse for the line drawer containing the faulty bus interface card.
- 21 Replace the -48V fuse for the line drawer containing the faulty bus interface card.

NT6X54 in a STAR (continued)

- 22** If you were directed to this procedure from an alarm clearing procedure in this manual, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 23.

At the MAP terminal

- 23** Determine which procedure to use to return the line subgroups to service.

If the card you are replacing is	Do
NT6X54AA	step 24
NT6X54DA	step 25

- 24** To return the line subgroups to service, type

>RTS DRWR lsg

and press the Enter key.

where

lsg

is one of two line subgroups (0 through 35) associated with the drawer

Note: Repeat this step for the other line subgroups associated with the line drawer.

If RTS	Do
passed	step 26
failed	step 28

- 25** To return the line subgroups to service, type

>RTS DRWR

and press the Enter key.

If RTS	Do
passed	step 26
failed	step 28

- 26** Send any faulty cards for repair according to local procedure.

- 27** Record the following items in office records:

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

Go to step 29.

- 28** Get additional help replacing this card by contacting the personnel responsible for higher level of support.

NT6X54
in a STAR (end)

29 You have correctly completed this procedure.

**NT6X60
in an IOPAC HIE**

Application

Use this procedure to replace the following card in a host interface equipment (HIE).

PEC	Suffixes	Name
NT6X60	DB	International ring generator (RG)

Common procedures

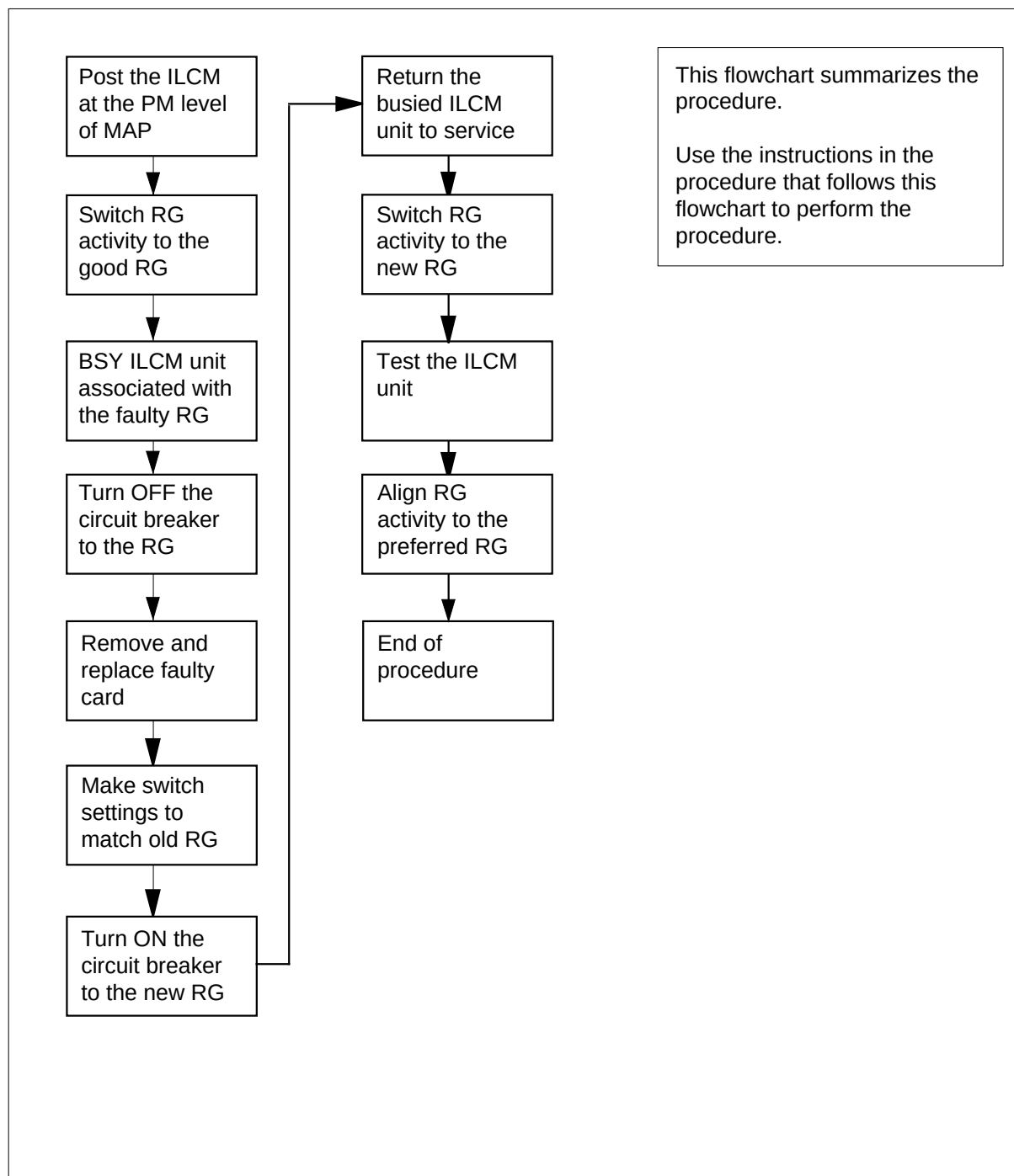
None

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.

NT6X60 in an IOPAC HIE (continued)

Summary of card replacement procedure for NT6X60 card in an HIE



NT6X60 in an IOPAC HIE (continued)

Replacing an NT6X60 in an HIE

At your Current Location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

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 the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 9. Otherwise, continue with step 4.

At the MAP terminal

- 4 Post the line concentrating module (LCM) with the HIE shelf containing the card to be replaced by typing

>MAPCI;MTC;PM;POST ILCM site frame lcm

and pressing the Enter key.

where

site

is the site name of the IOPAC (alphanumeric)

frame

is the frame number of the IOPAC (00 to 511)

lcm

is the number of the ILCM (00 to 199)

Example of a MAP response:

```
ILCM REM1 00 0 ISTb Links OOS: Cside 0 Pside 0 Unit 0: ISTb /RG:0Unit
1: InSv /RG:0 11 11 11 11 11 RG: Pref 0 ISTbDrwr:
01 23 45 67 89 01 23 45 67 89 Stby 1 InSv .. .. .
```

NT6X60 in an IOPAC HIE (continued)

- 5 Determine the line concentrating array (LCA) associated with the NT6X60 card to be replaced by using the following table.

LCM unit	RG card	HIE slot
LCA-0	RG-0	1, 2, 3, 4
LCA-1	RG-1	5, 6, 7, 8

- 6 Check the state of the PM units.

If the PM or PM units are	Do
Offl or SysB	step 8
One unit is InSv or ISTb the other unit is ISTb or SysB	step 7

- 7 Switch RG activity for the ILCM unit assigned to the faulty RG by typing
>SWRG UNIT unit_no
 and pressing the Enter key.
where
unit_no
 is the PM unit number (0 or 1)

Example of a MAP response:
 LCM REM1 00 0 Unit 0 SWRG Passed

- 8 Busy the ILCM unit associated with the faulty RG by typing
>BSY UNIT unit_no
 and pressing the Enter key.
where
unit_no
 is the ILCM unit to be busied (0 or 1)

At the MSP

- 9 Turn OFF the circuit breaker for the ringing generator to be replaced by using the information in the following table:

Circuit breaker	Ringing generator	Locations
CB06	RG-0	HIE slots 1, 2, 3, 4
CB08	RG-1	HIE slots 5, 6, 7, 8

NT6X60
in an IOPAC HIE (continued)

10**DANGER****Static electricity damage**

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the modular supervisory panel of the OPAC cabinet. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

Take these precautions when removing or inserting a card: 1. Do not apply direct pressure to the components. 2. Do not force the cards into the slots.

Put on a wrist strap.

At the HIE

- 11** Remove the NT6X60 card as follows:
1. Locate the card to be removed on the appropriate shelf.
 2. Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.
 3. Place the card you have removed in an electrostatic discharge (ESD) protective container.
 4. Examine the switch settings (if any) of the card just removed. Ensure that the switch settings on the replacement card match those of the card being replaced.
 5. Ensure that the replacement card has the same product equipment code (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** Seat and lock the card.
1. 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.
 2. Close the locking levers.

At the MSP

- 14** Turn ON the circuit breaker turned OFF in step 9.
- 15** Remove the wrist strap.

NT6X60

in an IOPAC HIE (continued)

- 16** If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 17.

At the MAP terminal

- 17** Return the ILCM unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the ILCM unit busied in step 8 (0 or 1)

If RTS	Do
passed	step 18
failed	step 23

- 18** Switch RG activity to the new RG by typing

>SWRG UNIT unit_no

and pressing the Enter key.

where

unit_no

is the PM unit number (0 or 1)

Example of a MAP response:

```
ILCM REM1 00 0 InSv Links OOS: Cside 0 Pside 0Unit 0: InSv /RG:0Unit
1: InSv /RG:0 11 11 11 11 11 RG: Pref 0 InSvDrwr: 01
23 45 67 89 01 23 45 67 89 Stby 1 InSv .. .. .. .. ..
```

If SWRG	Do
passed	step 19
failed	step 23

- 19** Test the new RG by typing

>TST UNIT unit_no

and pressing the Enter key.

unit_no

is the number of the ILCM unit busied in step 8 (0 or 1)

where

NT6X60 in an IOPAC HIE (end)

LCM REM1 00 0 Unit 0 InSvce Tests Initiated LCM REM1 00 0 Unit 0 Tst Passed

	If test	Do
	passed	step 20
	failed	step 23
20	Align RG activity to the preferred RG by typing >SWRG UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the ILCM unit (0 or 1)	
	If SWRG	Do
	passed	step 21
	failed	step 23
21	Send any faulty cards for repair according to local procedure.	
22	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 24.	
23	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
24	You have successfully completed this procedure.	

NT6X60 in an OPAC HIE

Application

Use this procedure to replace the following card in a host interface equipment (HIE).

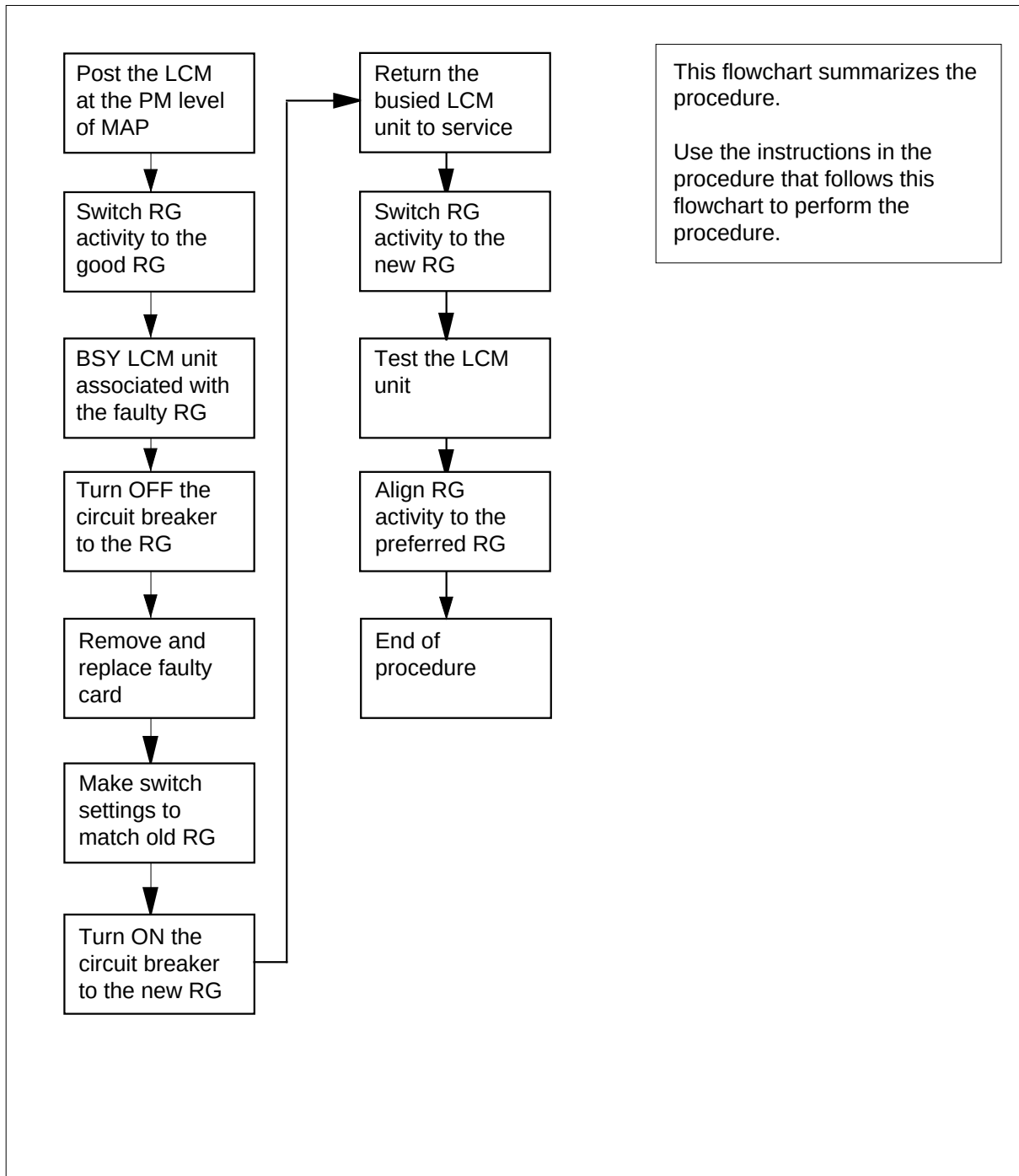
PEC	Suffixes	Name
NT6X60	AA, BA, CA,DA	North American ring generator (RG)

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.

NT6X60
in an OPAC HIE (continued)**Summary of card replacement procedure for NT6X60 card in an HIE**

NT6X60 in an OPAC HIE (continued)

Replacing an NT6X60 in an HIE

At your Current Location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

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 the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 9. Otherwise, continue with step 4.

At the MAP terminal

- 4 Post the line concentrating module (LCM) with the HIE shelf containing the card to be replaced by typing

>MAPCI;MTC;PM;POST LCM site frame lcm

and pressing the Enter key.

where

site

is the site name of the OPAC (alphanumeric)

frame

is the frame number of the OPAC (00-511)

lcm

is the number of the LCM in the OPAC cabinet

Example of a MAP response:

NT6X60 in an OPAC HIE (continued)

```
LCM  REM1  00 0  ISTb  LINKS  OOS:  Cside 0 Pside 0
Unit 0:      ISTb  /RG:1
Unit 1:      InSv  /RG:1
```

```
11 11 11 11 11RG: Pref 0 ISTb
```

```
Drwr: 01 23 45 67 89 01 23 45 67 89          Stby 1 InSv
```

```
.. .. .. .. ..
```

- 5 Determine the line concentrating array (LCA) associated with the NT6X60 card to be replaced by using the following table.

LCM unit	RG card	HIE slot
LCA-0	RG-0	1, 2, 3, 4
LCA-1	RG-1	5, 6, 7, 8

- 6 Check the state of the PM units.

If the PM units are	Do
OFFL or SysB	step 8
One unit is InSv or ISTb the other unit is ISTB or SysB	step 7

- 7 Switch RG activity for the LCM unit assigned to the faulty RG by typing
>SWRG UNIT unit_no
and pressing the Enter key.

where

unit_no
is the PM unit number (0 or 1)

Example of a MAP response:
LCM REM1 00 0 Unit 0 SWRG Passed

- 8 Busy the LCM unit associated with the faulty RG by typing
>BSY UNIT lcm_unit
and pressing the Enter key.

where

lcm_unit
is the LCM unit to be busied (0 or 1)

NT6X60 in an OPAC HIE (continued)

At the MSP

- 9 Turn OFF the circuit breaker for the ringing generator to be replaced by using the information in the following table:

Circuit breaker	Ringing generator	Locations
CB06	RG-0	HIE slots 1, 2, 3, 4
CB08	RG-1	HIE slots 5, 6, 7, 8

10



DANGER

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the modular supervisory panel of the OPAC cabinet. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

Take these precautions when removing or inserting a card:1. Do not apply direct pressure to the components.2. Do not force the cards into the slots.

Put on a wrist strap.

At the HIE

- 11 Remove the NT6X60 card as follows:
1. Locate the card to be removed on the appropriate shelf.
 2. Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.
 3. Place the card you have removed in an electrostatic discharge (ESD) protective container.
 4. Examine the switch settings (if any) of the card just removed. Ensure that the switch settings on the replacement card match those of the card being replaced.
 5. Ensure that the replacement card has the same product equipment code (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.

NT6X60 in an OPAC HIE (continued)

- 13** Seat and lock the card.
1. 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.
 2. Close the locking levers.

At the MSP

- 14** Turn ON the circuit breaker turned OFF in step 9.
- 15** Remove the wrist strap.
- 16** If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 17.

At the MAP terminal

- 17** Return the LCM unit to service by typing
>RTS UNIT unit_no
 and pressing the Enter key.

where

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

If RTS	Do
passed	step 18
failed	step 23

- 18** Switch RG activity to the new RG by typing
>SWRG UNIT unit_no
 and pressing the Enter key.

where

unit_no
 is the PM unit number (0 or 1)

Example of a MAP response:

```
LCM REM1 00 0 InSv Links  OOS: Cside 0 Pside 0Unit 0: InSv   /RG:0Unit
1: InSv   /RG:0           11 11 11 11 11 RG: Pref 0 InSvDrwr: 01
23 45 67 89 01 23 45 67 89   Stby 1 InSv   .. .. .. .. .. .. .. ..
```

If SWRG	Do
passed	step 19
failed	step 23

- 19** Test the new RG by typing
>TST UNIT unit_no

NT6X60

in an OPAC HIE (end)

and pressing the Enter key.

where

lcm_unit

is the number of the LCM unit busied in step 8 (0 or 1)

where

LCM REM1 00 0 Unit 0 InSvce Tests Initiated LCM REM1 00 0 Unit 0 Tst
Passed

If test	Do
passed	step 20
failed	step 23

- 20** Align RG activity to the preferred RG by typing

>SWRG UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the number of the LCM unit (0 or 1)

Note: Repeat this step until both units of the LCM are aligned to the preferred RG.

If RTS	Do
passed	step 21
failed	step 23

- 21** Send any faulty cards for repair according to local procedure.

- 22** 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 24.

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

- 24** You have successfully completed this procedure.

**NT6X60
in an OPM HIE**

Application

Use this procedure to replace the following card in a host interface environment (HIE).

PEC	Suffixes	Name
NT6X60	AA, BA, CA , DA	North American ringing Generator (RG)

A summary of the card replacement procedure for the NT6X60 in a HIE is shown below. The procedure used to perform the task follows the flowchart.

Common procedures

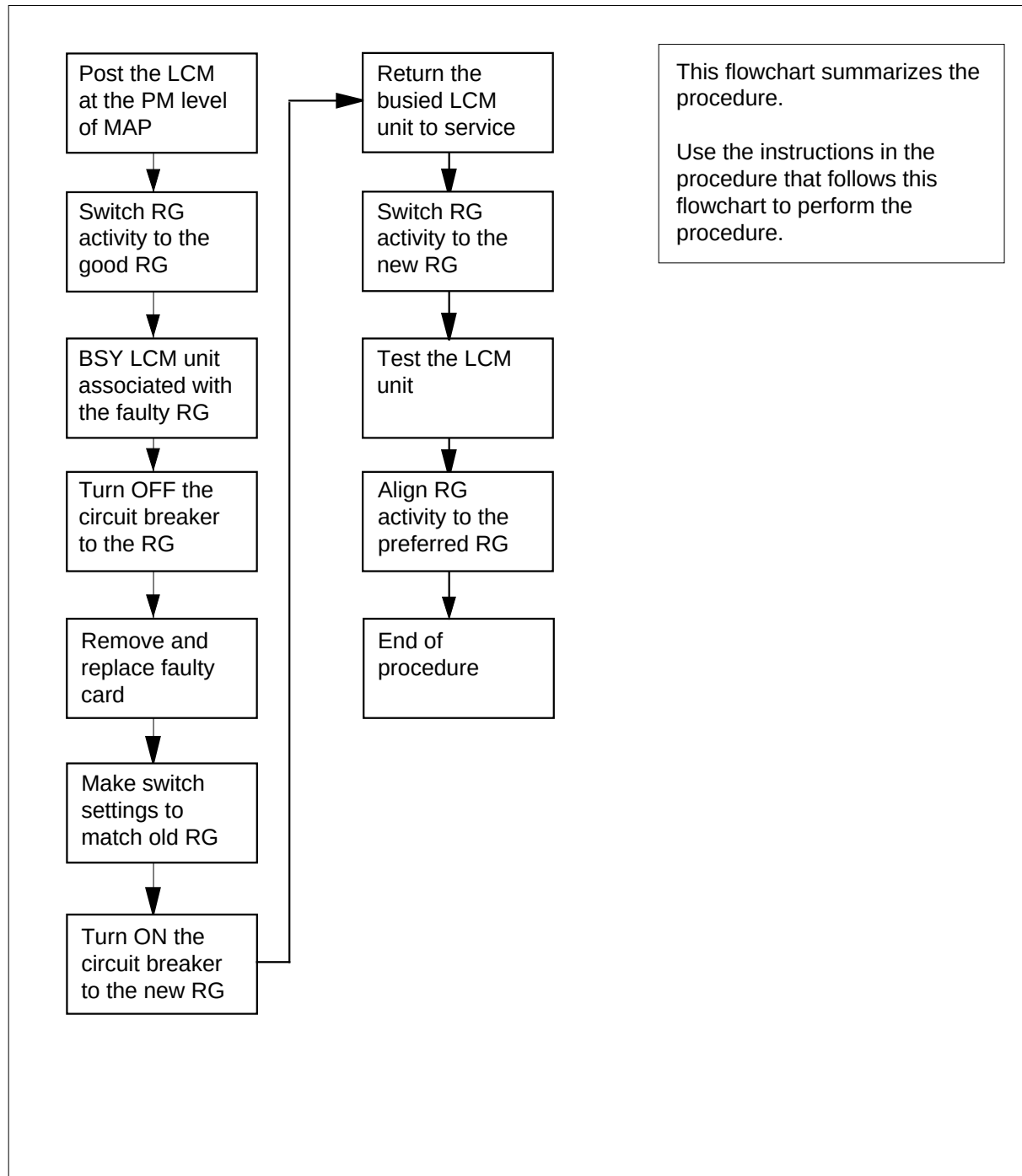
None

Action

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

NT6X60 in an OPM HIE (continued)

Summary of card replacement procedures for an NT6X60 card in an HIE



NT6X60
in an OPM HIE (continued)

Replacing an NT6X60 card in an HIE***At your Current Location*****1****CAUTION****Loss of service**

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or were 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 that is to be removed.
- 3** If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 9. Otherwise, continue with step 4.

At the MAP

- 4** Access the PM level and post the LCM by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the site at which the LCM is located

frame

is the number of the frame (0 to 511)

lcm

is the number of the LCM (0 to 199)

Example of a MAP display:

NT6X60 in an OPM HIE (continued)

```
LCM REM1 00 0 ISTb LINKS OOS: Cside 0 Pside 0
Unit 0: ISTb /RG:1
Unit 1: InSv /RG:1
```

```
11 11 11 11 11RG: Pref 0 ISTb
```

```
Drwr: 01 23 45 67 89 01 23 45 67 89 Stby 1 InSv
```

```
.. .. .. .. ..
```

- 5 Determine the line concentrating array (LCA) associated with the NT6X60 card to be replaced by using the following table.

LCM unit	RG card	HIE slot
LCA-0	RG-0	1, 2, 3, 4
LCA-1	RG-1	5, 6, 7, 8

- 6 Check the state of the PM units.

If the PM units are	Do
OFFL or SysB	step 8
One unit is InSv or ISTb the other unit is ISTB or SysB	step 7

- 7 Switch ringing generator activity to the good NT6X60 card by typing
>SWRG UNIT unit_no
 and pressing the Enter key.

where

lcm_unit
 is the LCM unit (0 or 1) aligned to the faulty RG

Note: If necessary repeat this step until both units of the LCM are aligned to the good RG.

If the SWRG command	Do
passed	step 8
failed	step 23

- 8 Busy the LCM unit associated with the faulty RG by typing
>BSY UNIT lcm_unit

NT6X60
in an OPM HIE (continued)

and pressing the Enter key.

where

lcm_unit
is the LCM unit (0 or 1) as seen in step 5

At the OPM cabinet

- 9 Turn OFF the circuit breaker for the ringing generator to be replaced by using the information in the following table:

IfCircuit breaker	DoRinging Generator
CB2	RG-0
CB3	RG-1

10



DANGER
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 OPM cabinet. This protects the equipment against damage caused by static electricity.



DANGER
Equipment damage
Take these precautions when removing or inserting a card:1. Do not apply direct pressure to the components.2. Do not force the cards into the slots.

Put on a wrist strap.

NT6X60 in an OPM HIE (continued)

At the HIE

- 11** Remove the NT6X60 card as follows:
1. Locate the card to be removed on the appropriate shelf.
 2. Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.
 3. Place the card you have removed in an electrostatic discharge (ESD) protective container.
 4. Examine the switch settings (if any) of the card just removed. Ensure that the switch settings on the replacement card match those of the card being replaced.
 5. Ensure that the replacement card has the same product equipment code (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** Seat and lock the card.
1. 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.
 2. Close the locking levers.

At the OPM cabinet

- 14** Turn ON the circuit breaker turned OFF in step 9.
- 15** Remove the wrist strap.
- 16** If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 17.

At the MAP terminal

- 17** Return the LCM unit to service by typing
>RTS UNIT lcm_unit
and pressing the Enter key.
where
lcm_unit
is the number of the LCM unit busied in step 8

If RTS	Do
passed	step 18
failed	step 23

- 18** Switch ringing generator activity to the new NT6X60 card by typing
>SWRG UNIT unit_no
and pressing the Enter key.

NT6X60 in an OPM HIE (continued)

where

lcm_unit
is the LCM unit (0 or 1)

Note: Repeat this step until both units of the LCM are aligned to the new RG.

If SWRG command	Do
passed	step 19
failed	step 23

- 19** Test the new RG by typing
>TST UNIT lcm_unit_no
 and pressing the Enter key.

where

lcm_unit_no
is the number of the LCM unit posted in step 4

Example of a MAP response:

LCM REM1 14 1 Unit 0 InSvce Tests Initiated LCM REM1 14 1 Unit 0 Tst Passed

If TST	Do
passed	step 20
failed	step 23

- 20** If required align RG activity to the preferred RG by typing
>SWRG UNIT unit_no
 and pressing the Enter key.

where

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

Note: Repeat this step until both units of the LCM are aligned to the preferred RG.

If the SWRG command	Do
passed	step 21
failed	step 23

- 21** Send any faulty cards for repair according to local procedure.

NT6X60
in an OPM HIE (end)

- 22** 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 24
- 23** Obtain further assistance in replacing this card by contacting personnel responsible for a higher level of support.
- 24** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X60
in an RLCM HIE**

Application

Use this procedure to replace the following card in a host interface environment (HIE).

PEC	Suffixes	Name
NT6X60	AA, BA, CA, DA	North American Ring Generator

A summary of the card replacement procedure for the NT6X60 in a HIE is shown below. The procedure used to perform the task follows the flowchart.

Common procedures

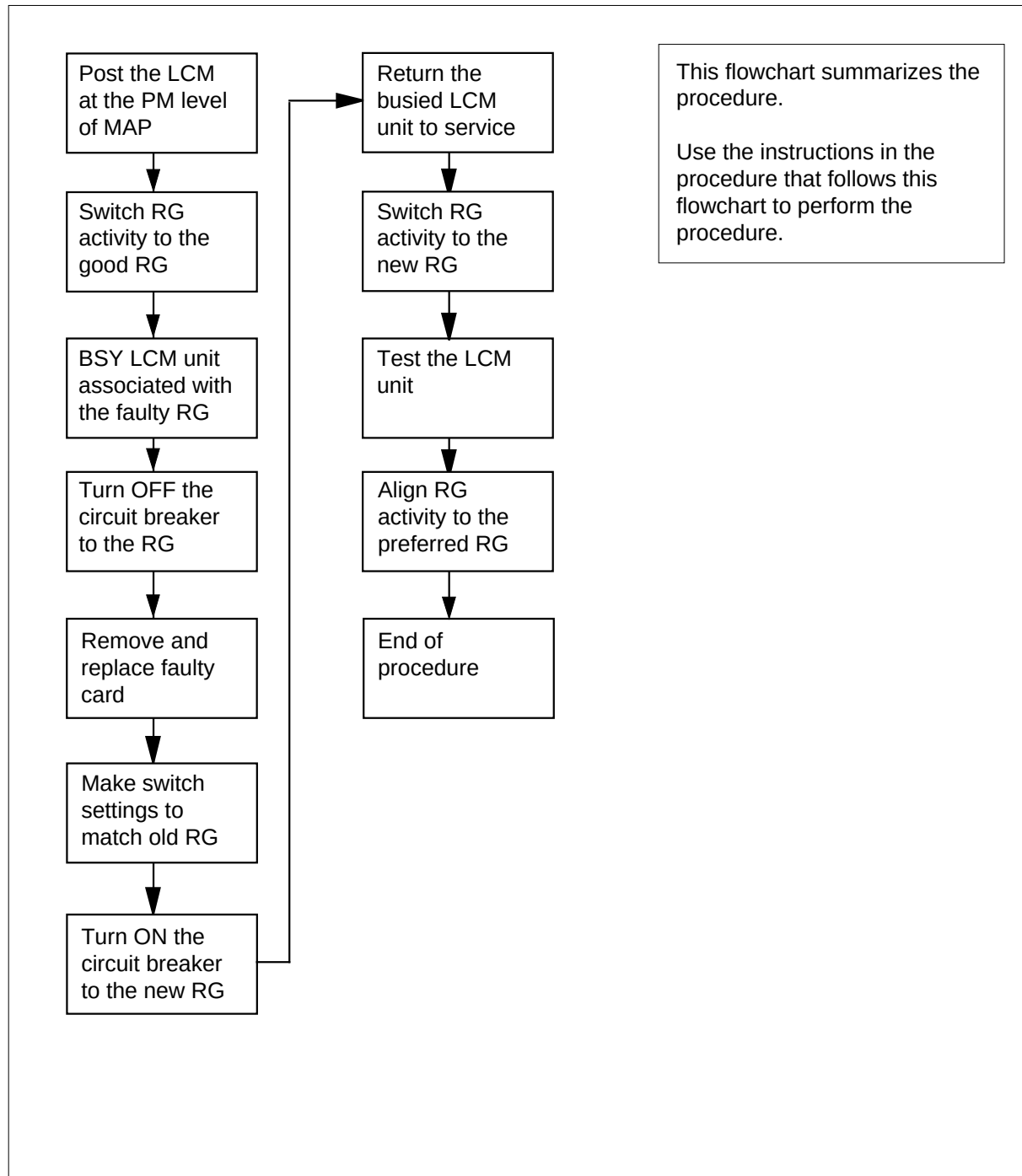
None

Action

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

NT6X60 in an RLCM HIE (continued)

Summary of card replacement procedure for an NT6X60 card in an HIE



NT6X60 in an RLCM HIE (continued)

Replacing an NT6X60 card in an HIE

At your current location

1



CAUTION

Loss of service

This procedure includes directions to manually busy one or more peripheral module (PM) units. Since manually busy-ing a PM unit 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.

Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or were 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 that is to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 9. Otherwise, continue with step 4.

At the MAP terminal

- 4 Post the line concentrating module (LCM) with the HIE shelf containing the card to be replaced by typing

>MAPCI;MTC;PM;POST LCM site frame lcm

and pressing the Enter key.

where

site

is the site name of the RLCM (alphanumeric)

frame

is the number of the RLCM frame (00 to 511)

lcm

is the number of the LCM (00 to 199)

Example of a MAP response:

NT6X60 in an RLCM HIE (continued)

```
LCM  REM1  00 0  ISTb  LINKS  OOS:  Cside 0 Pside 0
Unit 0:      ISTb  /RG:1
Unit 1:      InSv  /RG:1
```

```
11 11 11 11 11RG: Pref 0 ISTb
```

```
Drwr: 01 23 45 67 89 01 23 45 67 89          Stby 1 InSv
```

```
. . . . .
```

- 5 Determine the line concentrating array (LCA) associated with the NT6X60 card to be replaced by using the following table.

LCM unit	RG card	HIE slot
LCA-0	RG-0	1, 2, 3, 4
LCA-1	RG-1	5, 6, 7, 8

- 6 Check the state of the PM units.

If the PM units are	Do
OFFL or SysB	step 8
One unit is InSv or ISTb the other unit is ISTB or SysB	step 7

- 7 Switch ringing generator activity to the good NT6X60 card by typing
>SWRG UNIT unit_no
 and pressing the Enter key.

where

lcm_unit

is the LCM unit (0 or 1) aligned to the faulty RG

Note: If necessary repeat this step until both units of the LCM are on the good RG.

If the SWRG command	Do
passed	step 8
failed	step 23

- 8 Busy the LCM unit associated with the faulty RG by typing
>BSY UNIT lcm_unit

NT6X60
in an RLCM HIE (continued)

and pressing the Enter key.

where

lcm_unit

is the LCM unit (0 or 1) as seen in step 5

At the FSP

- 9 Turn OFF the circuit breaker for the ringing generator to be replaced by using the information in the following table:

IfCircuit breaker	DoRinging Generator
CB2	RG-0
CB3	RG-1

10

**DANGER****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 LCM. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

Take these precautions when removing or inserting a card:1. Do not apply direct pressure to the components.2. Do not force the cards into the slots.

Put on a wrist strap.

NT6X60 in an RLCM HIE (continued)

At the HIE

- 11** Remove the NT6X60 card as follows:
1. Locate the card to be removed on the appropriate shelf.
 2. Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.
 3. Place the card you have removed in an electrostatic discharge (ESD) protective container.
 4. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card you just removed.
 5. Examine the switch settings (if any) of the card just removed. Ensure that the switch settings on the replacement card match those of the card being replaced.
- 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.
1. 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.
 2. Close the locking levers.

At the FSP

- 14** Turn ON the circuit breaker turned OFF in step 9.
- 15** Remove the wrist strap.
- 16** If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 17.

At the MAP terminal

- 17** Return the LCM unit to service by typing

>RTS UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the number of the LCM unit (0 or 1) busied in step 8

If RTS	Do
passed	step 18
failed	step 23

- 18** Switch ringing generator activity to the new NT6X60 card by typing

>SWRG UNIT unit_no

and pressing the Enter key.

NT6X60 in an RLCM HIE (continued)

where

lcm_unit
is the LCM unit (0 or 1)

Note: Repeat this step until both units of the LCM are aligned to the new RG.

If the SWRG command	Do
passed	step 19
failed	step 23

- 19** Test the new ringing generator by typing

>TST UNIT lcm_unit_no

and pressing the Enter key.

where

lcm_unit_no
is the number of the LCM unit busied in step 8

Example of a MAP response:

LCM REM1 00 0 Unit 0 InSvce Tests Initiated LCM REM1 00 0 Unit 0 Tst Passed

If TST	Do
passed	step 20
failed	step 23

- 20** If required, align ringing generator activity to the preferred RG by typing

>SWRG UNIT unit_no

and pressing the Enter key.

where

lcm_unit
is the LCM unit (0 or 1)

Note: Repeat this step until both units of the LCM are aligned to the preferred RG.

If the SWRG command	Do
passed	step 21
failed	step 23

- 21** Send any faulty cards for repair according to local procedure.

NT6X60
in an RLCM HIE (end)

- 22** 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 24
- 23** Obtain further assistance in replacing this card by contacting personnel responsible for a higher level of support.
- 24** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X69
in an RSC-M**

Application

This procedure replaces an NT6X69 circuit card in a Remote Switching Center Multi-access (RSC-M) main shelf.

Note: In the examples of this section, RSC-M refers to RCO2. When software outputs messages to the MAP terminal, the software does not differentiate between the two types of RCO2.

PEC	Suffixes	Name
NT6X69	LB	Message and tone card

Common procedures

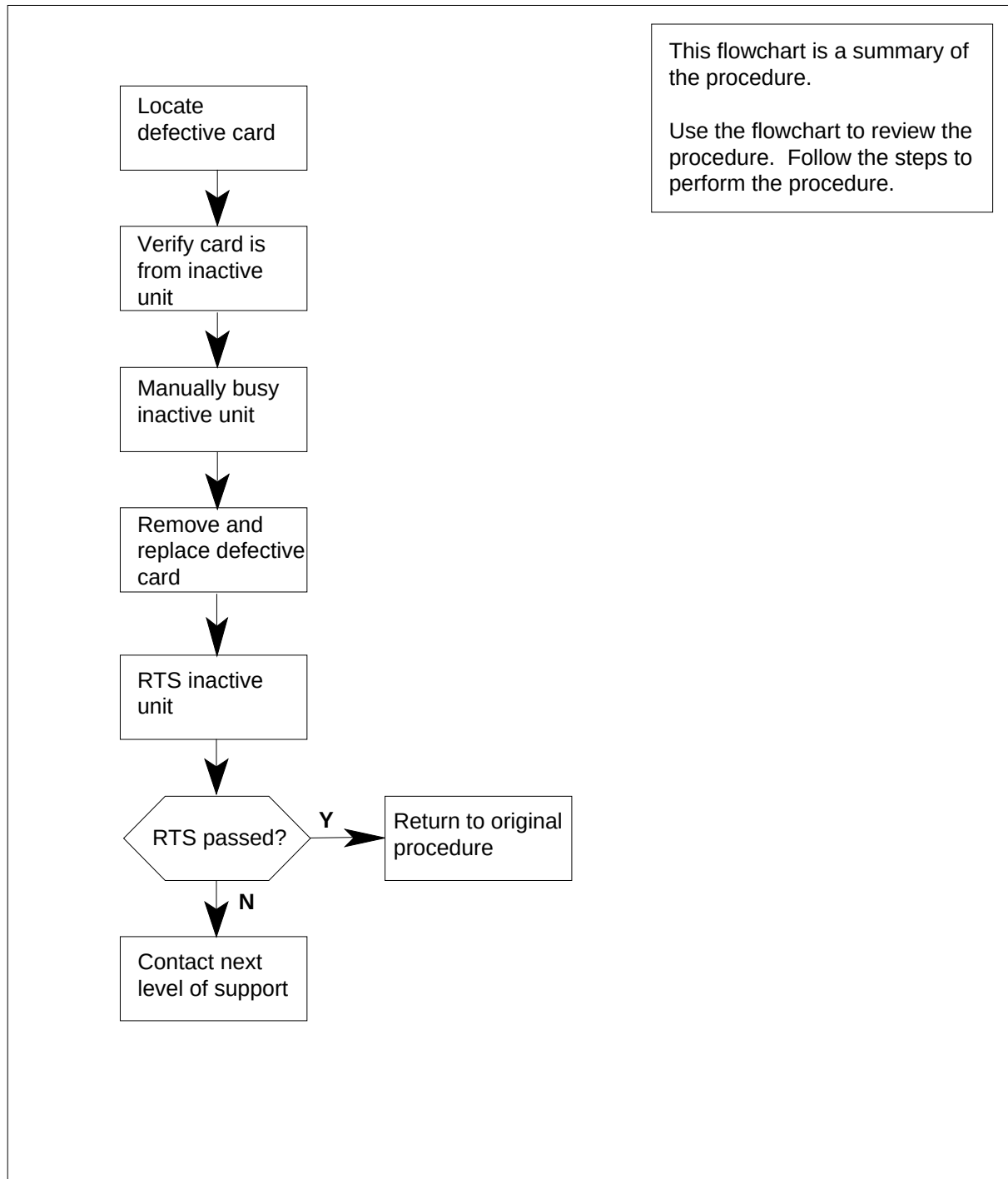
Does not apply

Action

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

NT6X69 in an RSC-M (continued)

Summary of card replacement procedure for an NT6X69 card in an RSC-M RCO2



NT6X69 in an RSC-M (continued)

To Replace a/an NT6X69 in an RSC-M

At your Current Location:

- 1 Continue with this procedure if:
 - a step in a maintenance procedure directs you to this card
 - you use this procedure to verify or accept cards
 - your maintenance support group directs you to this procedure.
- 2



WARNING

Loss of service

When you replace a card in the RSC-M, make sure that the unit in which you replace the card is *inactive* and the mate unit is *active*.

Obtain a replacement card. Make sure the replacement card has the same PEC and PEC suffix, as the card to be removed.

At the MAP terminal

- 3 Make sure the peripheral module (PM) level of the MAP display appears, type:

```
>MAPCI;MTC;PM;POST RC02 rco2_no
```

and press the Enter key.

where

rco2_no

is the number of the rco2 with the defective card

Example of a MAP display:

NT6X69

in an RSC-M (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
RC02			SysB	ManB	OffL	CBsy	ISTb	InSv	
0 Quit	PM		0	0	0	0	0	25	
2 Post_	RC02		0	0	0	0	0	0	
3 ListSet									
4	RC02		0 InSv	Links_00S:					
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 Check the MAP display to make sure that the card to be removed is on the inactive unit.

If defective card is on	Do
active unit	step 4
inactive unit	step 6

- 5 To switch the processing activity (SWACT) to the inactive unit,type:

>SWACT

and press the Enter key.

Example of a MAP response:

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

If	Do
you must confirm the command	step 6
the system rejects the SWACT	step 23

NT6X69
in an RSC-M (continued)

- 6 To confirm the system prompt, type:
>YES
and press the Enter key.
When both units are in-service, proceed to the next step.

At the RSC-M

- 7 Place a sign with the words Active unit-Do not touch on the unit. Do not attach the sign with magnets or tape.

At the MAP terminal

- 8 To busy the inactive PM unit, type:
>bsy unit rco2_unit_no
and press the Enter key.
where
rco2_unit_no
is the number of the inactive RCO2 unit zero or one
- 9 To set the PM to the ROM level and stop messaging, type:
>PMRESET UNIT rco2_unit_no NORUN
and press the Enter key.
where
rco2_unit_no
is the number of the inactive RCO2 unit zero or one

NT6X69 in an RSC-M (continued)

At the RSC-M

10



WARNING

Static electricity damage

Before you remove cards, put on a wrist strap that connects to the wrist strap grounding point on the left side of the modular supervisory panel (MSP) of the RSC-M. The wrist strap protects the equipment against static electricity damage.



DANGER

Equipment damage

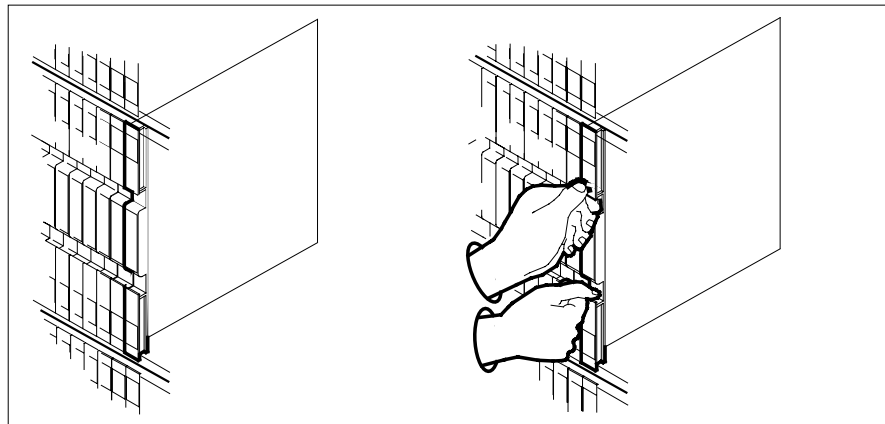
Take these precautions when you remove or insert a card:

1. Do not apply direct pressure to the components.
2. Do not force the card in the slots.

Put on a wrist strap.

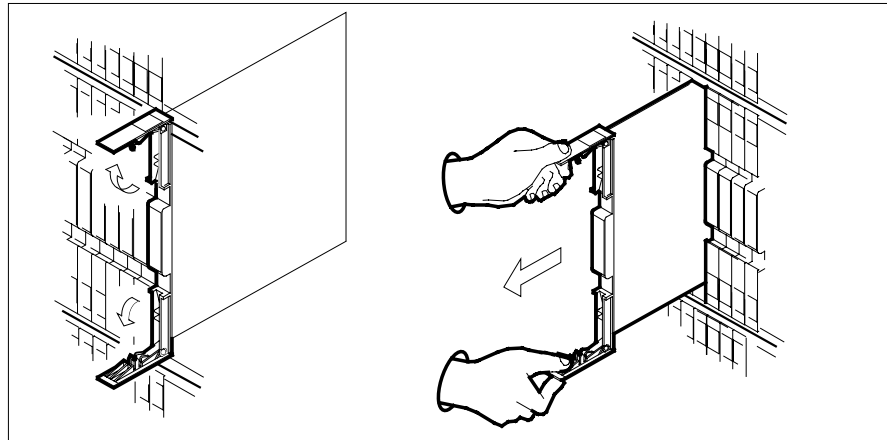
11 The following figures show how to remove the NT6X69 card:

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



b Open the locking levers on the card to be replaced. Carefully pull the card toward you until the card clears the shelf.

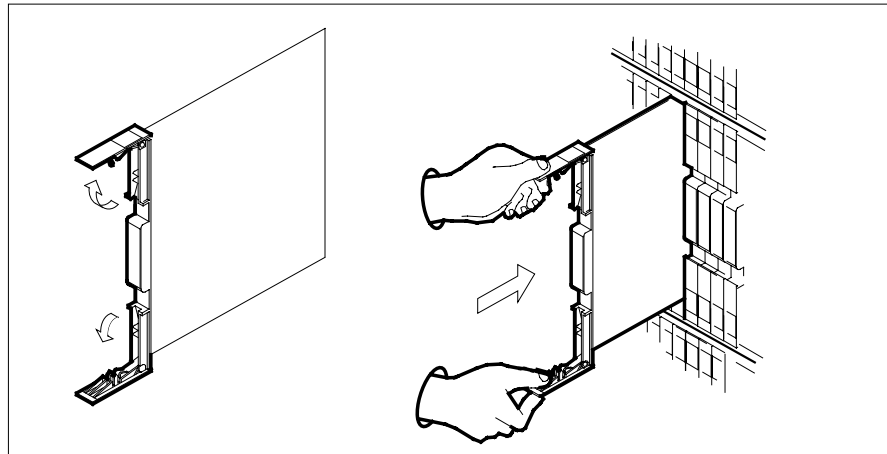
NT6X69
in an RSC-M (continued)



- c** Make sure the replacement card has the same PEC and PEC suffix, as the card you removed.

12 Open the locking levers on the replacement card.

- a** Align the card with the slots in the shelf.
b Carefully slide the card in the shelf.



NT6X69 in an RSC-M (continued)

13



CAUTION

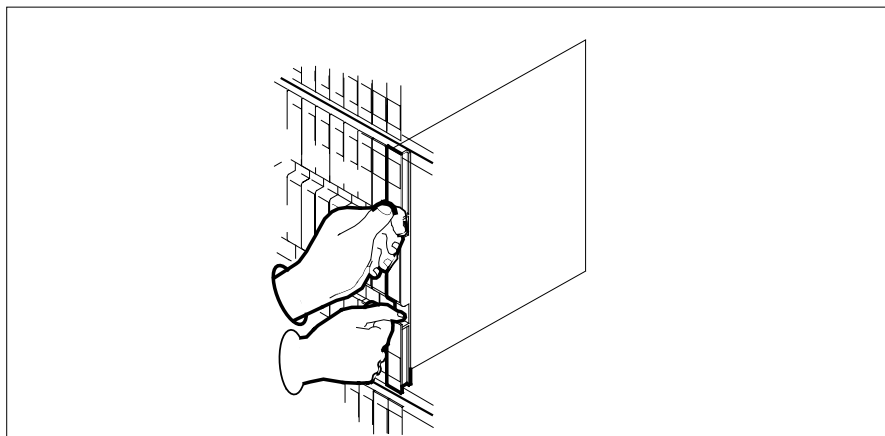
Loss of subscriber service

Subscriber service can occur in the active unit when you reseal the NT6X69 card.

Perform this procedure during low traffic periods.

Seat and lock the card.

- a Use your fingers or thumbs to push on the upper and lower edges of the faceplate. Make sure that the card sits completely in the shelf.
- b Close the locking levers.



At the MAP terminal

- 14 To perform a full reset of the inactive unit, type:

```
>PMRESET UNIT rco2_unit_no
```

and press the Enter key.

where

rco2_unit_no

is the number of the inactive RCO2 unit zero or one

If PMRESET	Do
passes	step 17
fails, try loading this unit again	step 15

NT6X69 in an RSC-M (continued)

15	If PMRESET	Do
	fails with a card list	step 20
	To load the inactive unit, type: >LOADPM UNIT rco2_unit_no CC and press the Enter key. <i>where</i> rco2_unit_no is the number of the inactive RCO2 unit zero or one	
	If LOADPM	Do
16	passes	step 16
	fails	step 21
	fails with a card list	step 20
	Use the following information to determine the next step in this procedure:	
17	If you entered this procedure from	Do
	How to clear an procedure	step 20
	other	step 17
	To return the inactive RCO2 unit to service, type: >RTS UNIT rco2_unit_no and press the Enter key. <i>where</i> rco2_unit_no is the number of the inactive RCO2 unit zero or one	
18	If RTS	Do
	passes	step 18
	fails	step 21
	Send the defective cards for repair according to local procedure.	
19	Record the date the card is replaced, the serial number of the card, and the problems that prompted replacement of the card. Go to step 22.	
20	Return to the procedure that directed you to this procedure. At the point where the system produced a defective card list, identify the next damaged	

NT6X69

in an RSC-M (end)

card on the list. Go to the appropriate card replacement procedure for that card in this manual.

- 21 For additional help, contact the next level of support.
- 22 This procedure is complete. Remove the sign from the active unit. Return to the maintenance procedure that directed you to this card replacement procedure. Continue as directed.
- 23 For additional help, keep 2, contact the next level of support.

Note: The system can recommend you use the SWACT command with the FORCE option. When this condition occurs, contact the office personnel to determine if use of the FORCE option is correct.

NT6X69
in an RSC RCC/RCC2

Application

Use this procedure to replace an NT6X69 in an RSC RCC.

Note: This procedure is used to replace a card in an RCC or an RCC2. In this procedure the term RCC refers to both the RCC in an RSC frame, NT6X10, and an RCC2 in an RSCE cabinet, NTMX89.

PEC	Suffixes	Name
NT6X69	AB, AC, AD, QA	Message and tone card

Common Procedures

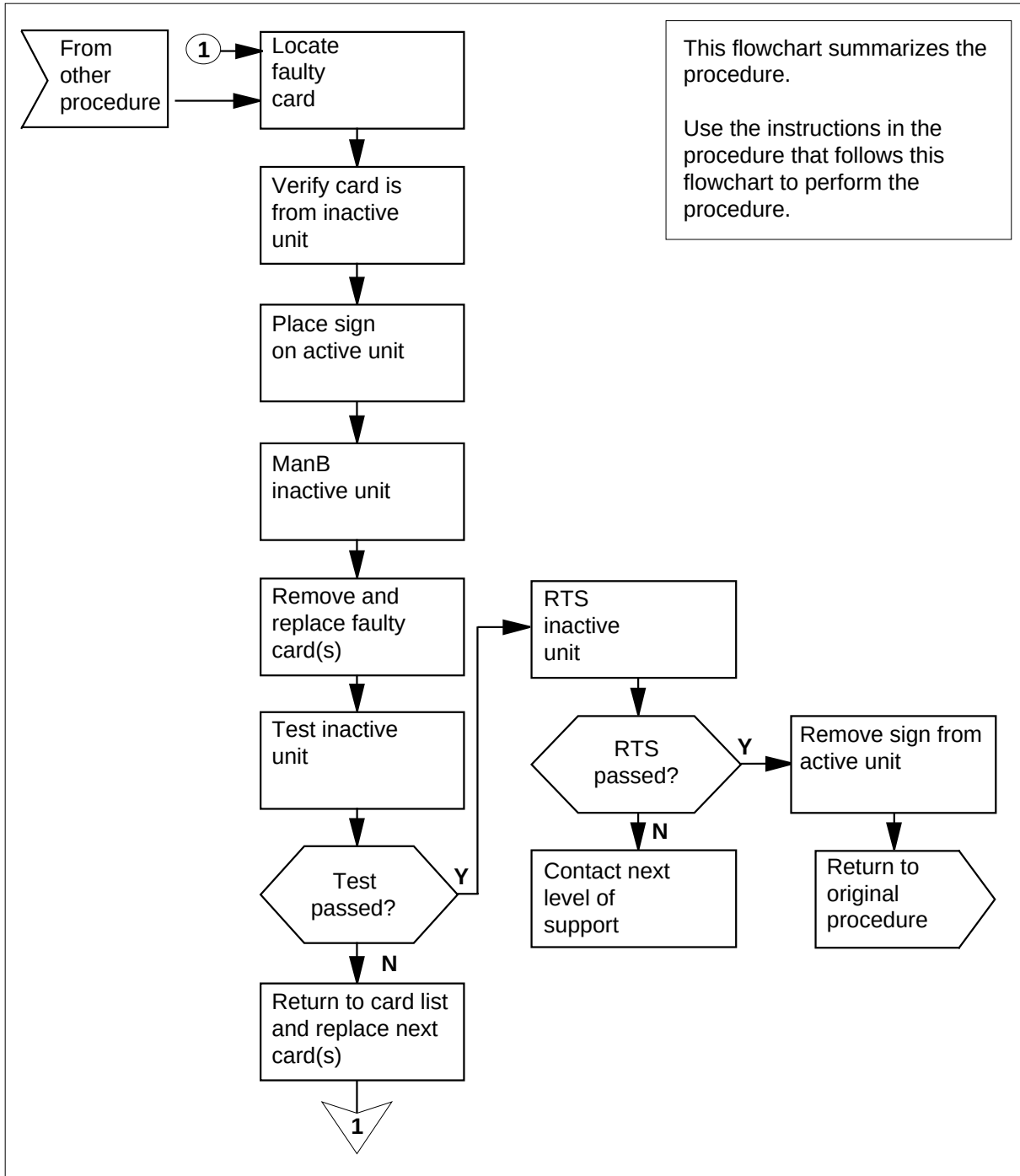
None

Action

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.

NT6X69 in an RSC RCC/RCC2 (continued)

Summary of card replacement procedure for an NT6X69 card in an RSC RCC



NT6X69 in an RSC RCC/RCC2 (continued)

Replacing an NT6X69 card in RSC RCC

At your current location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in an RCC, ensure the unit where you are replacing the card is INACTIVE and that the mate unit is ACTIVE.

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

At the MAP display

- 3 Access the PM level and post the RCC by typing
>MAPCI;MTC;PM;POST RCC rcc_unit_no
and pressing the Enter key.
where
rcc_unit_no
is the number of the RCC unit to be busied (0 or 1)
Example of a MAP display:

NT6X69

in an RSC RCC/RCC2 (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	1RCC	.	.	.	.	.
RCC			SysB	ManB	OffL	CBsy	ISTb	InSv	
0 Quit	PM		0	0	2	0	2	25	
2 Post_	RCC		0	0	0	0	1	1	
3 ListSet									
4	RCC		0 ISTb	Links_00S:	CSide	1,	PSide	1	
5 TRNSL_	Unit0:		Inact	SysB					
6 TST_	Unit1:		Act	InSv					
7 BSY_									
8 RTS_									
9 OffL									
10 LoadPM_									
11 Disp_									
12 Next									
13									
14 QueryPM									
15									
16 IRLINK									
17 Perform									
18									

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

At the RCE frame

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

At the MAP display

- 6 Busy the inactive RCC unit by typing
>BSY UNIT rcc_unit_no
 and pressing the Enter key.
where
rcc_unit_no
 is the number of the inactive RCC unit (0 or 1)
- 7 Prevent the PM from trapping by typing
>PMRESET UNIT rcc_unit_no NORUN
 and pressing the Enter key.
where
rcc_unit_no is
 the number of the inactive RCC unit

NT6X69
in an RSC RCC/RCC2 (continued)**At the RCE frame****8****DANGER****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 RCC. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

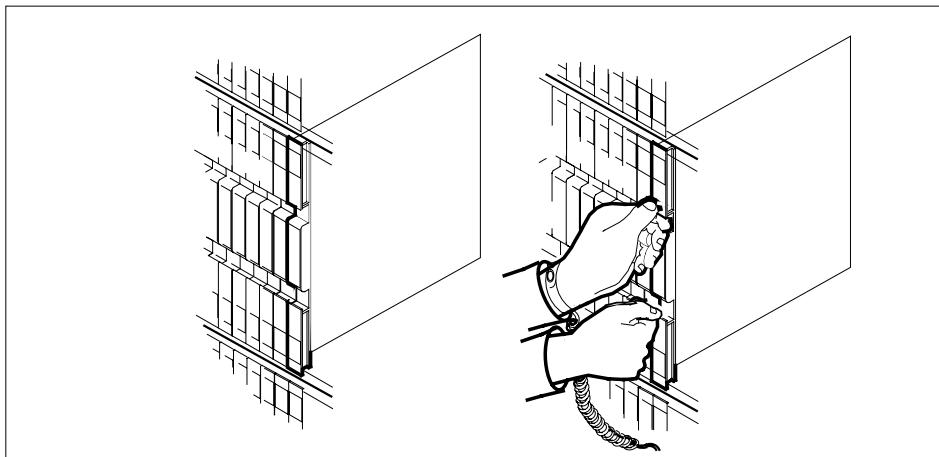
9**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

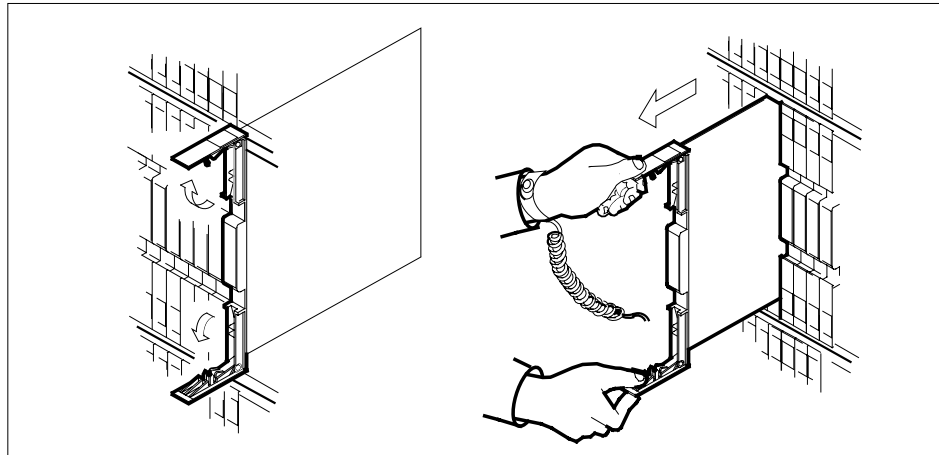
Remove the NT6X69 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.



- b** 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 RSC RCC/RCC2 (continued)



- c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

10



DANGER

Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.



CAUTION

Loss of subscriber service

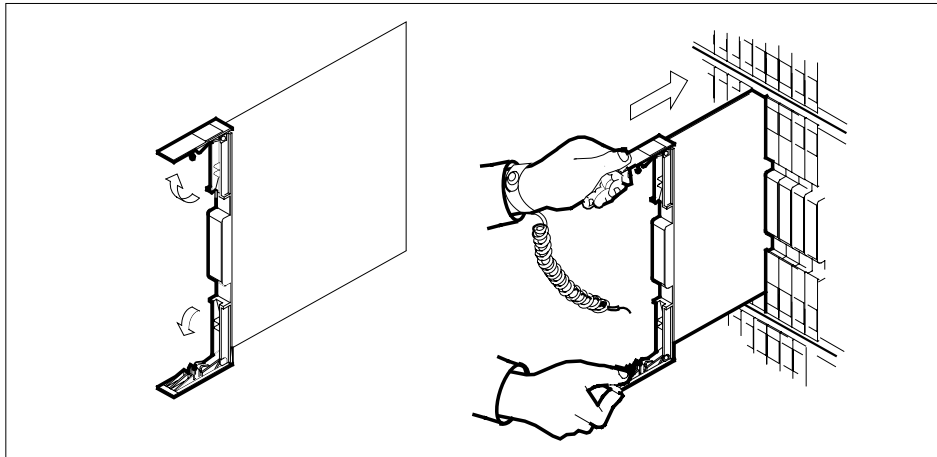
Subscriber service may be lost in the active unit when reseating the NT6X69 card in slot 17.

It is recommended this procedure be performed during low traffic periods.

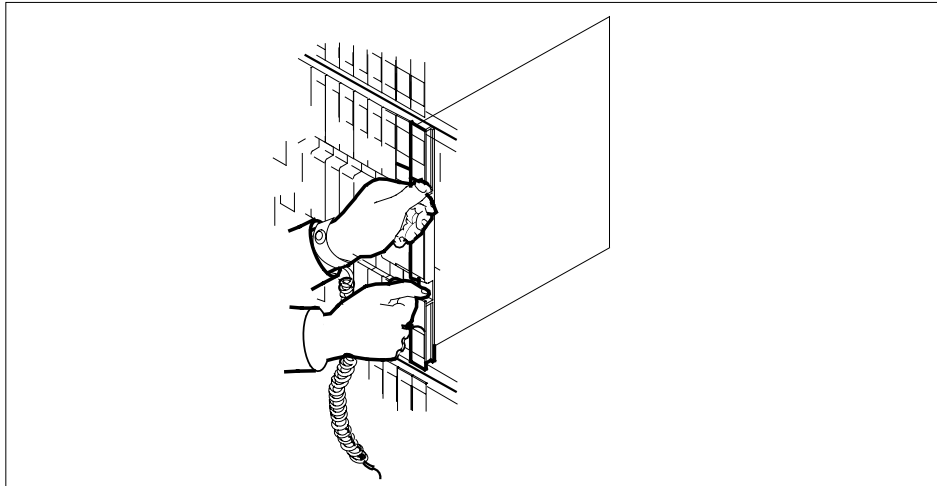
Open the locking levers on the replacement card.

Align the card with the slots in the shelf and gently slide the card into the shelf.

NT6X69
in an RSC RCC/RCC2 (continued)



- 11** 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.

***At the MAP display***

- 12** Perform a full reset of the inactive unit by typing
>PMRESET UNIT rcc_unit_no
and pressing the Enter key.
where
rcc_unit_no
is the number of the inactive RCC unit

NT6X69

in an RSC RCC/RCC2 (end)

- 13** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 17
other	step 14

- 14** Return the inactive RCC unit to service by typing
>RTS UNIT rcc_unit_no
and pressing the Enter key.
where
rcc_unit_no
is the number of the RCC unit reset in step 12.

If the RTS	Do
passes	step 15
fails	step 18

- 15** Send any faulty cards for repair according to local procedure.
- 16** 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 19.
- 17** Return to the *Alarm Clearing Procedure* that directed you to this card replacement procedure. If necessary, go to the point where the faulty card list was produced, identify the next faulty card on the list, and go to the appropriate replacement procedure in this manual for that card.
- 18** Obtain further assistance in replacing this card by contacting personnel responsible for higher level of support.
- 19** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X69
in an RSC-S (DS-1) Model A RCC2

Application

Use this procedure to replace an NT6X69 card in an RSC-S RCC2.

PEC	Suffixes	Name
NT6X69	AC, AD, QA	Message and Tone Card

Common procedures

None

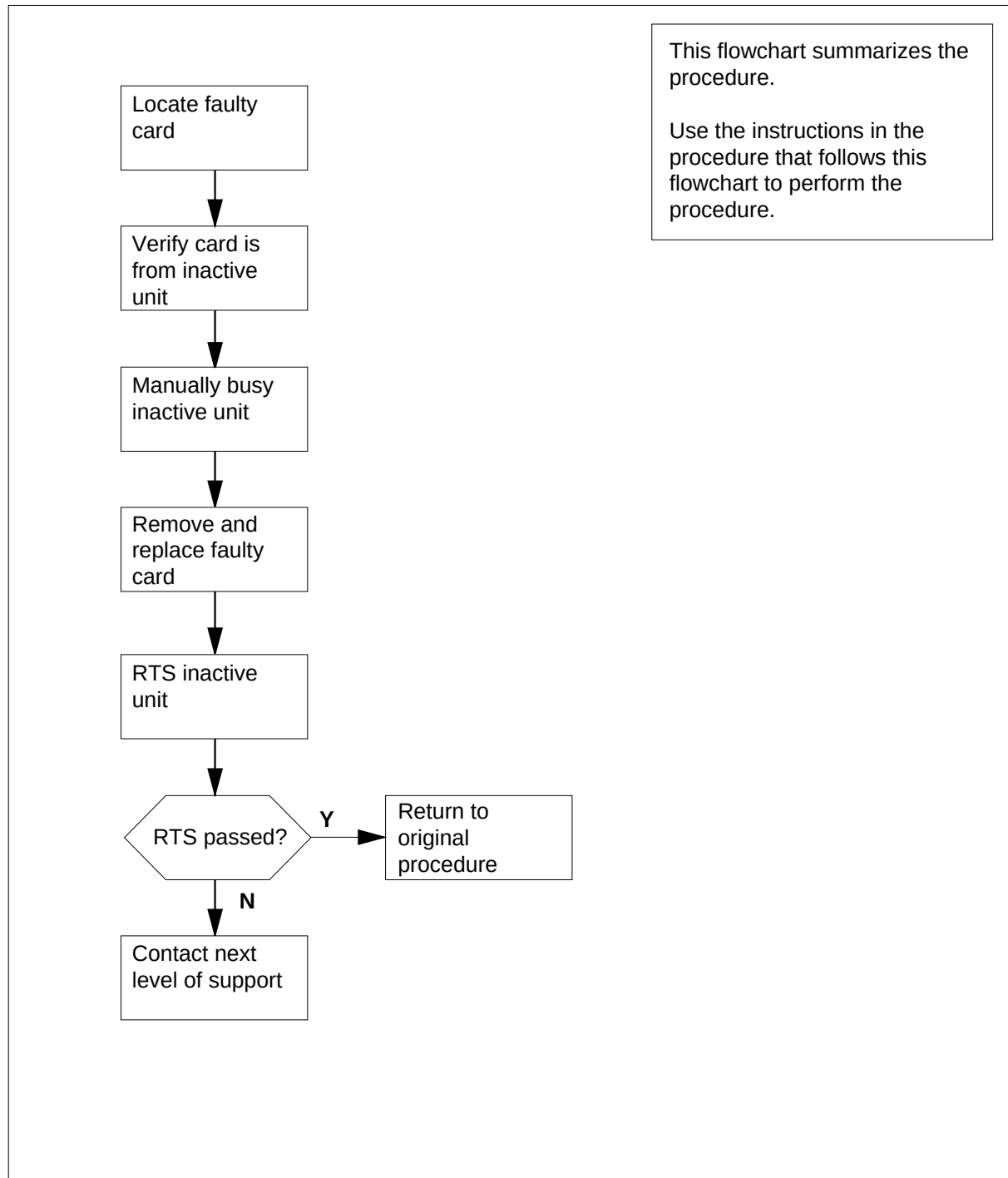
Action

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

NT6X69

in an RSC-S (DS-1) Model A RCC2 (continued)

Summary of card replacement procedure for an NT6X69 card in RSC-S RCC2



NT6X69 in an RSC-S (DS-1) Model A RCC2 (continued)

Replacing an NT6X69 card in an RSC-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 equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Set the MAP display to the PM level and post the RCC2 unit by typing
>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

Example of a MAP display:

NT6X69**in an RSC-S (DS-1) Model A RCC2** (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
RCC2			SysB	ManB	OffL	CBsy	ISTb		InSv
0 Quit	PM		0	0	0	0	0		25
2 Post_	RCC2		0	0	0	0	0		0
3 ListSet									
4	RCC2		0 InSv	Links_00S:					
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 to be removed is on the inactive unit.

If faulty card is on	Do
active unit	step 5
inactive unit	step 7

- 5** Switch the processing activity (SWACT) to the inactive unit by typing
>SWACT

and pressing the Enter key.

- 6** Confirm the system prompt by typing

>YES

and pressing the Enter key.

After both units are in service, proceed to the next step.

At the RCE

- 7** Place a sign on the active unit bearing the words *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

NT6X69

in an RSC-S (DS-1) Model A RCC2 (continued)

At the MAP terminal

- 8 Busy the inactive PM unit by typing
>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)
- 9 Set the PM to the read-only memory (ROM) level and inhibit messaging by typing
>PMRESET UNIT rcc2_unit_no NORUN
and pressing the Enter key.
where
rcc2_unit_no
is the number of the inactive RCC2 unit (0 or 1)

At the RCE**10****DANGER****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 (FSP) of the RCC2. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

Take these precautions when removing or inserting a card:

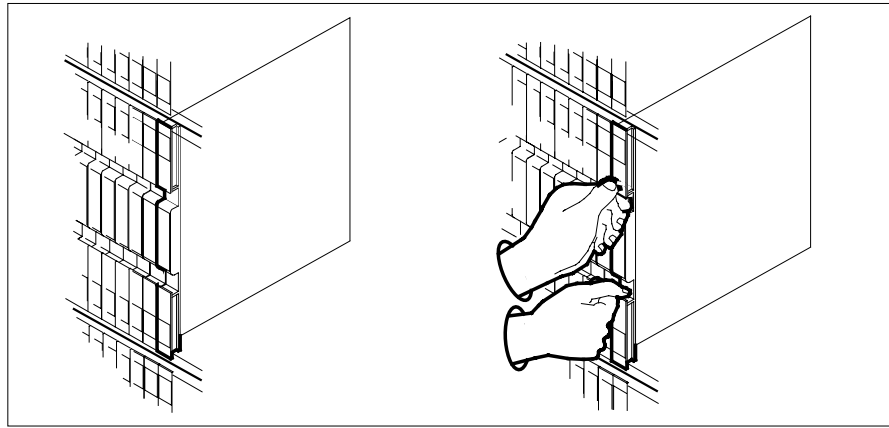
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

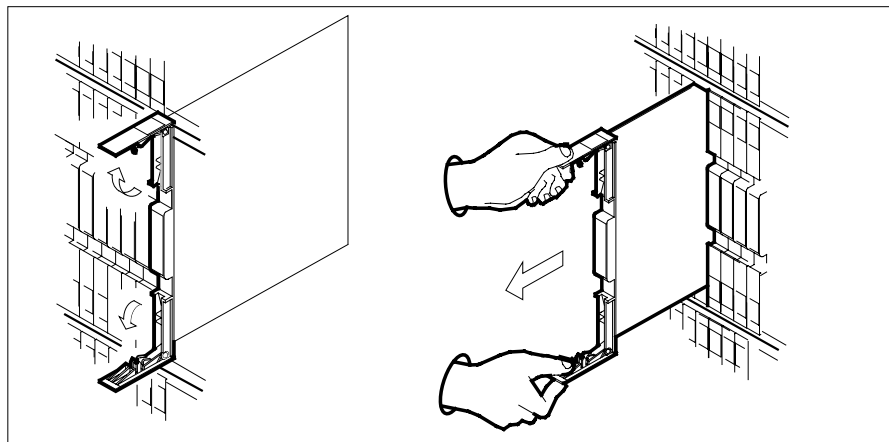
- 11** Remove the NT6X69 card as shown in the following figures.
- a** Locate the card to be removed on the appropriate shelf.

NT6X69

in an RSC-S (DS-1) Model A RCC2 (continued)

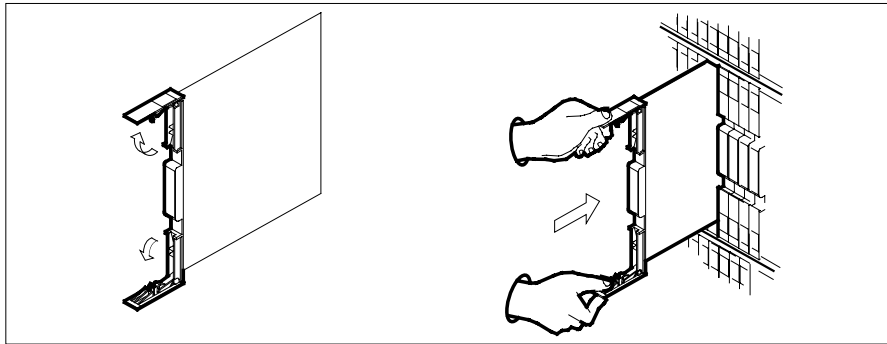


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 12** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

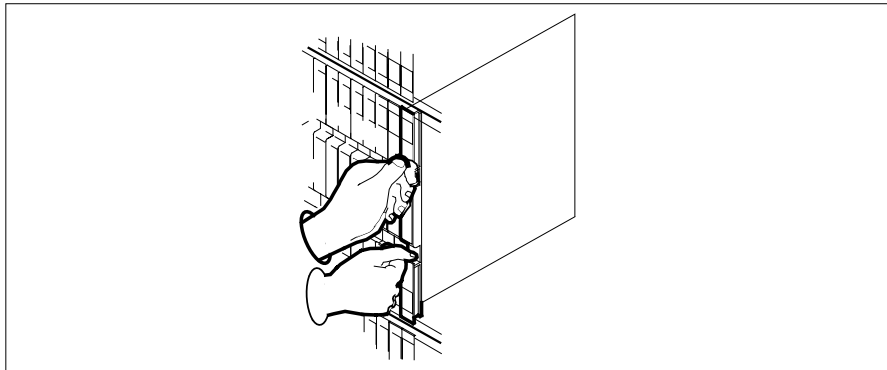
NT6X69
in an RSC-S (DS-1) Model A RCC2 (continued)

**13****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.

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.

**At the MAP terminal**

- 14 Perform a full reset of the inactive unit by typing
>PMRESET UNIT rcc2_unit_no
and pressing the Enter key.
where

NT6X69**in an RSC-S (DS-1) Model A RCC2** (continued)**rcc2_unit_no**

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

	If PMRESET	Do
	passed	step 17
	fails, try reloading this unit	step 15
	fails with a card list	step 20
15	Load the inactive unit by typing >LOADPM UNIT rcc2_unit_no CC and pressing the Enter key. <i>where</i> rcc2_unit_no is the number of the inactive RCC2 unit (0 or 1)	
	If LOADPM	Do
	passed	step 16
	failed	step 21
	fails with a card list	step 20
16	Use the following information to determine what step to go to next in this procedure.	
	If you entered this procedure from	Do
	alarm clearing procedures	step 20
	other	step 17
17	Return the inactive RCC2 unit to service by typing >RTS UNIT rcc2_unit_no and pressing the Enter key. <i>where</i> rcc2_unit_no is the number of the inactive RCC2 unit (0 or 1)	
	If RTS	Do
	passed	step 18
	failed	step 21

NT6X69

in an RSC-S (DS-1) Model A RCC2 (end)

- 18** Send any faulty cards for repair according to local procedure.
- 19** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 22.
- 20** Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.
- 21** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 22** You have successfully 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.

NT6X69 in an RSC-S (DS-1) Model B RCC2

Application

Use this procedure to replace an NT6X69 card in an RSC-S RCC2.

PEC	Suffixes	Name
NT6X69	AC, AD, QA	Message and Tone Card

Common procedures

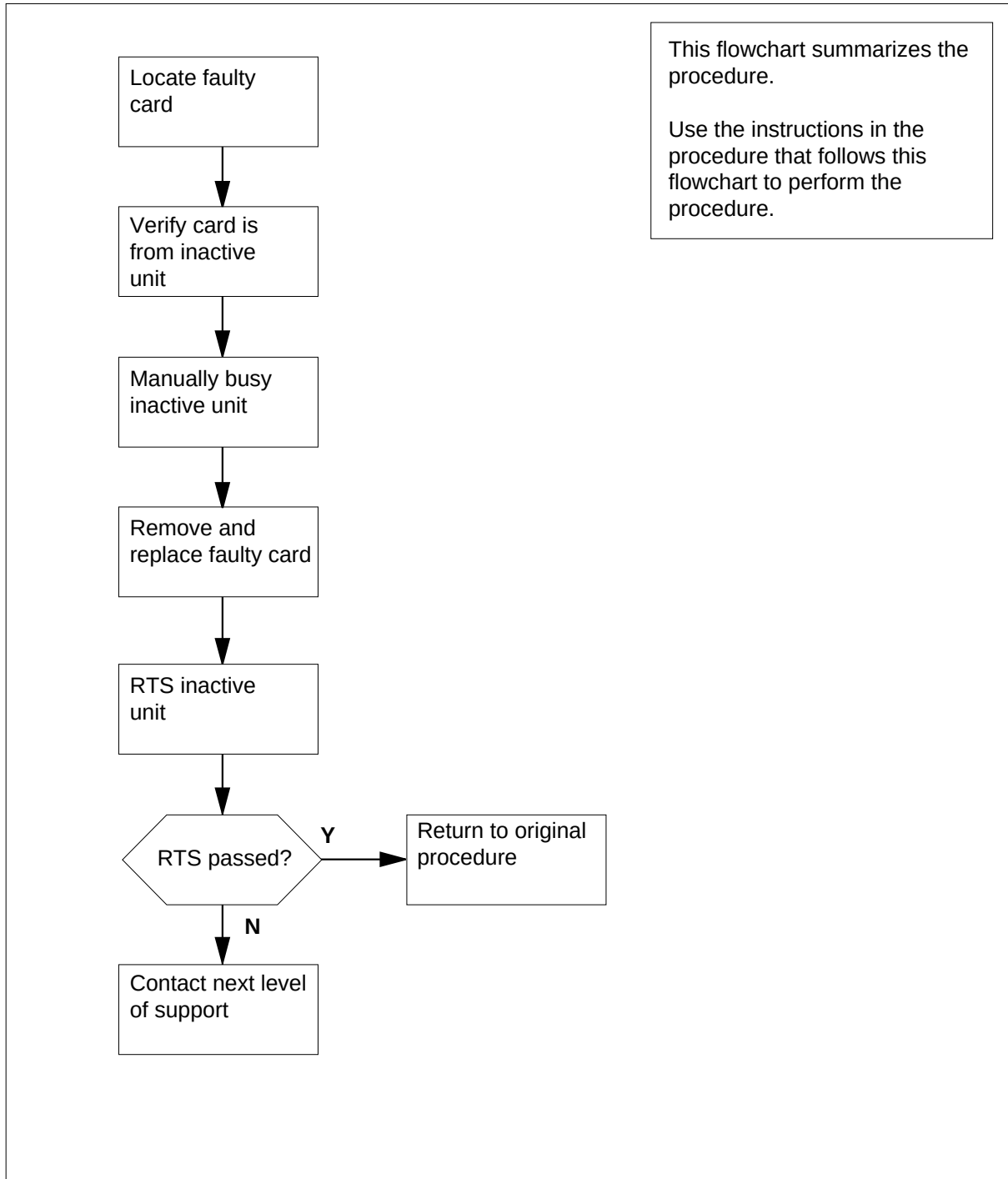
None

Action

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

NT6X69 in an RSC-S (DS-1) Model B RCC2 (continued)

Summary of card replacement procedure for an NT6X69 card in RSC-S RCC2



NT6X69 in an RSC-S (DS-1) Model B RCC2 (continued)

Replacing an NT6X69 card in an RSC-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 equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Set the MAP display to the PM level and post the RCC2 unit by typing
>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

Example of a MAP display:

NT6X69
in an RSC-S (DS-1) Model B RCC2 (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
RCC2			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	0	0	0	0	0	25	
2	Post_	RCC2	0	0	0	0	0	0	
3	ListSet								
4		RCC2	0 InSv	Links_00S:					
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 to be removed is on the inactive unit.

If faulty card is on	Do
active unit	step 5
inactive unit	step 7

- 5 Switch the processing activity (SWACT) to the inactive unit by typing **>SWACT** and pressing the Enter key.
- 6 Confirm the system prompt by typing **>YES** and pressing the Enter key.
- After both units are in service, proceed to the next step.

At the RCE

- 7 Place a sign on the active unit bearing the words *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

NT6X69

in an RSC-S (DS-1) Model B RCC2 (continued)

At the MAP terminal

- 8 Busy the inactive PM unit by typing
>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)
- 9 Set the PM to the read-only memory (ROM) level and inhibit messaging by typing
>PMRESET UNIT rcc2_unit_no NORUN
and pressing the Enter key.
where
rcc2_unit_no
is the number of the inactive RCC2 unit (0 or 1)

At the RCE

10



DANGER

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 modular supervisory panel (MSP) of the RCC2. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

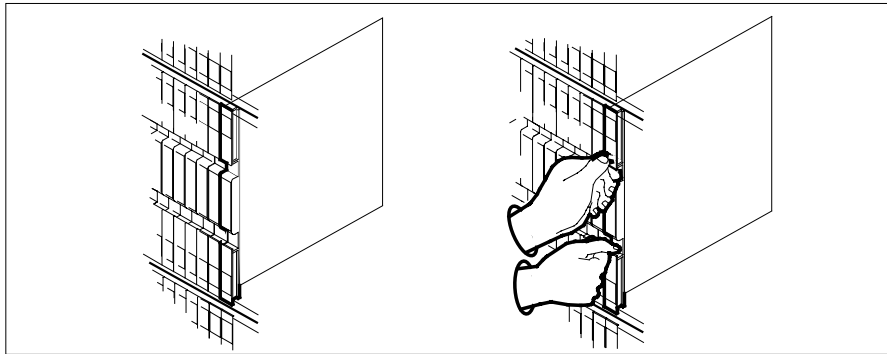
Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

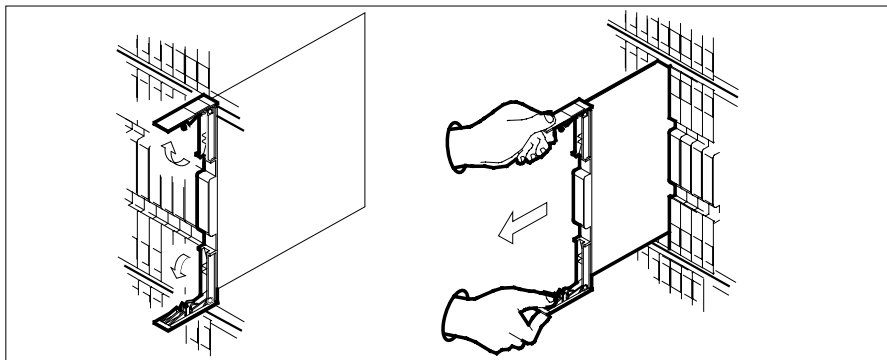
Put on a wrist strap.

- 11 Remove the NT6X69 card as shown in the following figures.
- a Locate the card to be removed on the appropriate shelf.

NT6X69
in an RSC-S (DS-1) Model B RCC2 (continued)



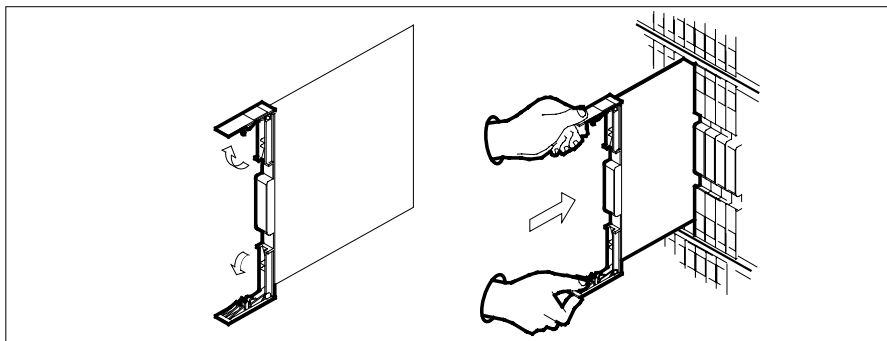
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

12 Open the locking levers on the replacement card.

- a** Align the card with the slots in the shelf.
b Gently slide the card into the shelf.



NT6X69 in an RSC-S (DS-1) Model B RCC2 (continued)

13



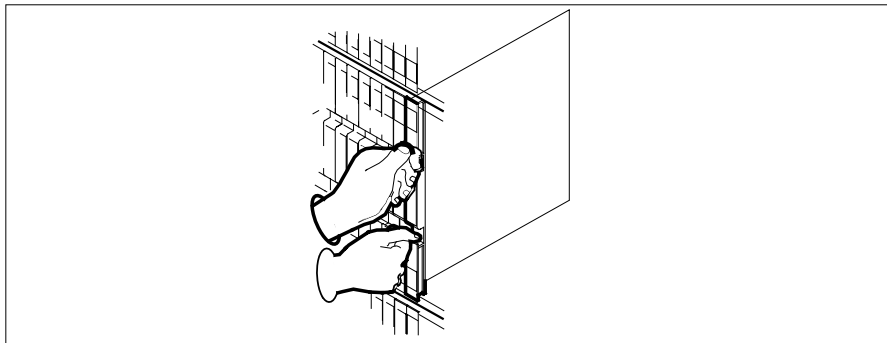
CAUTION

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.

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.



At the MAP terminal

- 14 Perform a full reset of the inactive unit by typing

```
>PMRESET UNIT rcc2_unit_no
```

and pressing the Enter key.

where

rcc2_unit_no

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

If PMRESET	Do
passed	step 17
fails, try reloading this unit	step 15
fails with a card list	step 20

- 15 Load the inactive unit by typing

```
>LOADPM UNIT rcc2_unit_no CC
```

and pressing the Enter key.

NT6X69

in an RSC-S (DS-1) Model B RCC2 (end)

where

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

	If LOADPM	Do
	passed	step 16
	failed	step 21
	fails with a card list	step 20
16	Use the following information to determine what step to go to next in this procedure.	
	If you entered this procedure from	Do
	alarm clearing procedures	step 20
	other	step 17
17	Return the inactive RCC2 unit to service by typing >RTS UNIT rcc2_unit_no and pressing the Enter key.	
	where rcc2_unit_no is the number of the inactive RCC2 unit (0 or 1)	
	If RTS	Do
	passed	step 18
	failed	step 21
18	Send any faulty cards for repair according to local procedure.	
19	Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 22.	
20	Return to the procedure that directed you to this procedure. At 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 <i>Card Replacement Procedures</i> .	
21	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
22	You have successfully 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.	

NT6X69 in an RSC-S (PCM-30) Model A RCO2

Application

Use this procedure to replace the following card in an RSC-S RCO2.

PEC	Suffixes	Name
NT6X69	LA, LB	Message and Tone Card

Common procedures

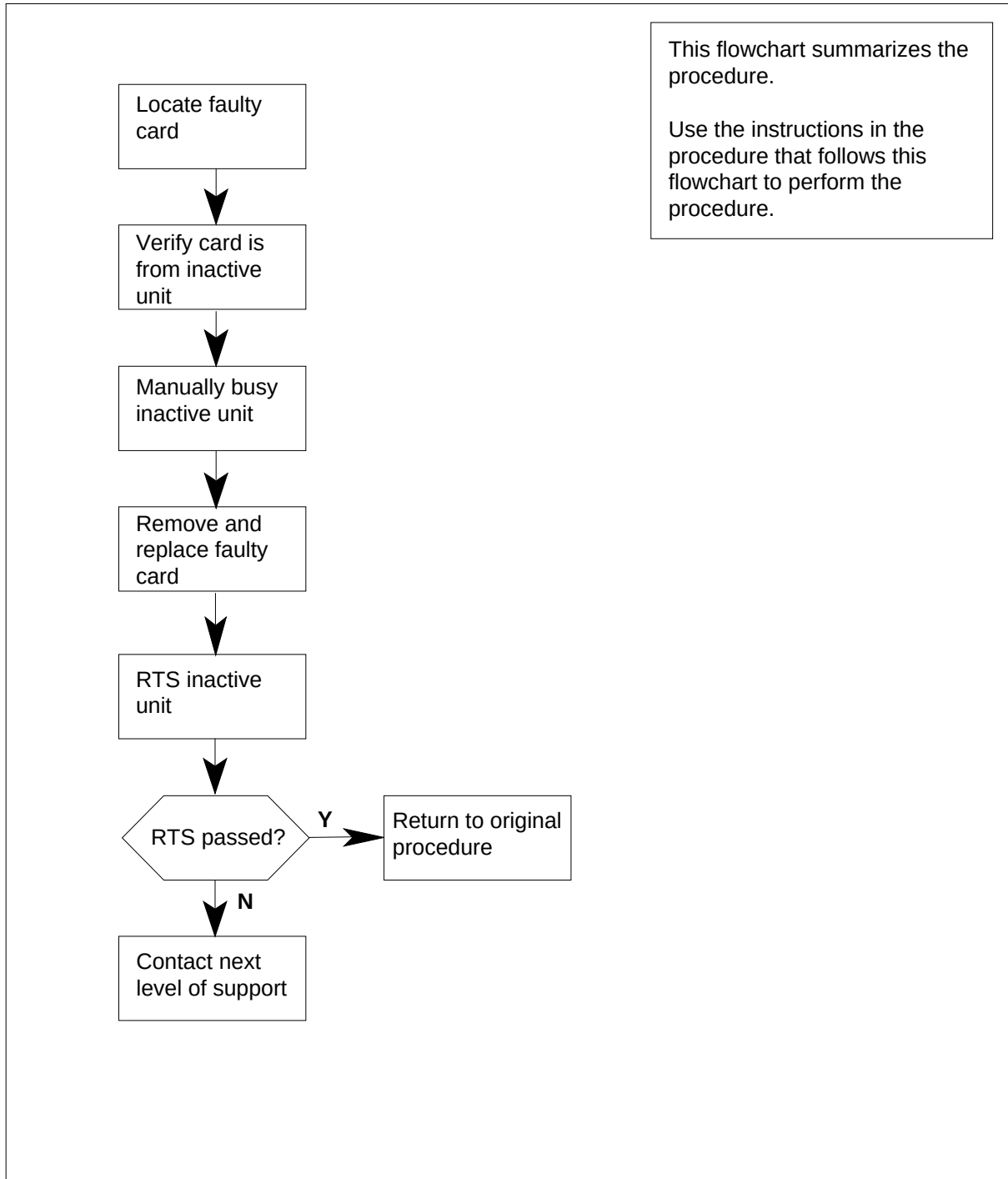
None

Action

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

NT6X69 in an RSC-S (PCM-30) Model A RCO2 (continued)

Summary of card replacement procedure for an NT6X69 card in RSC-S RCO2



NT6X69 in an RSC-S (PCM-30) Model A RCO2 (continued)

Replacing an NT6X69 in an RSC-S RCO2

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 RCO2, 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 equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Ensure the PM level of the MAP display is currently displayed by typing
>MAPCI;MTC;PM;POST RCO2 rco2_no
and pressing the Enter key.

where

rco2_no

is the number of the rco2 with the faulty card

Example of a MAP display:

NT6X69
in an RSC-S (PCM-30) Model A RCO2 (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
RCO2			SysB	ManB	OffL	CBsy	ISTb	InSv	
0 Quit	PM		0	0	0	0	0	25	
2 Post_	RCO2		0	0	0	0	0	0	
3 ListSet									
4	RCO2		0 InSv	Links_00S:					
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 to be removed is on the inactive unit.

If faulty card is on	Do
active unit	step 5
inactive unit	step 7

- 5 Switch the processing activity (SWACT) to the inactive unit by typing **>SWACT** and pressing the Enter key.
- Note:** If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.
- 6 Confirm the system prompt by typing **>YES** and pressing the Enter key.
- After both units are in service, proceed to the next step.

At the RCE

- 7 Put a sign on the *active* unit bearing the words *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

NT6X69 in an RSC-S (PCM-30) Model A RCO2 (continued)

At the MAP terminal

- 8 Busy the inactive PM unit by typing
>BSY UNIT rco2_unit_no
and pressing the Enter key.
where
rco2_unit_no
is the number of the inactive RCO2 unit (0 or 1)
- 9 Set the PM to the ROM level and inhibit messaging by typing
>PMRESET UNIT rco2_unit_no NORUN
and pressing the Enter key.
where
rco2_unit_no
is the number of the inactive RCO2 unit (0 or 1)

At the RCE

10



DANGER

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 modular supervisory panel (MSP) of the RCO2. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

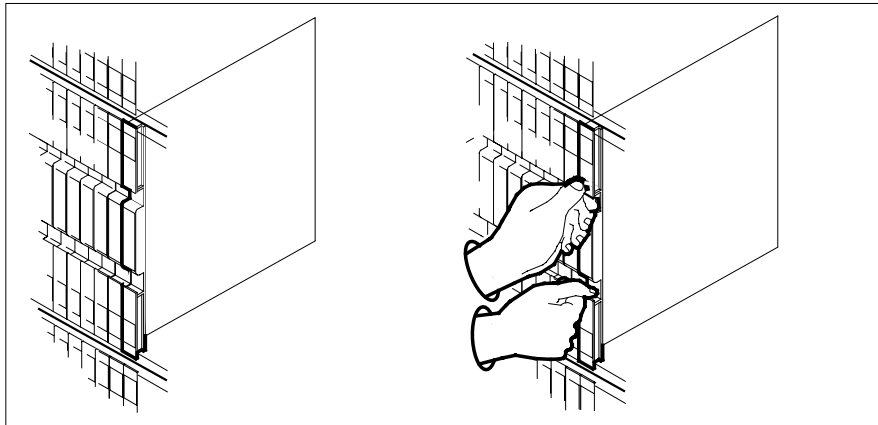
Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

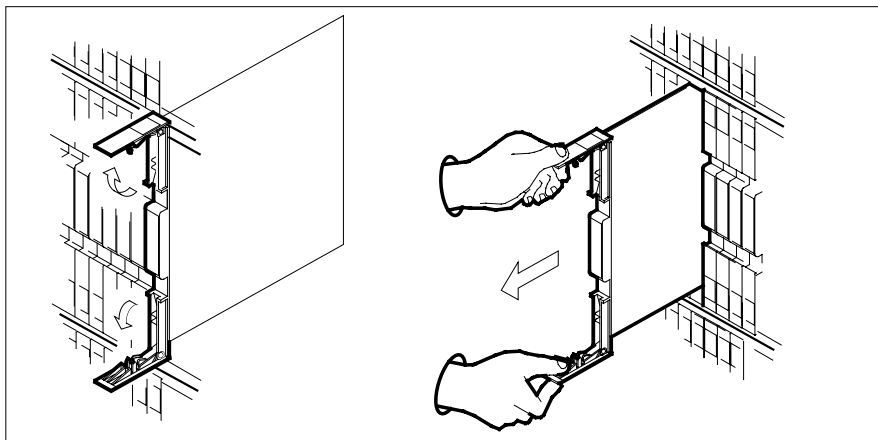
Put on a wrist strap.

- 11 Remove the NT6X69 card as shown in the following figures.
- a Locate the card to be removed on the appropriate shelf.

NT6X69
in an RSC-S (PCM-30) Model A RCO2 (continued)

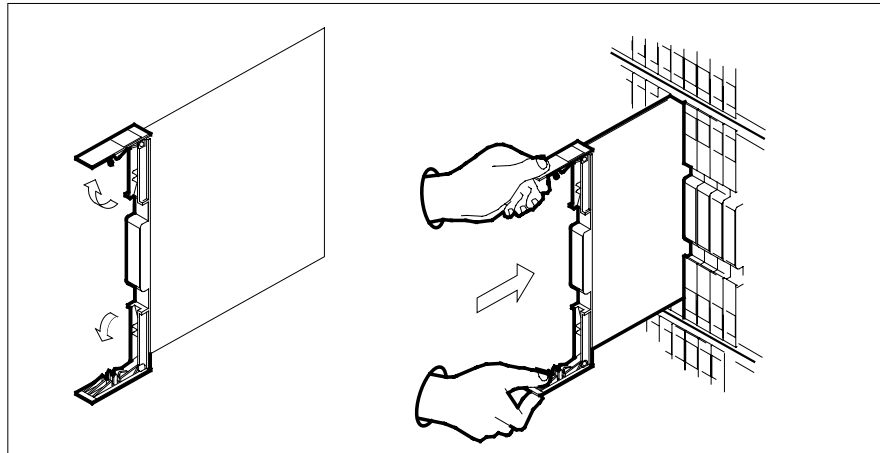


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 12** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X69 in an RSC-S (PCM-30) Model A RCO2 (continued)



13



CAUTION

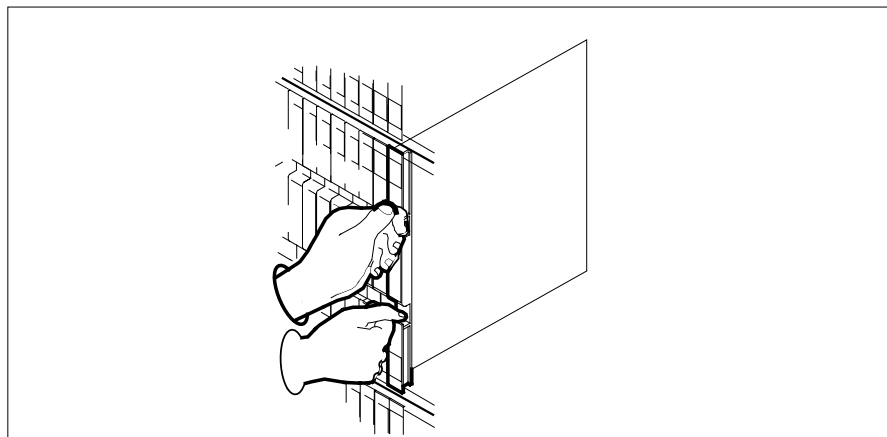
Loss of subscriber service

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.

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.



NT6X69

in an RSC-S (PCM-30) Model A RCO2 (continued)

At the MAP terminal

- 14** Perform a full reset of the inactive unit by typing

>PMRESET UNIT rco2_unit_no

and pressing the Enter key.

where

rco2_unit_no

is the number of the inactive RCO2 unit (0 or 1)

If PMRESET	Do
passed	step 17
fails, try reloading this unit	step 15
fails with a card list	step 20

- 15** Load the inactive unit by typing

>LOADPM UNIT rco2_unit_no CC

and pressing the Enter key.

where

rco2_unit_no

is the number of the inactive RCO2 unit (0 or 1)

If LOADPM	Do
passed	step 16
failed	step 21
fails with a card list	step 20

- 16** Use the following information to determine what step to go to next in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 20
other	step 17

- 17** Return the inactive RCO2 unit to service by typing

>RTS UNIT rco2_unit_no

and pressing the Enter key.

where

NT6X69

in an RSC-S (PCM-30) Model A RCO2 (end)

rco2_unit_no

is the number of the inactive RCO2 unit (0 or 1)

	If RTS	Do
	passed	step 18
	failed	step 21
18	Send any faulty cards for repair according to local procedure.	
19	Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 22.	
20	Return to the procedure that directed you to this procedure. At 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 higher level of support.	
22	You have successfully 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.	

NT6X69

in an RSC-S (PCM-30) Model B RCO2

Application

Use this procedure to replace the following card in an RSC-S RCO2.

PEC	Suffixes	Name
NT6X69	AC, AD, QA	Message and Tone Card

Common procedures

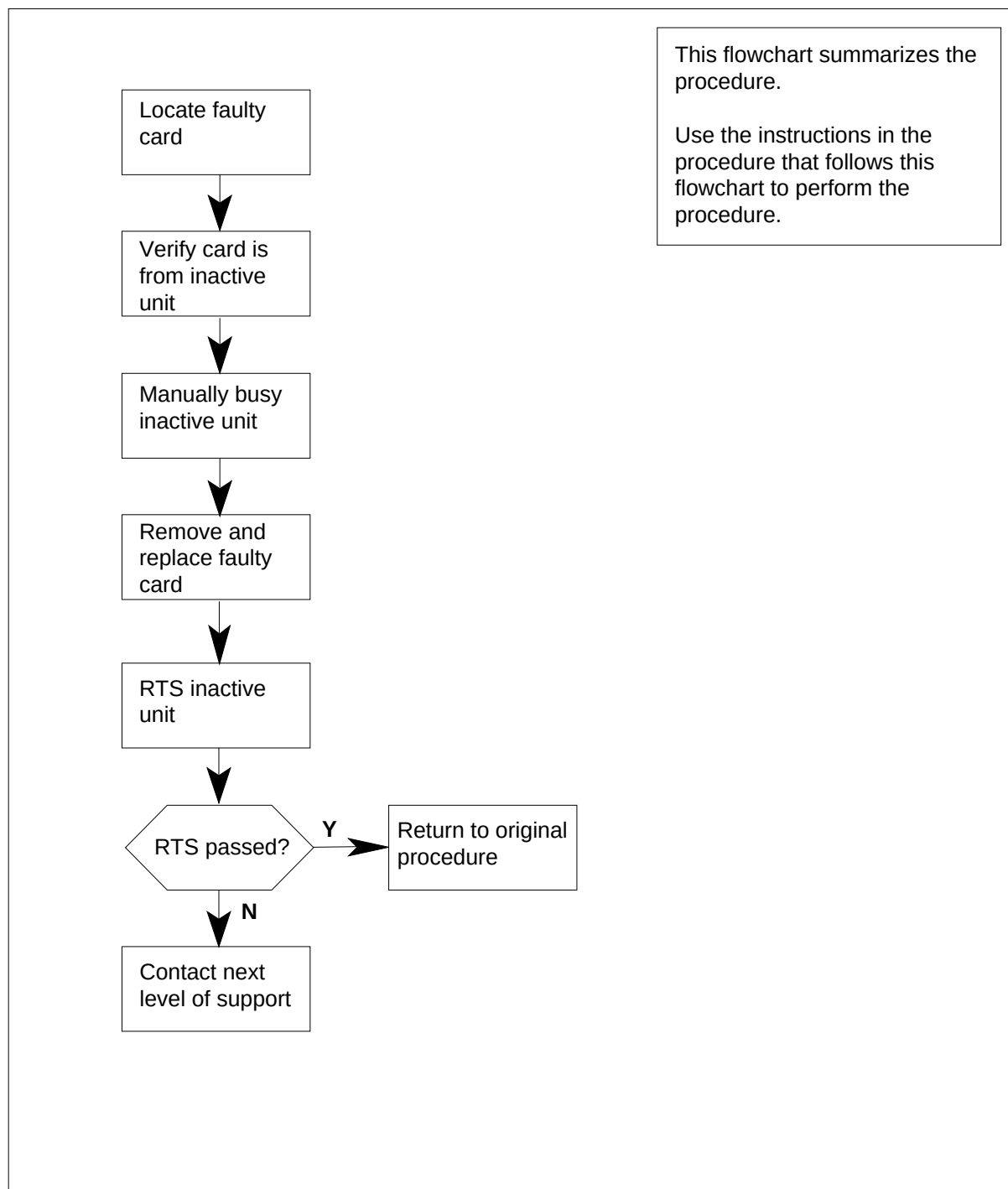
None

Action

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

NT6X69 in an RSC-S (PCM-30) Model B RCO2 (continued)

Summary of card replacement procedure for an NT6X69 card in RSC-S RCO2



NT6X69 in an RSC-S (PCM-30) Model B RCO2 (continued)

Replacing an NT6X69 in an RSC-S RCO2

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 RCO2, 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 equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Ensure the PM level of the MAP display is currently displayed by typing
>MAPCI;MTC;PM;POST RCO2 rco2_no
and pressing the Enter key.

where

rco2_no

is the number of the rco2 with the faulty card

Example of a MAP display:

NT6X69**in an RSC-S (PCM-30) Model B RCO2** (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
RCO2			SysB	ManB	OffL	CBsy	ISTb	InSv	
0 Quit	PM		0	0	0	0	0	25	
2 Post_	RCO2		0	0	0	0	0	0	
3 ListSet									
4	RCO2		0 InSv	Links_00S:					
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 to be removed is on the inactive unit.

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5** Switch the processing activity (SWACT) to the inactive unit by typing
>SWACT
 and pressing the Enter key.
Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.
- 6** Confirm the system prompt by typing
>YES
 and pressing the Enter key.
 After both units are in service, proceed to step 8.
- 7** Confirm the system prompt by typing
>YES
 and pressing the Enter key.
 After both units are in service, proceed to the next step.

NT6X69

in an RSC-S (PCM-30) Model B RCO2 (continued)

At the RCE

- 8 Put a sign on the *active* unit bearing the words "Active unit—Do not touch." This sign should not be attached by magnets or tape.

At the MAP terminal

- 9 Busy the inactive PM unit by typing
>bsy unit rco2_unit_no
 and pressing the Enter key.
where
rco2_unit_no
 is the number of the inactive RCO2 unit (0 or 1)
- 10 Set the PM to the ROM level and inhibit messaging by typing
>PMRESET UNIT rco2_unit_no NORUN
 and pressing the Enter key.
where
rco2_unit_no
 is the number of the inactive RCO2 unit (0 or 1)

At the RCE

11

**DANGER****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 modular supervisory panel (MSP) of the RCO2. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

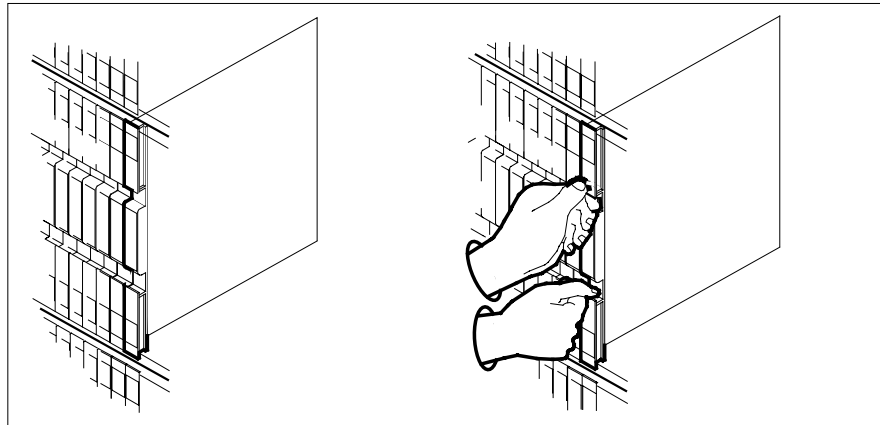
Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

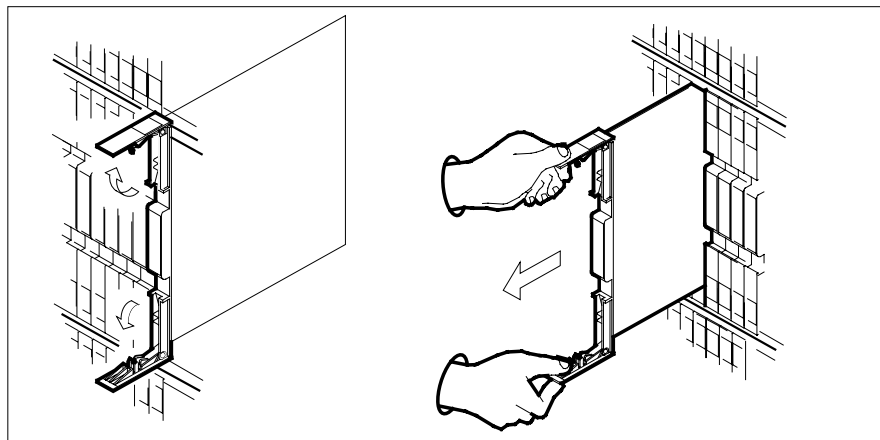
Put on a wrist strap.

- 12 Remove the NT6X69 card as shown in the following figures.
- a** Locate the card to be removed on the appropriate shelf.

NT6X69
in an RSC-S (PCM-30) Model B RCO2 (continued)

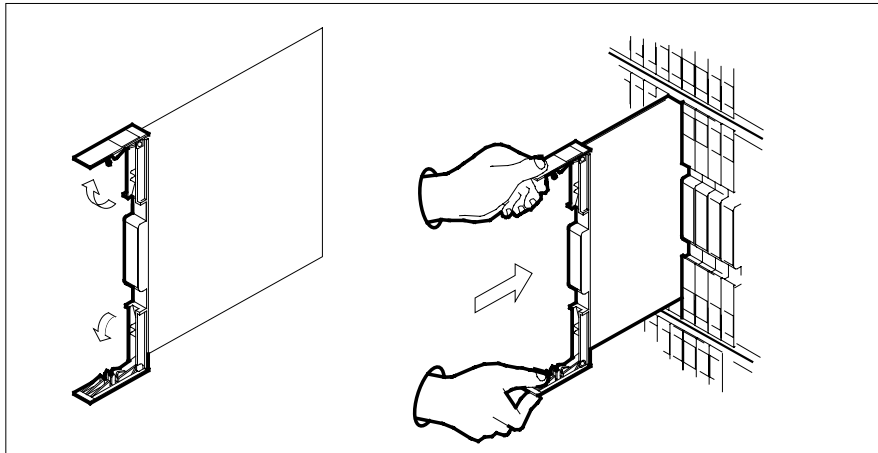


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 13** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
 - b** Gently slide the card into the shelf.

NT6X69
in an RSC-S (PCM-30) Model B RCO2 (continued)



14



CAUTION

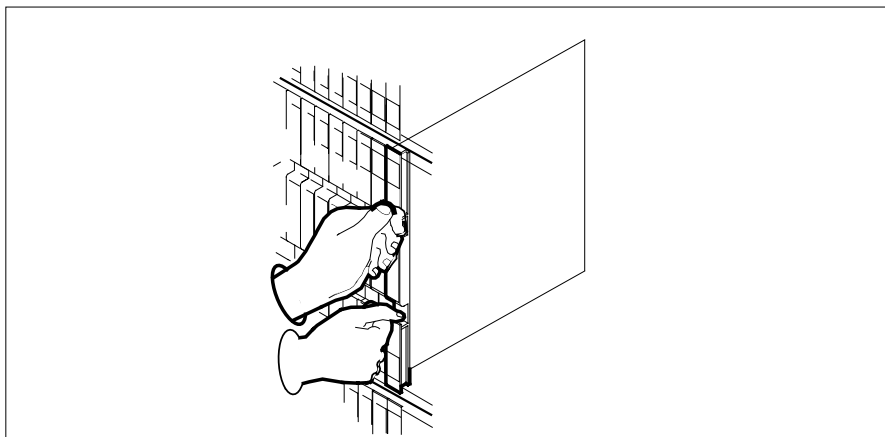
Loss of subscriber service

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.

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.



NT6X69**in an RSC-S (PCM-30) Model B RCO2** (continued)

At the MAP terminal

- 15** Perform a full reset of the inactive unit by typing

>PMRESET UNIT rco2_unit_no

and pressing the Enter key.

where

rco2_unit_no

is the number of the inactive RCO2 unit (0 or 1)

If PMRESET	Do
passed	step 18
fails, try reloading this unit	step 16
fails with a card list	step 21

- 16** Load the inactive unit by typing

>LOADPM UNIT rco2_unit_no CC

and pressing the Enter key.

where

rco2_unit_no

is the number of the inactive RCO2 unit (0 or 1)

If LOADPM	Do
passed	step 17
failed	step 22
fails with a card list	step 21

- 17** Use the following information to determine what step to go to next in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 21
other	step 18

- 18** Return the inactive RCO2 unit to service by typing

>RTS UNIT rco2_unit_no

and pressing the Enter key.

where

NT6X69
in an RSC-S (PCM-30) Model B RCO2 (end)

rco2_unit_no

is the number of the inactive RCO2 unit (0 or 1)

If RTS	Do
passed	step 19
failed	step 22

- 19** Send any faulty cards for repair according to local procedure.
- 20** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 23.
- 21** Return to the procedure that directed you to this procedure. At 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 higher level of support.
- 23** You have successfully 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.

NT6X69 in an SMA

Application

Use this procedure to replace an NT6X69 card in an SMA.

PEC	Suffixes	Name
NT6X69	AC, AD, QA	Message Protocol and Tone Interface

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card
- returning a card

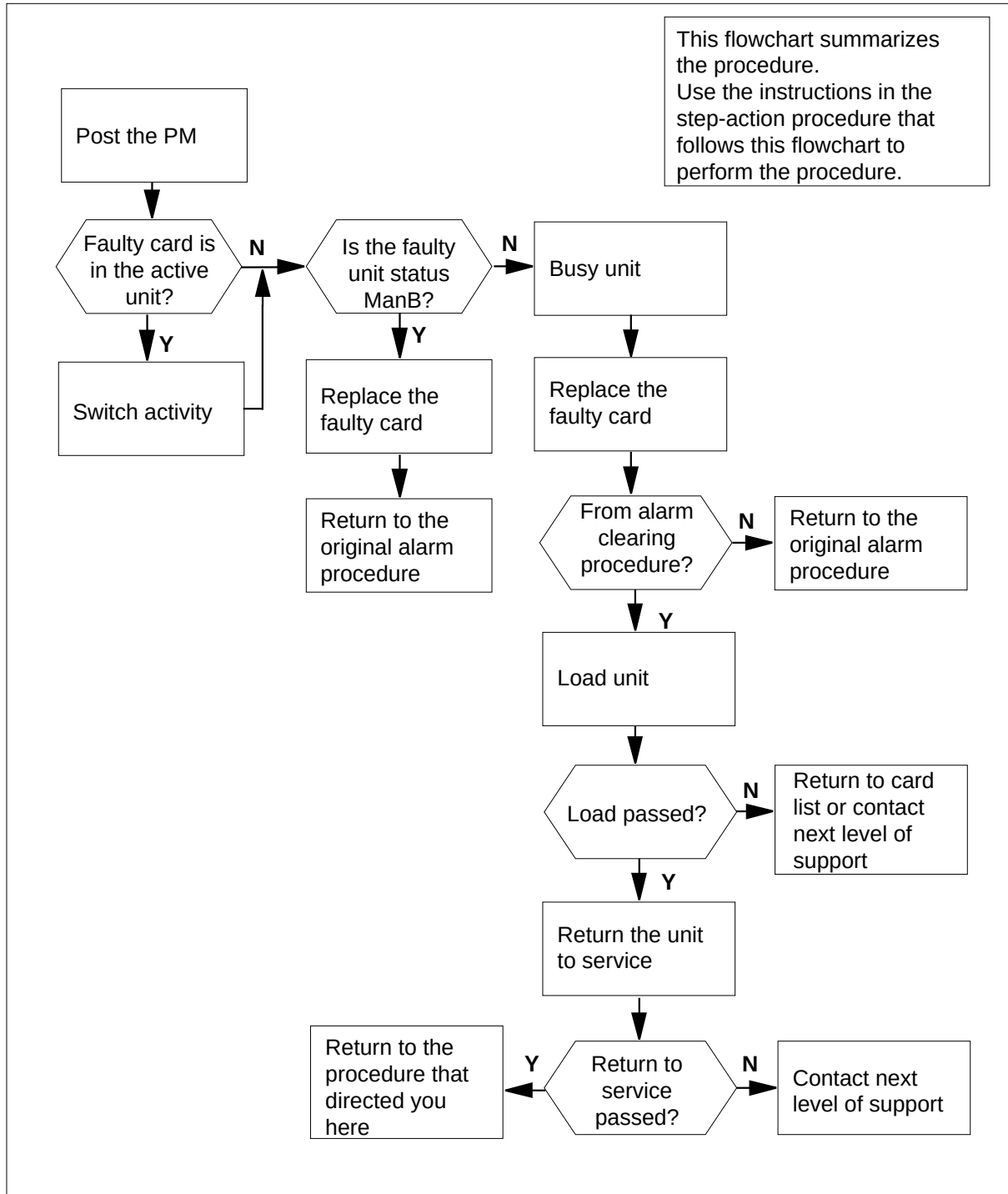
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X69 in an SMA (continued)

Summary of card replacement procedure for an NT6X69 card in an SMA



NT6X69 in an SMA (continued)

Replacing an NT6X69 card in an SMA

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."

4



CAUTION

Loss of service

Ensure you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA by typing
>MAPCI;MTC;PM;POST SMA sma_no
and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response:

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
Unit0: Act InSv
Unit1: Inact SysB

NT6X69 in an SMA (continued)

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.
- | If the faulty card is in the | Do |
|------------------------------|---------|
| active unit | step 7 |
| inactive unit | step 10 |
- 7 Switch the activity of the units by typing
>SWACT
 and pressing the Enter key.
 A confirmation prompt for the SWACT command is displayed at the MAP terminal.
- | If SWACT | Do |
|------------------------------|---------|
| can continue at this time | step 8 |
| cannot continue at this time | step 22 |
- 8 Confirm the system prompt by typing
>YES
 and pressing the Enter key.
 The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.
- Note:** A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.
- | If the message is | Do |
|---------------------------------------|---------|
| SWACT passed | step 10 |
| SWACT failed
Reason: XPM SWACTback | step 9 |
| SWACT refused by SWACT Controller | step 9 |
- 9 The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit.
 Go to step 20.

NT6X69

in an SMA (continued)

At the equipment frame

- 10 Hang a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 11 Observe the MAP display and determine the state of the inactive unit.

If state is	Do
ManB	step 13
SysB, CBsy, ISTb, or InSv	step 12

- 12 Busy the inactive PM unit by typing
>BSY UNIT unit_no
 and pressing the Enter key.
where
 unit_no
 is the number of the inactive SMA unit (0 or 1)
- 13 Reset the inactive PM unit to inhibit messaging by typing
>PMRESET UNIT unit_no NORUN
 and pressing the Enter key.

At the equipment frame

14



DANGER

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Perform the common replacing a card procedure in this document.

- 15 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 18
other	step 16

NT6X69 in an SMA (end)

At the MAP terminal

- 16** Load the inactive SMA unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the busied SMA unit

If load	Do
passed	step 17
failed	step 20

- 17** Return the inactive SMA unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the SMA unit loaded in step 16

If RTS	Do
passed	step 18
failed	step 20

At the equipment frame

- 18** Remove the sign from the active SMA unit.

- 19** Go to the common returning a card procedure in this document.

Go to step 21.

- 20** For further assistance, contact the personnel responsible for the next level of support.

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

- 22** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

NT6X69 in an SMA-MVI-20

Application

Use this procedure to replace an NT6X69 card in an SMA.

PEC	Suffixes	Name
NT6X69	AC, AD, QA	Message Protocol and Tone Interface

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card

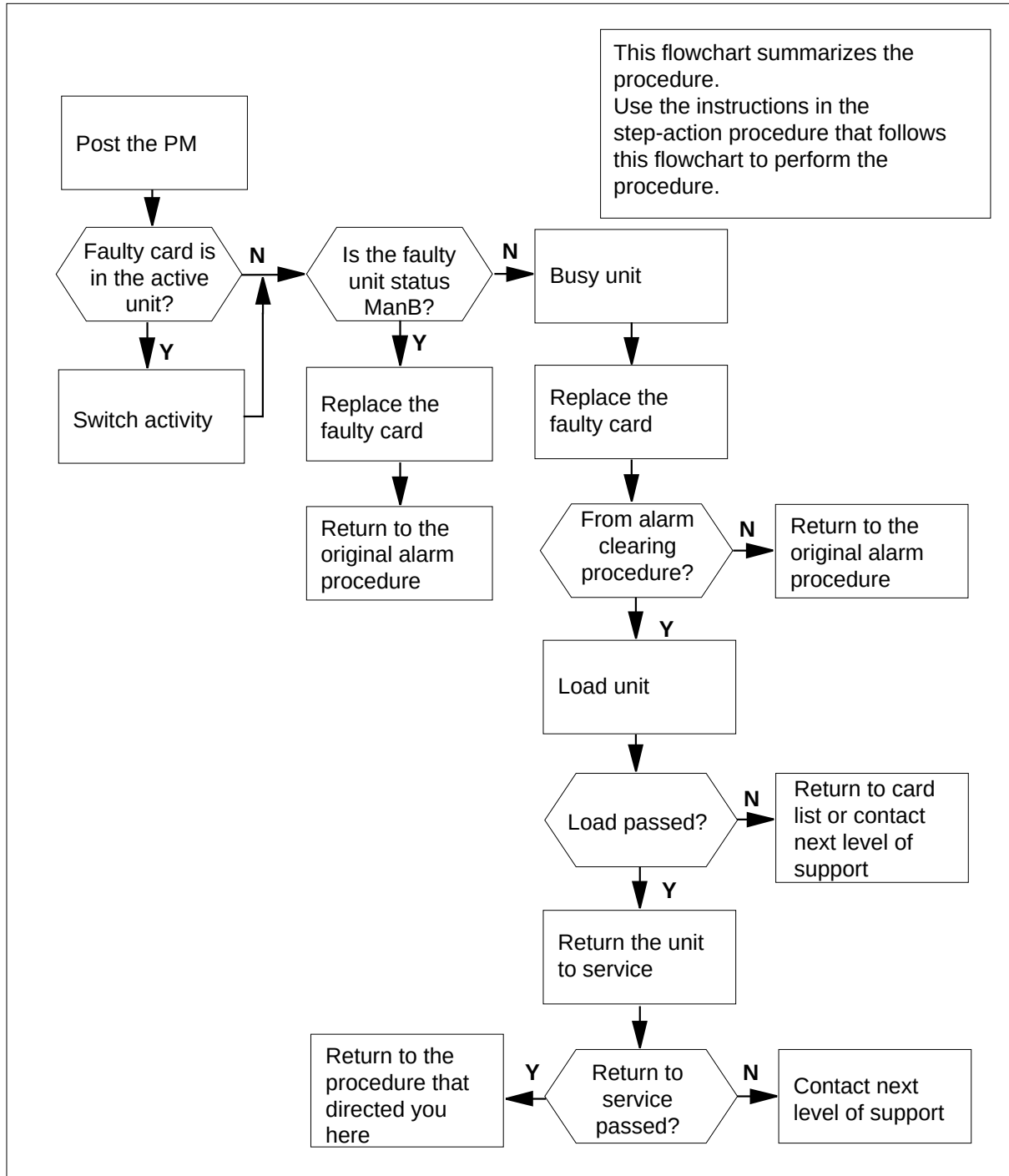
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X69 in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NT6X69 card in an SMA



NT6X69 in an SMA-MVI-20 (continued)

Replacing an NT6X69 card in an SMA

At the equipment frame

- 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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."
- 4



CAUTION

Loss of service

Ensure you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA by typing
>MAPCI;MTC;PM;POST SMA sma_no
 and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response:

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
 Unit0: Act InSv
 Unit1: Inact SysB

NT6X69 in an SMA-MVI-20 (continued)

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.
- | If the faulty card is in the | Do |
|------------------------------|---------|
| active unit | step 7 |
| inactive unit | step 11 |
- 7 SWACT the units by typing
>SWACT
 and pressing the Enter key.
 A confirmation prompt for the SWACT command is displayed at the MAP terminal.
- | If SWACT | Do |
|------------------------------|--------|
| cannot continue at this time | step 8 |
| can continue at this time | step 9 |
- 8 Reject the prompt to SWACT the units by typing
>NO
 and pressing the Enter key.
 The system discontinues the SWACT.
- 9 Confirm the system prompt by typing
>YES
 and pressing the Enter key.
 The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.
- Note:** A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.
- | If the message is | Do |
|---------------------------------------|---------|
| SWACT passed | step 11 |
| SWACT failed
Reason: XPM SWACTback | step 10 |
| SWACT refused by SWACT Controller | step 10 |
- 10 The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on

NT6X69

in an SMA-MVI-20 (continued)

the inactive unit before attempting to clear the alarm condition on the active unit.

Go to step 23.

At the equipment frame

- 11** Hang a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 12** Observe the MAP display and determine the state of the inactive unit.

If state is	Do
ManB	step 14
SysB, CBsy, ISTb, or InSv	step 13

- 13** Busy the inactive PM unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the inactive SMA unit (0 or 1)

- 14** Reset the inactive PM unit to inhibit messaging by typing

>PMRESET UNIT unit_no NORUN

and pressing the Enter key.

where

unit_no

is the number of the inactive SMA unit (0 or 1)

At the equipment frame

- 15**



DANGER

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Perform the common replacing a card procedure in this document.

NT6X69 in an SMA-MVI-20 (continued)

- 16** Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 20
other	step 17

At the MAP terminal

- 17** Load the inactive SMA unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the busied SMA unit

If load	Do
passed	step 18
failed	step 23

- 18** Test the inactive SMA unit by typing

>TST UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the SMA unit loaded in step 17

If TST	Do
passed	step 19
failed	step 23

- 19** Return the inactive SMA unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the SMA unit tested in step 18

If RTS	Do
passed	step 20

NT6X69
in an SMA-MVI-20 (end)

If RTS	Do
failed	step 23

At the equipment frame

- 20** Remove the sign from the active SMA unit.
- 21** Send any faulty cards for repair according to local procedure.
- 22** Note the following in the office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Go to step 24.
- 23** For further assistance, contact the personnel responsible for the next level of support.
- 24** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X69
in an SMS**

Application

Use this procedure to replace an NT6X69 card in an SMS.

PEC	Suffixes	Name
NT6X69	AB, AC, AD, QA	CPP message protocol and tone generator

Common procedures

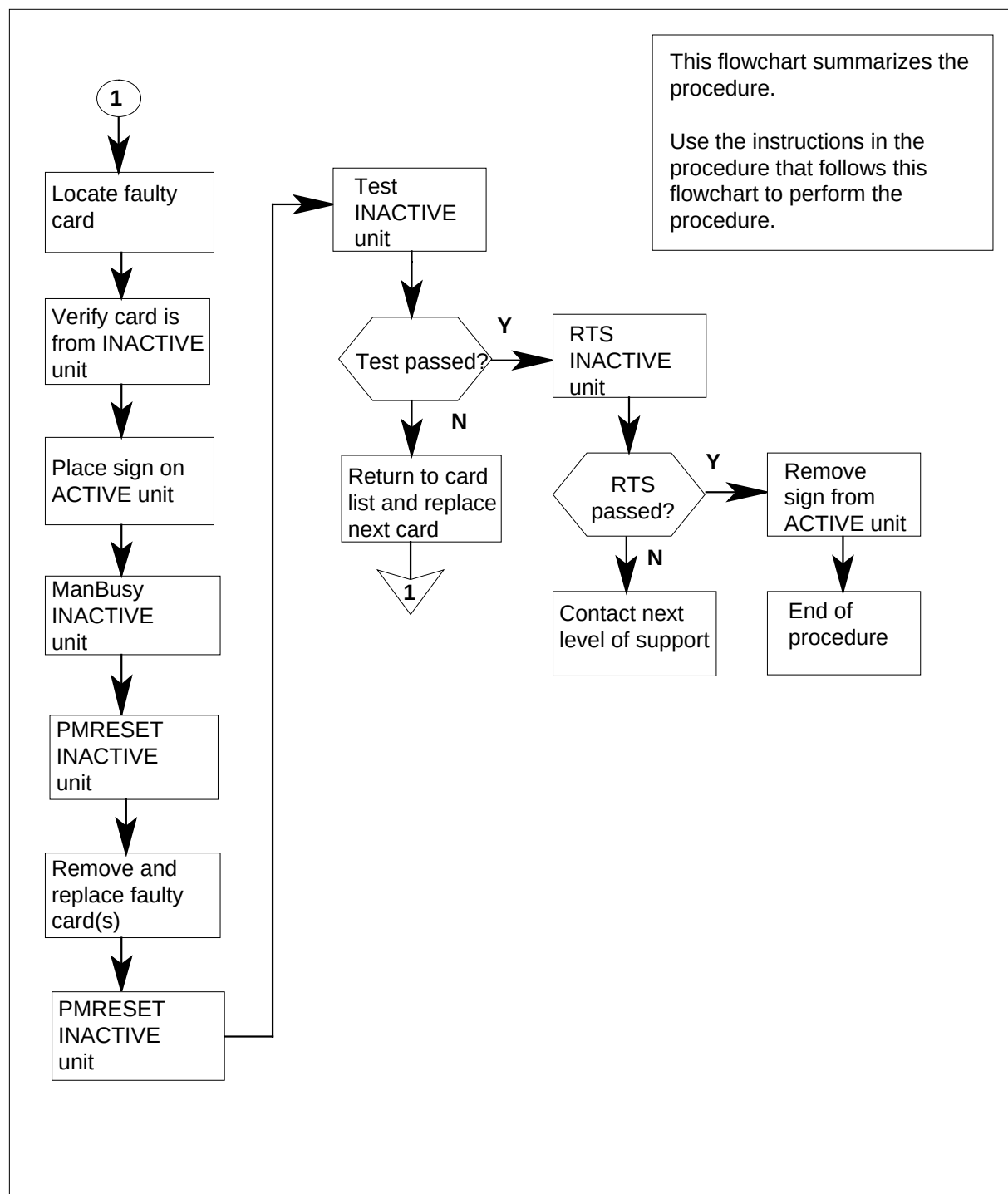
None

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.

NT6X69 in an SMS (continued)

Summary of card replacement procedure for an NT6X69 card in an SMS



NT6X69 in an SMS (continued)

Replacing an NT6X69 card in an SMS

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 SMS, ensure the unit where you are replacing the card is inactive and the mate unit is active.

Obtain a replacement card. Verify 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 PM level of the MAP display by typing

>MAPCI;MTC;PM;POST SMS sms_no

and pressing the Enter key.

where:

sms_no

is 0-127 range for NT40 and 0-255 range for DMS SuperNode

Example of a MAP response

```
SMS 3   INSV   LINKS_00S   CSIDE 0   PSIDE 0
Unit0   Act    InSv
Unit1   Inact  ISTb
```

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

NT6X69

in an SMS (continued)

The system determines the type of SWACT it can perform, and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
can continue at this time	step 6
cannot continue at this time	step 25

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failed Reason:XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 Return to the "SMS alarm clearing procedures" section in this document to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

- 8 Put a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 9 Busy the inactive PM unit by typing

>bsy UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS unit

NT6X69
in an SMS (continued)

- 10** Set the PM to the ROM level by typing
>PMRESET UNIT unit_no NORUN
and pressing the Enter key.
where
unit_no
is the number of the faulty SMS unit

At the frame

11

**DANGER****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 SMS. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

12

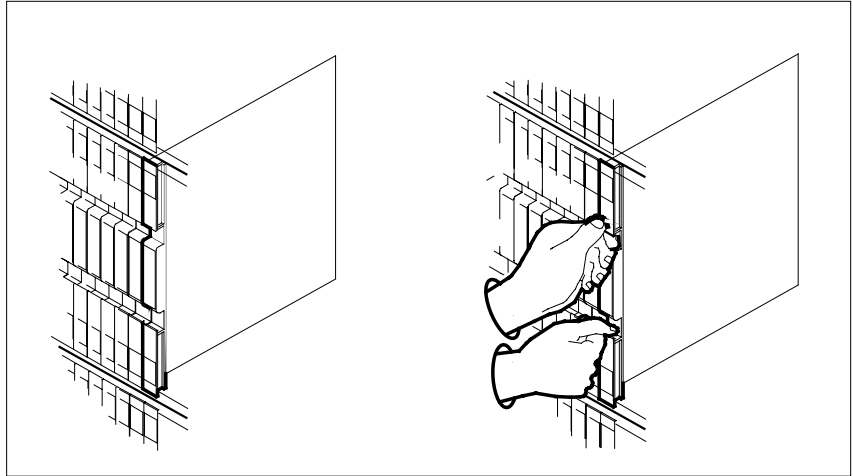
**DANGER****Equipment damage**

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

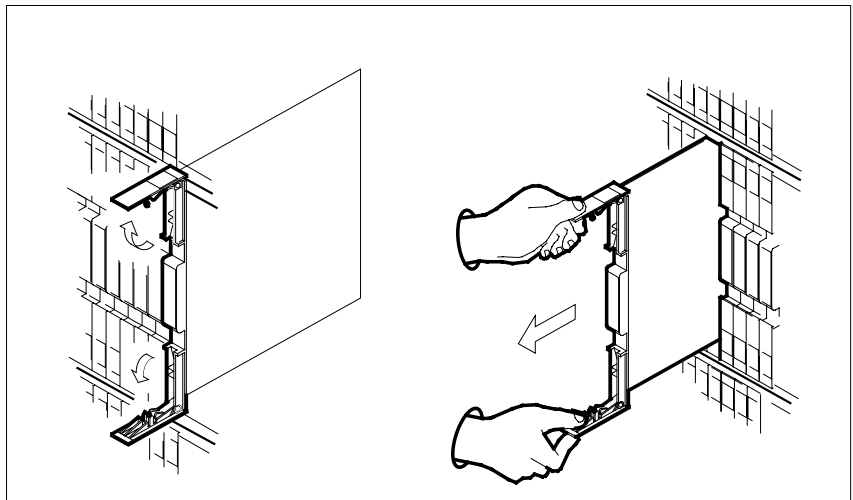
Remove the NT6X69 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.

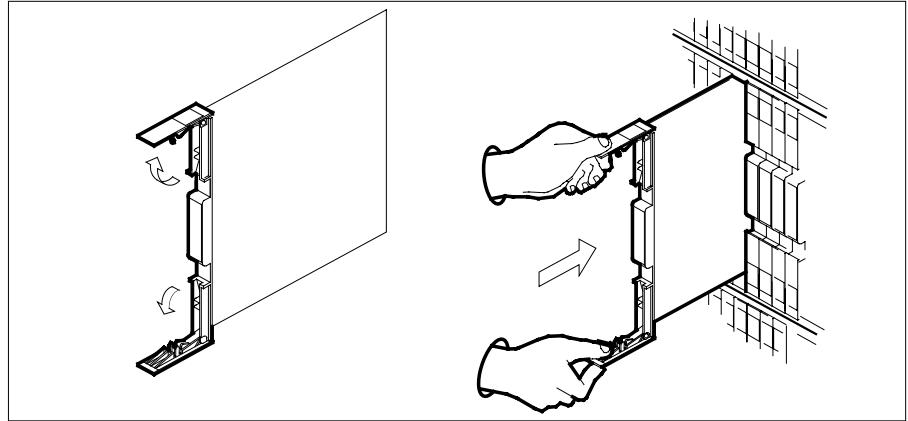
NT6X69 in an SMS (continued)



- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Verify 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.

NT6X69
in an SMS (continued)

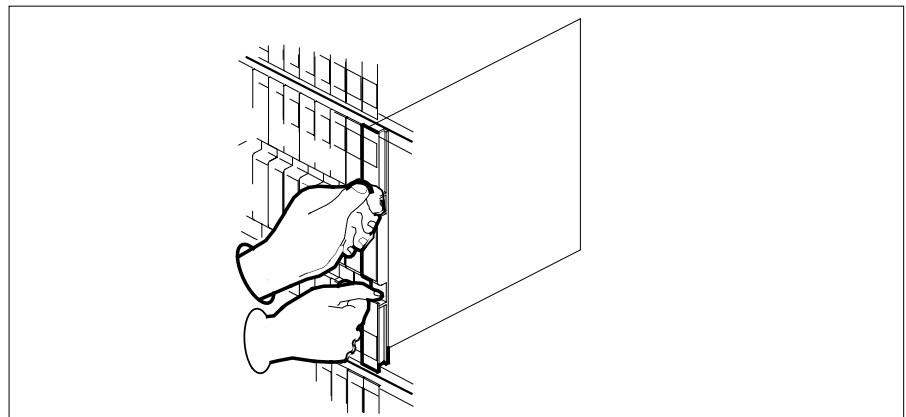
14

**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.

Seat and lock the card.

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



15

Perform a full reset of the inactive unit by typing

>PMRESET UNIT unit_no

and pressing the Enter key.

NT6X69 in an SMS (continued)

where

unit_no

is the number of the faulty SMS unit

- 16** Use the following information to determine what step to go next in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 22
other	step 17

- 17** Test the inactive SMS unit by typing
>TST UNIT unit_no
and pressing the Enter key.

where

unit_no

is the number of the faulty SMS unit

If TST	Do
passed	step 18
failed	step 22

- 18** Return the inactive SMS unit to service by typing
>RTS UNIT unit_no
and pressing the Enter key.

where

unit_no

is the number of the faulty SMS unit

If RTS	Do
passed	step 19
failed	step 23

At the frame

- 19** Remove the sign from the active SMS unit.
20 Send any faulty cards for repair according to local procedure.

NT6X69
in an SMS (end)

- 21** Record the following items in office records according to local policy:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Go to step 24.
- 22** Return to the maintenance procedure that directed you to this procedure. At 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 higher level of support.
- 24** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 25** For further assistance with switch of activity, contact the personnel responsible for the next level of support.
- Note:** If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

NT6X69 in an SMS-R

Application

Use this procedure to replace the following card in an SMS-R.

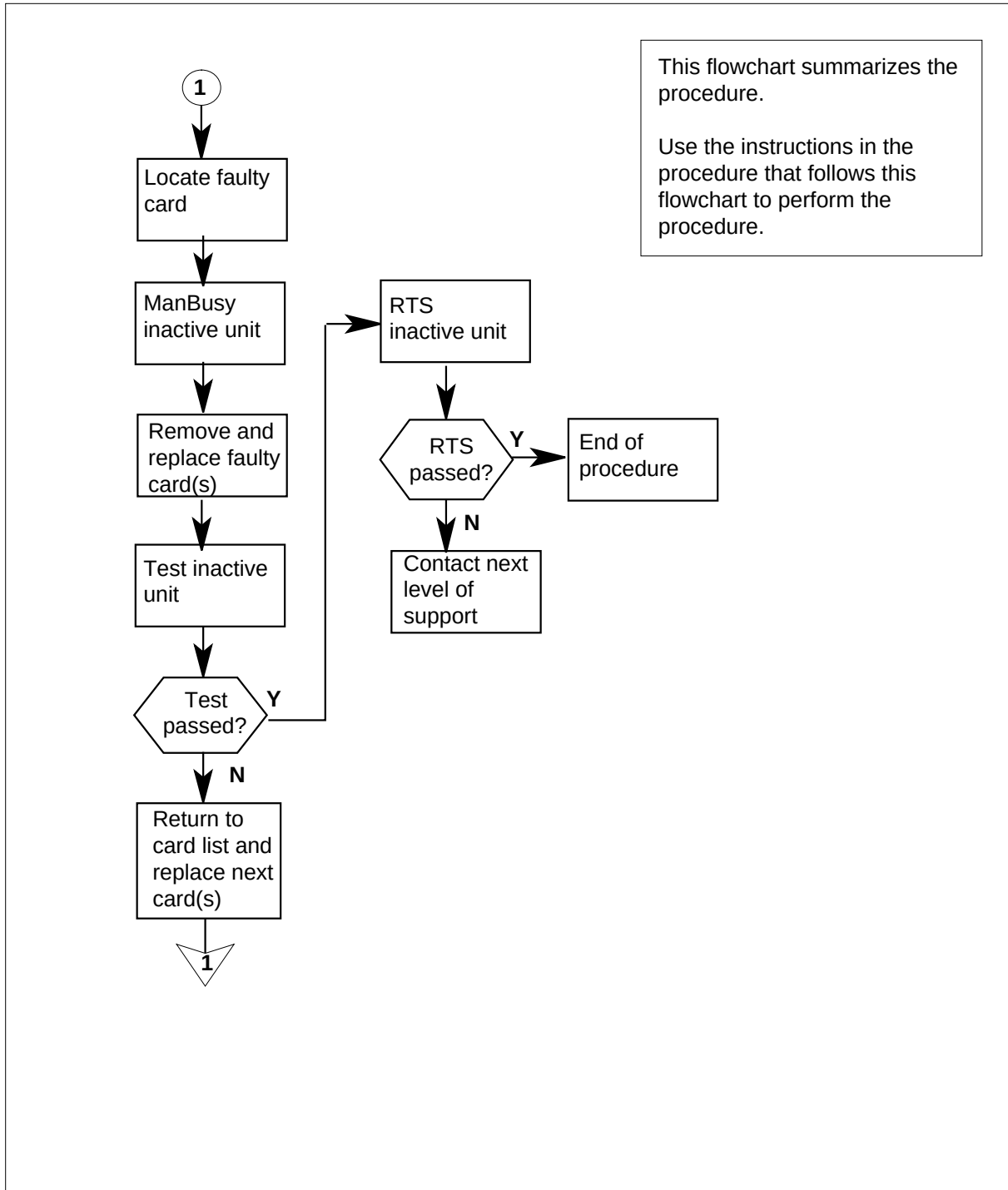
PEC	Suffixes	Name
NT6X69	AC, AD, QA	CPP Message Protocol and Tone Generator

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.

NT6X69
in an SMS-R (continued)**Summary of card replacement procedure for an NT6X69 card in an SMS-R**

NT6X69 in an SMS-R (continued)

Replacing an NT6X69 card in an SMS-R

At your Current Location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.

2



CAUTION

Loss of service

When replacing a card in the SMS-R, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

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

At the MAP display

- 3 Access the PM level of the MAP display by typing

>MAPCI;MTC;PM;POST SMSR smsr_no

and pressing the Enter key.

where

smsr_no

is the number of the SMS-R to be posted

Example of a MAP response:

SMSR 3	INSV	LINKS_00S	CSIDE 0	PSIDE 0
Unit0	Act	InSv		
Unit1	InAct	ISTb		

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

NT6X69 in an SMS-R (continued)

The system determines the type of SWACT it can perform and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
can continue at this time	step 6
cannot continue at this time	step 25

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failed Reason:XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 Return to the alarm clearing procedure to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

- 8 Put a sign on the active unit with the words: *"Active unit—Do not touch."*

At the MAP display

- 9 Busy the inactive PM unit by typing

> bsy UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS-R unit

- 10 Set the PM to the ROM level by typing

>PMRESET UNIT unit_no NORUN

and pressing the Enter key.

NT6X69 in an SMS-R (continued)

where

unit_no

is the number of the inactive SMS-R unit (0 or 1)

At the frame

11



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 SMS-R. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

12



CAUTION

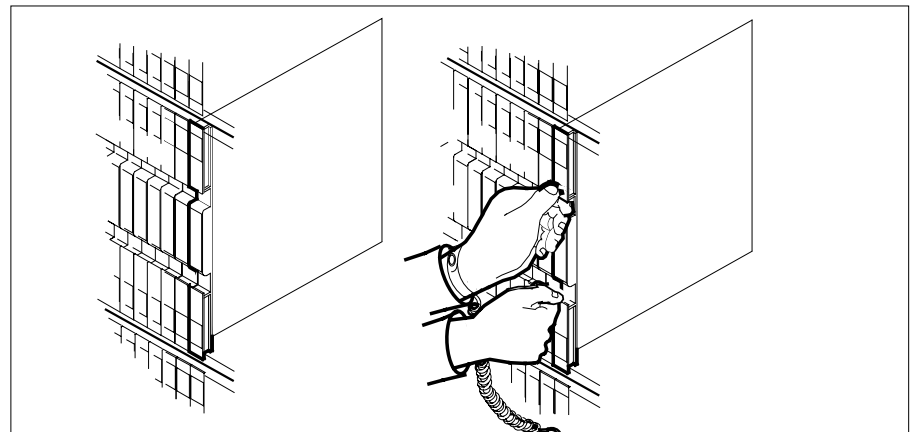
Equipment damage

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

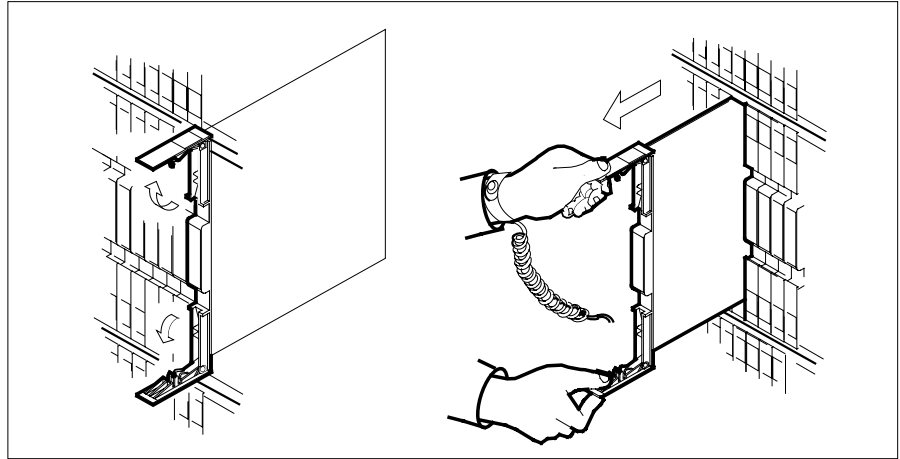
Remove the NT6X69 card as shown in the following figures.

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



NT6X69
in an SMS-R (continued)

- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Verify that the replacement card has the same PEC, including suffix, as the card you just removed.

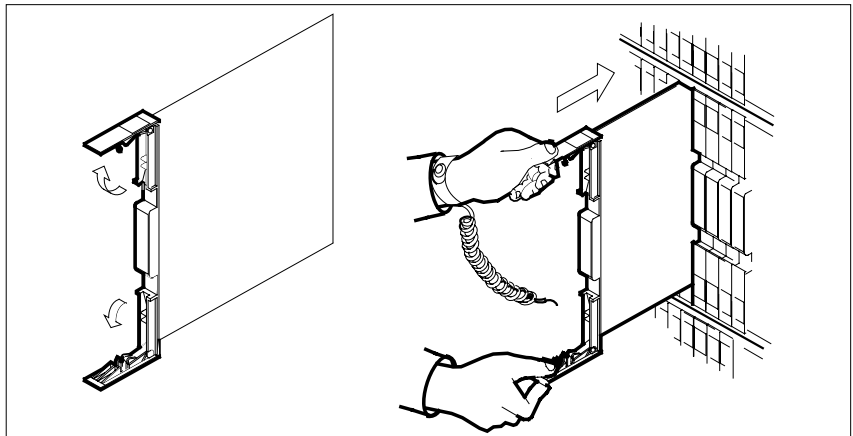
13

**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.

Open the locking levers on the replacement card.

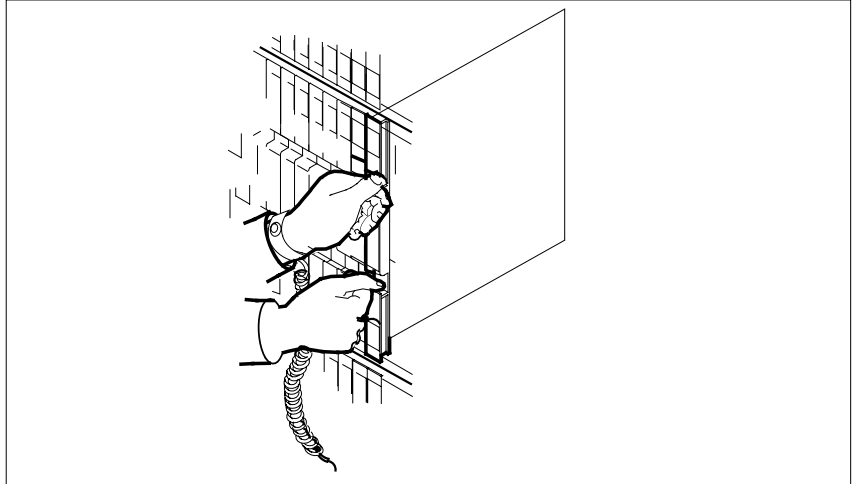
- a** Align the card with the slots in the shelf and gently slide the card into the shelf.



NT6X69

in an SMS-R (continued)

- 14 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.



- 15 Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 22
other	step 17

At the MAP display

- 16 Perform a full reset of the inactive unit of the PM by typing
>PMRESET UNIT unit_no
and pressing the Enter key.
where
unit_no
is the number of the inactive SMS-R unit (0 or 1)
- 17 Test the inactive SMS-R unit by typing
> TST UNIT unit_no
and pressing the Enter key.
where

NT6X69 in an SMS-R (end)

unit_no
is the number of the faulty SMS-R unit

If TST	Do
passes	step 18
fails	step 22

- 18** Return the inactive SMS-R unit to service by typing

> RTS UNIT unit_no

and pressing the Enter key.

where

unit_no
is the number of the faulty SMS-R unit

If RTS	Do
passes	step 19
fails	step 23

At the frame

- 19** Remove the sign from the active SMS-R unit.
- 20** Send any faulty cards for repair according to local procedure.
- 21** Record the following items in office records according to local policy:
- the date the card was replaced
 - the serial number of the card
 - the symptoms that prompted replacement of the card
- Go to step 24.
- 22** Return to *Alarm Clearing Procedures* section of this manual or to the procedure that directed you to this procedure. At 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 personnel responsible for a higher level of support.
- 24** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 25** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

NT6X69 in an SMU

Application

Use this procedure to replace the following card in an SMU.

PEC	Suffixes	Name
NT6X69	AB, AC, AD, QA	Message protocol and tone card

Common procedures

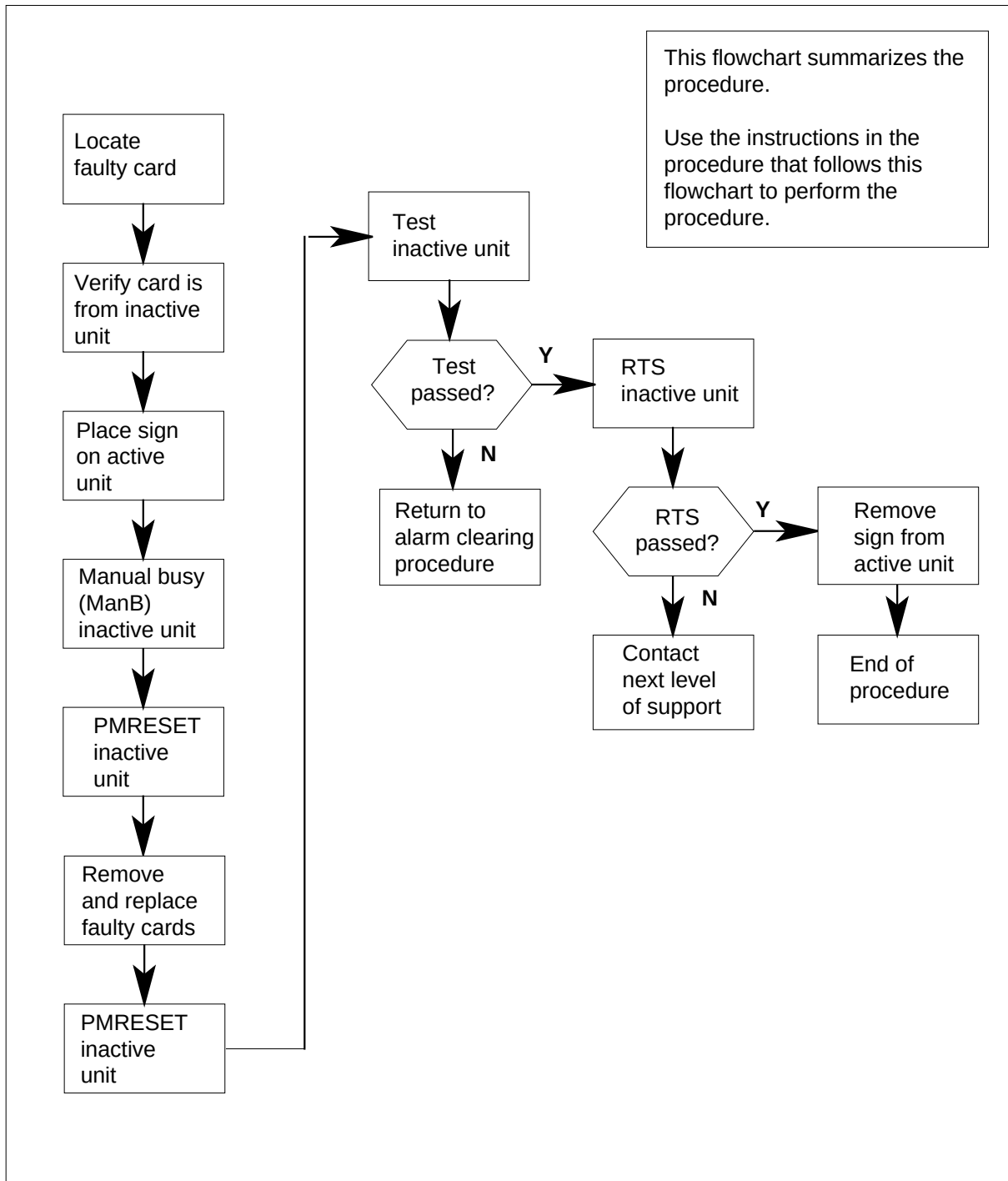
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X69 in an SMU (continued)

Summary of card replacement procedure for an NT6X69 card in an SMU



NT6X69 in an SMU (continued)

Replacing an NT6X69 card in an SMU

At your current location:

- 1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure.
- 2



CAUTION

Loss of service

When replacing a card in the SMU, ensure that the unit where you are replacing the card is inactive and that the mate unit is active.

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

At the MAP terminal:

- 3 Ensure that the PM level of the MAP terminal is displayed and post the SMU by typing

>MAPCI;MTC;PM;POST SMU smu_no

and pressing the Enter key.

where

smu_no

is the number of the SMU to be posted

Example of a MAP response:

SMU	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMU	0	0	0	0	1	7

SMU 0 ISTb Links_OOS: CSide 2, PSide 0

Unit0: Act SysB

Unit1: Inact InSv

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing

>SWACT

NT6X69 in an SMU (continued)

and pressing the Enter key.

The system determines the type of SwAct it can perform. The system displays a confirmation prompt for the selected SwAct.

If SwAct	Do
can continue at this time	step 6
cannot continue at this time	step 21

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SwAct audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failed Reason: XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 Return to the *Alarm Clearing Procedures* to clear the alarm condition on the inactive unit. After the alarm is cleared, return to step 1 of this procedure.

At the SME frame:

- 8 Put a sign on the active unit bearing the following words: "Active unit—Do not touch."

At the MAP terminal:

- 9 Busy the inactive PM unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the inactive SMU unit (0 or 1)

NT6X69

in an SMU (continued)

- 10** Set the PM to the ROM level by typing
>PMRESET UNIT unit_no NORUN
and pressing the Enter key.
where
unit_no
is the number of the SMU unit (0 or 1) busied in step 9
- 11** Go to the common replacing a card procedure in this document, then return to step 1 of this procedure.
- 12** Perform a full reset of the inactive unit of the PM by typing
>PMRESET UNIT unit_no
and pressing the Enter key.
where
unit_no
is the number of the inactive SMU unit (0 or 1)
- 13** Use the following information to determine where to go next in this procedure.
- | If you entered this procedure from | Do |
|------------------------------------|---------|
| alarm clearing procedures | step 16 |
| other | step 14 |
- 14** Test the inactive unit by typing
>TST UNIT unit_no
and pressing the Enter key.
where
unit_no
is the number of the SMU unit busied in step 9
- | If TST | Do |
|--------|---------|
| passes | step 15 |
| fails | step 17 |
- 15** Return the inactive SMU unit to service by typing
>RTS UNIT unit_no
and pressing the Enter key.
where

NT6X69 in an SMU (end)

unit_no

is the number of the SMU unit tested in step 14

	If RTS	Do
	passed	step 18
	failed	step 17
16	Return to the <i>Alarm Clearing Procedures</i> . If necessary, go to the point where a faulty card list is initiated and identify the next faulty card on the list. Go to the appropriate card replacement procedure for that card.	
17	Contact personnel responsible for higher level support and get further help to replace this card.	
18	Send any faulty cards for repair according to local procedure.	
19	Record the following items in the office records: • date the card was replaced • serial number of the card • symptoms that prompted replacement of the card	
20	You have successfully completed this procedure. Remove the sign from the active unit and return to the maintenance procedure that directed you to this card replacement procedure. Continue as directed.	
21	For further assistance with switch of activity, contact the personnel responsible for the next level of support. Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.	

NT6X71 in an IOPAC ILCM

Application

Use this procedure to replace the following card in an International line concentrating module (ILCM).

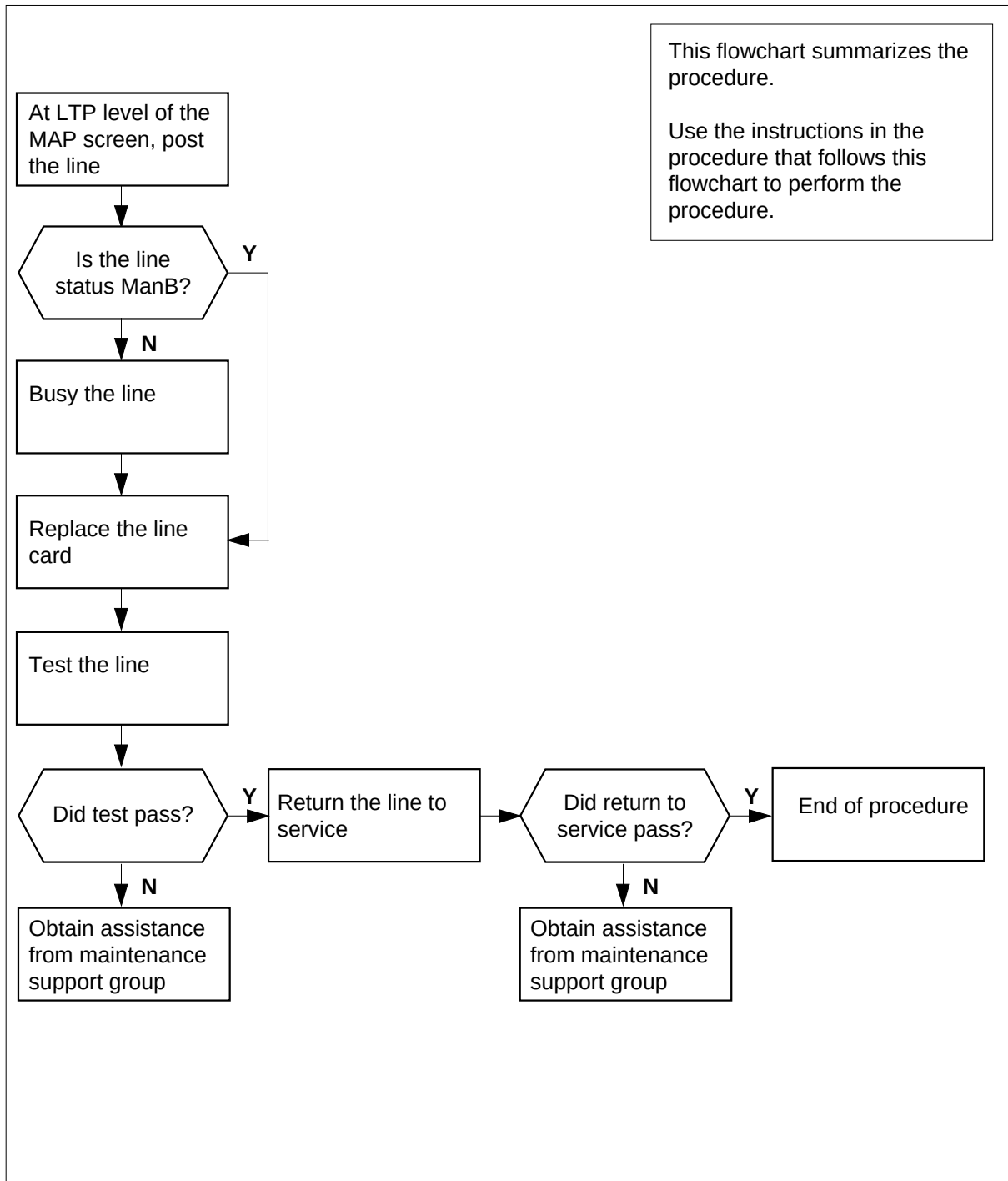
PEC	Suffixes	Name
NT6X71	AA	Data line card

Common procedures

The common replacing a line card procedure 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.

NT6X71
in an IOPAC ILCM (continued)**Summary of card replacement procedure for an NT6X71 card in an ILCM**

NT6X71 in an IOPAC ILCM (continued)

Replacing an NT6X71 in an ILCM

At your Current Location

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

At the MAP terminal

- 2 Access the line test position (LTP) level of the MAP display and post the line associated with the card to be replaced by typing

>MAPCI;MTC;LNS;LTP;POST L site lcm lsg ckt

and pressing the Enter key.

where

site

is the name of the site where the IOPAC is located

lcm

is the number of the ILCM with the faulty card

lsg

is the number of the line subgroup with the faulty card

ckt

is the number of the circuit associated with the faulty card

Example of a MAP response:

```
LCC PTY   RNG .....LEN..... DN STA F S LTA TE RESULT
CKT TYPEFL REM1 00 0 03 03      3627708 MB
```

- 3 Check the status of the posted line.

If the line status is	Do
manual busy (ManB)	step 5
not ManB	step 4

- 4 Busy the line by typing

>BSY

and pressing the Enter key.

- 5 Go to the common replacing a line card procedure in this document. When you have completed the procedure, return to this step.

- 6 Test the line card just replaced by typing

>DIAG

and pressing the Enter key.

If the DIAG	Do
passed	step 7

NT6X71
in an IOPAC ILCM (end)

	If the DIAG	Do
	failed	step 10
7	Return the line card to service by typing >RTS and pressing the Enter key.	
	If RTS	Do
	passed	step 8
	failed	step 10
8	Send any faulty cards for repair according to local procedure.	
9	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 11.	
10	Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.	
11	You have successfully completed this procedure.	

NT6X71 in an OPM

Application

Use this procedure to replace the following card in an OPM.

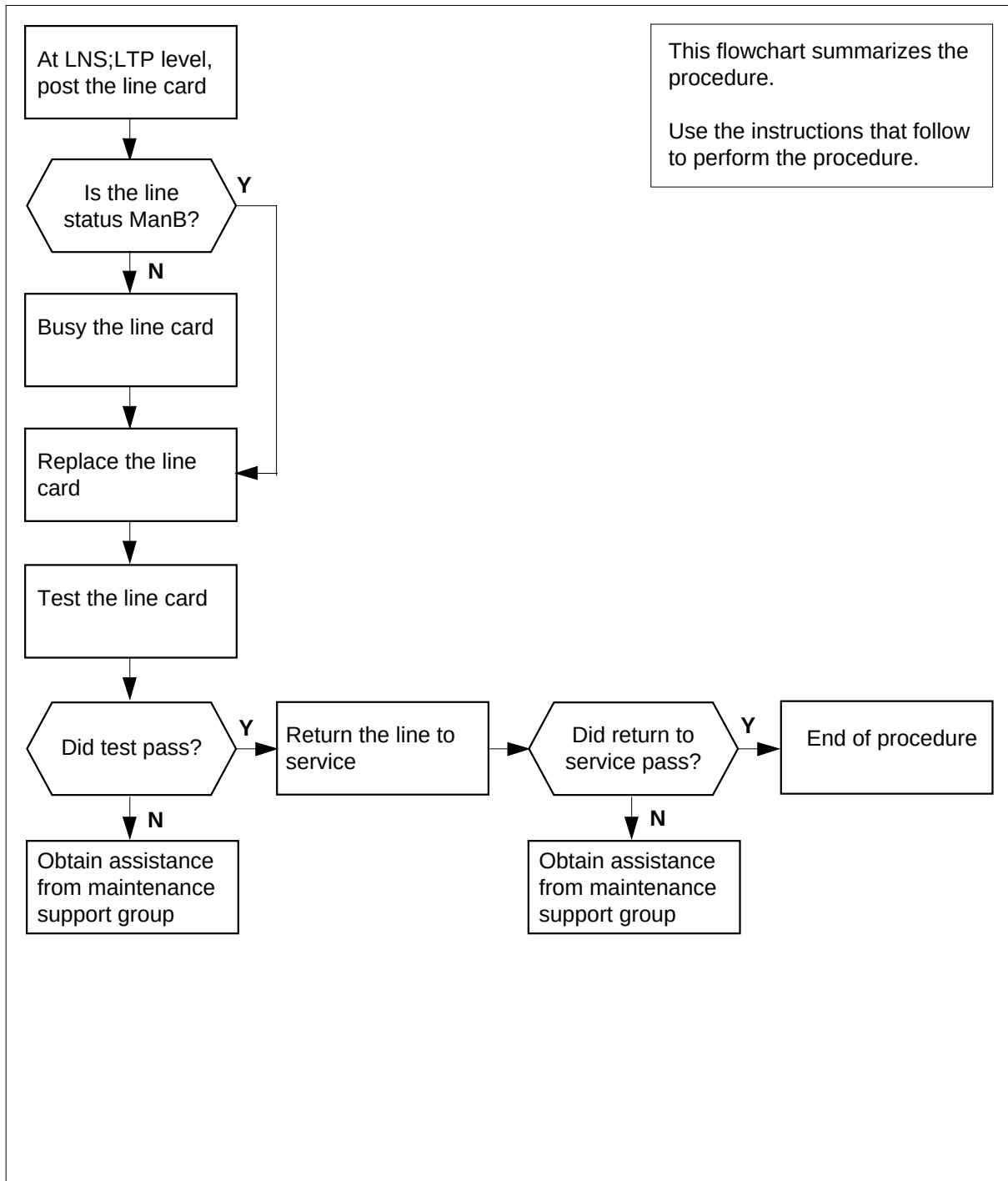
PEC	Suffixes	Name
NT6X71	AA	Data line card DMS-100/SL-100

Common procedures

The common replacing a line card procedure is referenced in this procedure.

Action

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

NT6X71
in an OPM (continued)**Summary of card replacement procedures for an NT6X71 card in an OPM**

NT6X71 in an OPM (continued)

Replacing an NT6X71 card in an OPM

At your Current Location

- 1 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

- 2 Access the line test position (LTP) level of the MAP display and post the line associated with the card to be replaced by typing

>MAPCI;MTC;LNS;LTP;POST L site lcm lsg ckt

and pressing the Enter key.

where

site

is the name of the site where the OPM is located

lcm

is the number of the OPM with the faulty card

lsg

is the number of the line subgroup with the faulty card

ckt

is the number of the circuit associated with the faulty card

Example of a MAP display:

```
LCC PTY RNG .....LEN..... DN STA F S LTA TE RESULT
1FR      REM1 00 0 03 03      7213355 MB
```

- 3 Check the status of the posted line.

If the line status is	Do
ManB	step 5
not ManB	step 4

- 4 Busy the line by typing

>BSY

and pressing the Enter key.

- 5 Go to the common replacing a line card procedure in this document. When you have completed the procedure, return here.

NT6X71
in an OPM (end)

At the MAP

- 6** Test the line card just replaced by typing

>DIAG

and pressing the Enter key.

If the DIAG	Do
passed	step 7
failed	step 10

- 7** Return the line card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 8
failed	step 10

- 8** Send any faulty cards for repair according to local procedure.

- 9** 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 11.

- 10** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.

- 11** You have successfully completed this procedure.

NT6X71 in an RLCM

Application

Use this procedure to replace the following card in an RLCM.

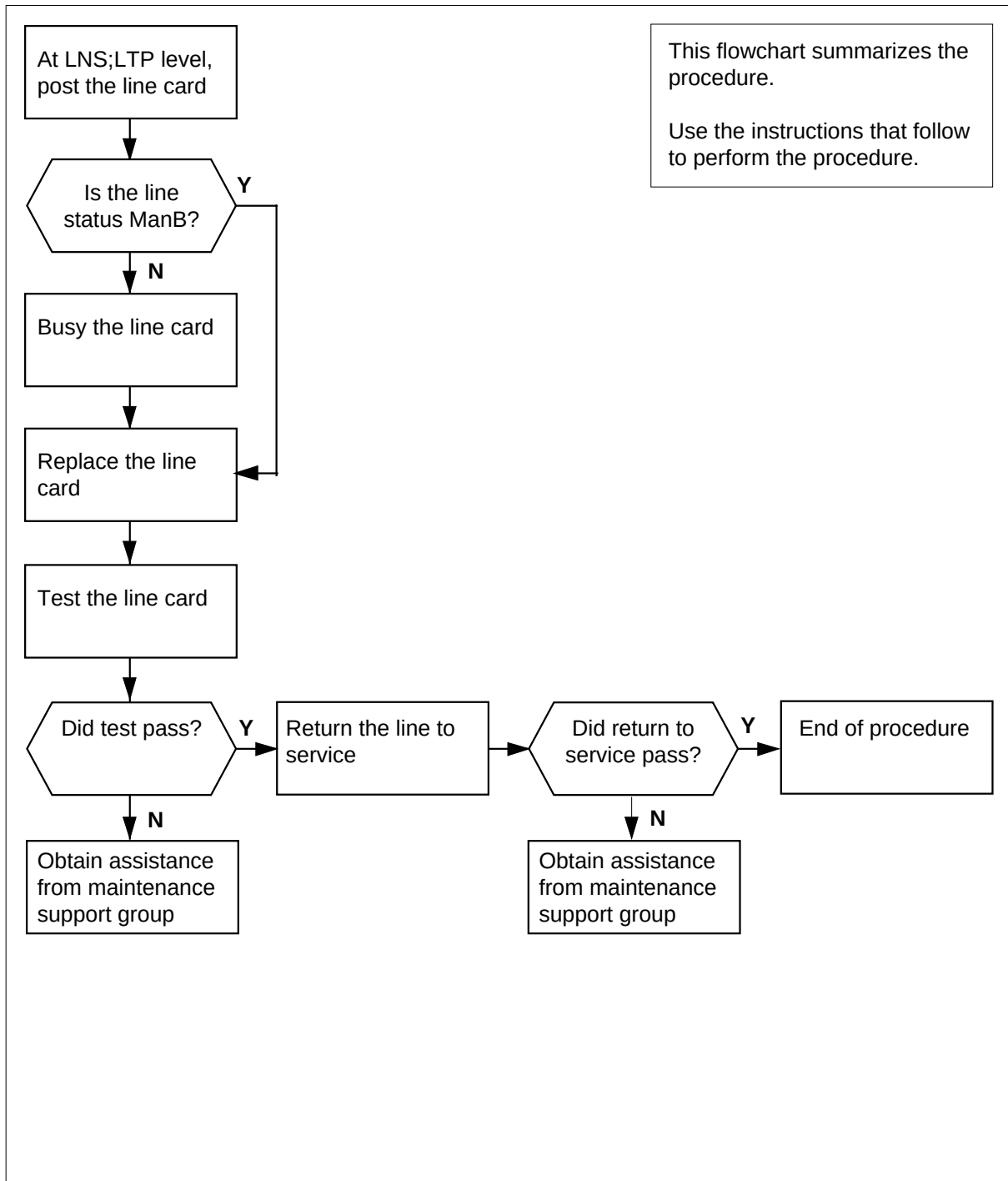
PEC	Suffixes	Name
NT6X71	AA	Data line card

Common procedures

The common replacing a line card procedure is referenced in this procedure.

Action

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

NT6X71
in an RLCM (continued)**Summary of card replacement procedure for an NT6X71 card in an RLCM**

NT6X71 in an RLCM (continued)

Replacing an NT6X71 card in an RLCM

At your current location

- 1 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

- 2 Access the line test position (LTP) level of the MAP display and post the line associated with the card to be replaced by typing

>MAPCI;MTC;LNS;LTP;POST L site lcm lsg ckt

and pressing the Enter key.

where

site

is the name of the site where the RLCM is located

lcm

is the number of the RLCM with the faulty card

lsg

is the number of the line subgroup with the faulty card

ckt

is the number of the circuit associated with the faulty card

Example of a MAP display:

```
LCC PTY RNG .....LEN..... DN STA F S LTA TE RESULT
1FR      REM1 00 0 03 03      7213355 MB
```

- 3 Check the status of the posted line.

If the line status is	Do
ManB	step 5
not ManB	step 4

- 4 Busy the line by typing

>BSY

and pressing the Enter key.

- 5 Go to the common replacing a line card procedure in this document. When you have completed the procedure, return here.

NT6X71
in an RLCM (end)

At the MAP

- 6** Test the line card just replaced by typing

>DIAG

and pressing the Enter key.

If the DIAG	Do
passed	step 7
failed	step 10

- 7** Return the line card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 8
failed	step 10

- 8** Send any faulty cards for repair according to local procedure.

- 9** 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 11.

- 10** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.

- 11** You have successfully completed this procedure.

NT6X71 in an RSC LCM

Application

Use this procedure to replace the following card in an RSC LCM.

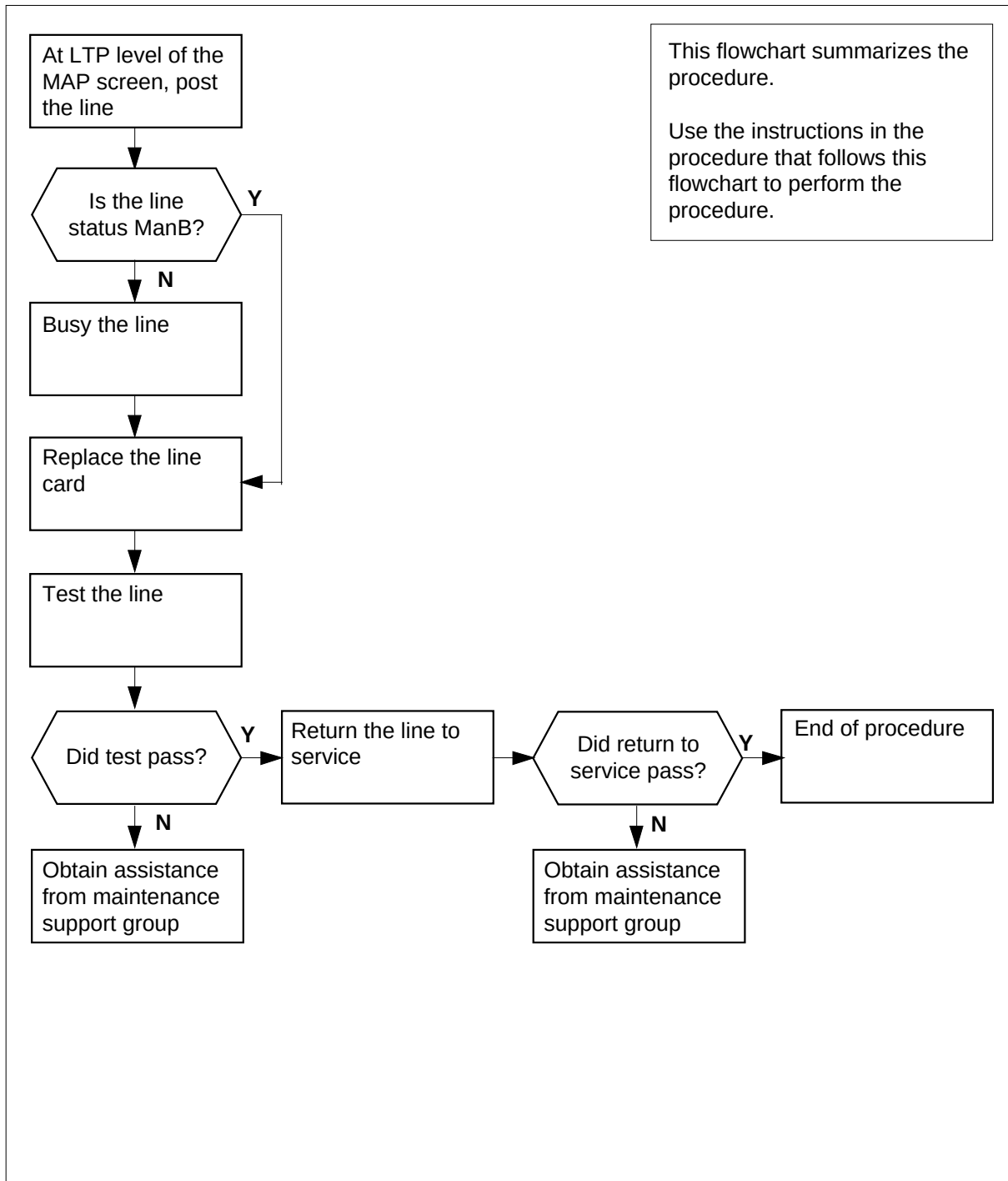
PEC	Suffixes	Name
NT6X71	AA	Data line card (DLC) type D

Common procedures

None

Action

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

NT6X71
in an RSC LCM (continued)**Summary of card replacement procedure for an NT6X71 card in an in RSC LCM**

NT6X71

in an RSC LCM (continued)

Replacing an NT6X71 card in an in RSC LCM

- 1** Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure for verifying or accepting cards, or were directed to this procedure by your maintenance support group.
- 2** Obtain a replacement card. Ensure the replacement card has the same product equipment code (PEC) including suffix, as the card to be removed.

At the MAP terminal

- 3** Access the line test position (LTP) level of the MAP display and post the line associated with the card to be replaced by typing

>MAPCI;MTC;LNS;LTP;POST L site frame lcm lsg ckt

and pressing the Enter key.

where

site

is the name of the RSC site where the LCM is located

frame

is the number of the LCE frame (0 to 511)

lcm

is the number of the LCM with the faulty card

lsg

is the number of the line subgroup with the faulty card

ckt

is the number of the circuit associated with the faulty card

Example of a MAP display:

NT6X71
in an RSC LCM (continued)

```
CM      MS      IOD      Net      PM      CCS      LNS      Trks      Ext      Appl
.       .       .       .       .       .       .       .       .       .
LTP
0 Quit          Post          DELQ          BUSYQ          PREFIX
2 Post_
3              LCC PTY RNG.....LEN.....DN          STA F S LTA TE RESULT  4
CKT TYPE FL REM1 00 0 03 03 7213355 IDL
5 BSY
6 RTS
7 DIAG
8
9 AIMStat
10 CKTLOC
11 Hold
12 Next_
13
14
15
16 Prefix
17 LCO
18 Level
```

4 Check the status of the posted line.

If the line status is	Do
manual busy (ManB)	step 6
not ManB	step 5

5 Busy the line by typing
>BSY
and pressing the Enter key.
Example of a MAP display:

NT6X71

in an RSC LCM (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	
LTP									
0	Quit		Post	DELQ		BUSYQ		PREFIX	
2	Post_								
3		LCC	PTY	RNG....	LEN.....	DN		STA F S LTA TE	RESULT 4
CKT TYPE FL REM1 00 0 03 03 7213355 MB									
5	BSY								
6	RTS								
7	DIAG								
8									
9	AIMStat								
10	CKTLOC								
11	Hold								
12	Next_								
13									
14									
15									
16	Prefix								
17	LCO								
18	Level								

NT6X71
in an RSC LCM (continued)*At the LCEI frame*

6

**DANGER****Card damage—transport**

Take the following precautions to protect circuit cards from electrical and mechanical damage when transporting them:

When handling a circuit card not in an 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.

**DANGER****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 LCM. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**CAUTION****Special tools required**

Card shrouds and removal tools are required for removing cards from the line drawers. For descriptions of these tools, refer to the notes at the end of this procedure.

Put on a wrist strap.

NT6X71 in an RSC LCM (continued)

7



DANGER

Hot materials

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

Open the line drawer using the following steps:

- a Face the drawer shelf and grasp the handle at the bottom of the drawer with your right hand.
- b Push up on the drawer latch with your thumb and pull the drawer out until fully withdrawn. It is fully withdrawn when the drawer stop is at the top, to prevent further travel.
- c Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (1 inch).
- d 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 (.5 inch) to the right.
- e Hold the drawer in this position with your left hand and lower the faceplate of the drawer by releasing the grip of your right hand.
- f Ensure that a card shroud and line card extractor are available.

Note 1: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with three-inch and/or six-inch cards.

Descriptions of these shrouds are as follows:

- Line card insertion/withdrawal tool (3")
 - QTH56A (apparatus code)
 - A0298291 (common product code)
- Line card insertion/withdrawal tool (6")
 - QTH58A (apparatus code)
 - A0313317 (common product code)

Note 2: Card removal tools are required for removing cards from line drawers. Two sizes are available.

NT6X71 in an RSC LCM (continued)

Descriptions of these tools are as follows:

- Card removal tool (3-inch or larger)
 - QTH57A (apparatus code)
 - A0298292 (common product code)
 - Large grip tool for 4-inch or larger cards is NT tool ITA9953

Remove the line card to be replaced by using the following steps:

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.

- g 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 your right hand.
 - h Squeeze the handles of the extractor together to grasp the card tightly.
 - i Hold the front cover of the line drawer to steady it with your left hand.
 - j Pull the extractor away from the drawer and the card will become unplugged from its socket on the drawer backplane.
 - k Continue pulling the card with the extractor until the card is clear of the shroud.
 - l Insert the removed card into ESD container and store per local procedures.
- 8** Replace the faulty card by using the following steps:
- a Remove the replacement card from the ESD container.
 - b Slide the card in the shroud guide slots towards the drawer backplane.
 - c Hold the front cover of the line drawer with your left hand to steady it.
 - d Grasp the top and bottom edges of the card with the fingers of your right hand.
 - e Push the card towards the backplane until it plugs fully into the backplane socket.
- 9** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 13
other	step 10

NT6X71 in an RSC LCM (end)

At the MAP terminal

- 10** Test the new NT6X71 line card by typing

>DIAG

and pressing the Enter key.

If the DIAG	Do
passed	step 11
failed	step 15

- 11** Return the line card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 12
failed	step 15

- 12** Send any faulty cards for repair according to local procedure.

- 13** 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

- 14** Return to the *Alarm Clearing Procedure* that directed you to this procedure. At the point where the 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.

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

- 16** You have successfully completed this procedure.

NT6X71 in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace an NT6X71 card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X71	AA, AB	Data Line card (DLC)

Common procedures

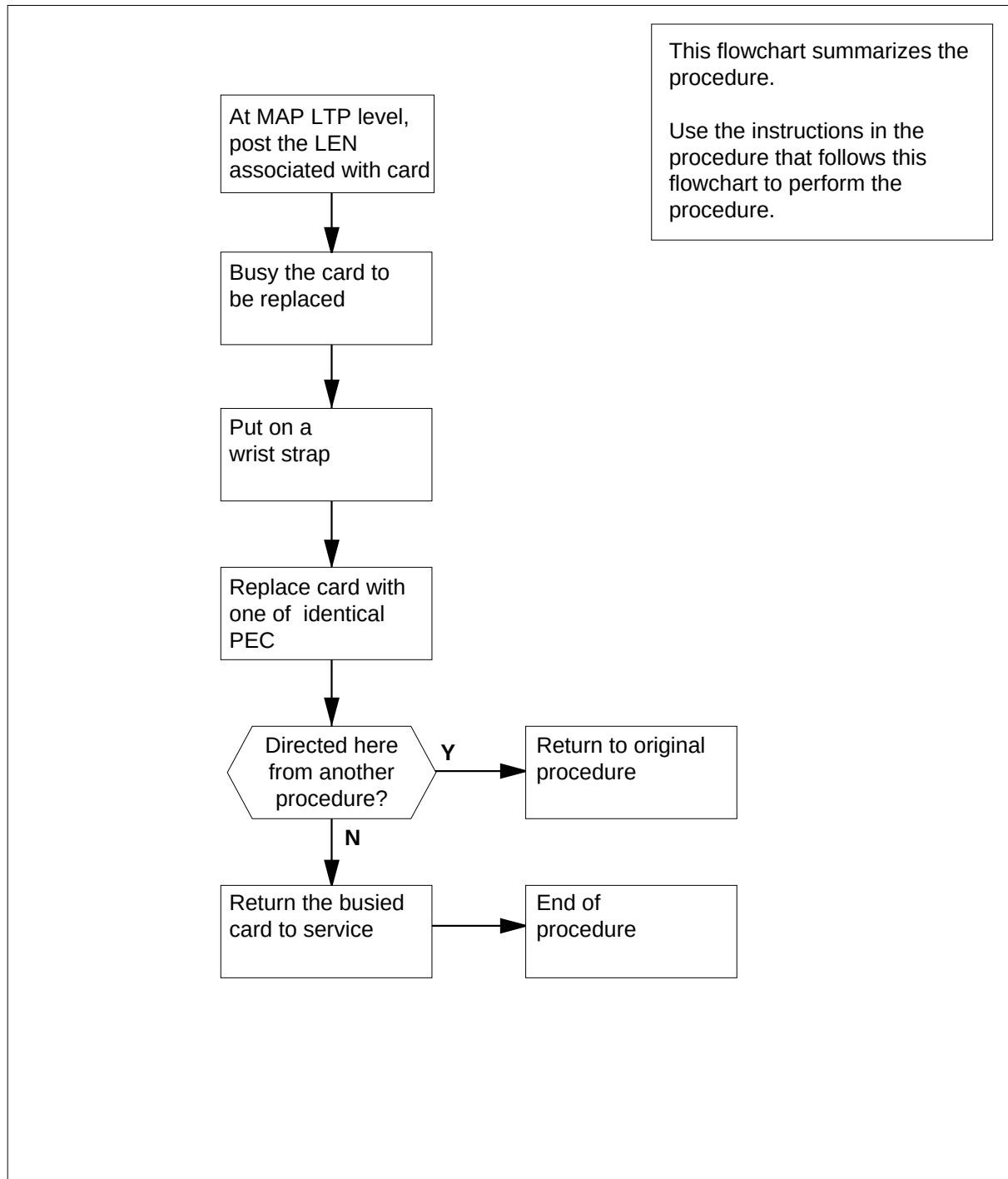
None

Action

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

NT6X71 in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NT6X71 card in RSC-S LCME



NT6X71

in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NT6X71 card in RSC-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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3** Post the LEN of the card to be replaced by typing
**>MAPCI;MTC;LNS;LTP;POST L site lcme no unit_no lsg no
ckt_no**

and pressing the Enter key.

where

site

is the location name of the LCME with the faulty card

lcme_no

is the number of the LCME with the faulty card

unit_no

is the number of the LCME 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

Example of a MAP display:

NT6X71 in an RSC-S (DS-1) Model A LCME (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
LTP									
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	IDL				
5	BSY								
6	RTS								
7	DIAG								
8									
9	AIMStat								
10	CKTLOC								
11	Hold								
12	Next_								
13									
14									
15									
16	Prefix								
17	LCO								
18	Level								

- 4 Busy the NT6X71 line card by typing

>BSY

and pressing the Enter key.

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
LTP									
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	IDL				
5	BSY								
6	RTS								
7	DIAG								
8									
9	AIMStat								
10	CKTLOC								
11	Hold								
12	Next_								
13									
14									
15									
16	Prefix								
17	LCO								
18	Level								

NT6X71
in an RSC-S (DS-1) Model A LCME (continued)

At the LCE frame

5

**DANGER****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 an 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 switch frame.

Store and transport circuit cards in an ESD protective container.

**DANGER****Equipment damage**

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**DANGER****Hot materials**

Exercise care when handling the line card. The line feed resistor may be very hot.

**CAUTION****Special tools required**

Card shrouds and removal tools are required for removing cards from the line drawers.

NT6X71

in an RSC-S (DS-1) Model A LCME (continued)

Put on a wrist strap.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note 1: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards. Descriptions of these shrouds follow.

Note 2: Card removal tools are required for removing cards from line drawers. Two sizes are available. Descriptions of these tools follow.

Card removal tool for	Apparatus code	Common product code
3-4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

- 6 Prepare to remove the faulty card by opening the line drawer, determined in step 1, and following these substeps:
 - a Face the drawer shelf and grasp the handle at the bottom of the drawer with your right hand.
 - b Push up on the drawer latch with your thumb and pull the drawer out until fully withdrawn. It is fully withdrawn when the drawer stop, at the top, prevents further travel.
 - c Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (1 in).
 - d While holding the drawer in this position, push the bottom of the drawer, nearest the shelf with your left hand, to a position about 1 cm (.5 in) to the right.
 - e Hold the drawer in this position with your left hand and lower the faceplate of the drawer by releasing the grip of your right hand.
 - f Ensure a card shroud and line card extractor are available.
- 7 Remove the line card to be replaced by following these substeps:
 - a 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.
 - b 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 your right hand.

NT6X71

in an RSC-S (DS-1) Model A LCME (continued)

- c Squeeze the handles of the extractor together to grasp the card tightly.
 - d Hold the front cover of the line drawer to steady it using your left hand.
 - e Pull the extractor away from the drawer, and the card will become unplugged from its socket on the drawer backplane.
 - f Continue pulling the card with the extractor until the card is clear of the shroud.
 - g Insert the removed card into the ESD container and store using local procedures.
- 8 Replace the faulty card by following these substeps:
- a Remove the replacement card from the ESD container.
 - b Slide the card in the shroud guide slots toward the drawer backplane.
 - c Hold the front cover of the line drawer with your left hand to steady it.
 - d Grasp the top and bottom edges of the card with the fingers of your right hand.
 - e Push the card toward the backplane until it plugs fully into the backplane socket.
- 9 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 14
other	step 10

At the MAP terminal

- 10 Test the NT6X71 line card by typing
>DIAG
 and pressing the Enter key.

If DIAG	Do
passed	step 11
failed	step 14

- 11 Return the NT6X71 card to service by typing
>RTS
 and pressing the Enter key.

If RTS	Do
passed	step 12

NT6X71
in an RSC-S (DS-1) Model A LCME (end)

	If RTS	Do
	failed	step 15
12	Send any faulty cards for repair according to local procedure.	
13	Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 16.	
14	Return to <i>Alarm Clearing Procedures</i> or another procedure 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.	
15	Obtain further assistance in replacing this card by contacting operating company maintenance personnel.	
16	You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.	

NT6X71
in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace an NT6X71 card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X71	AA, AB	Data Line card (DLC)

Common procedures

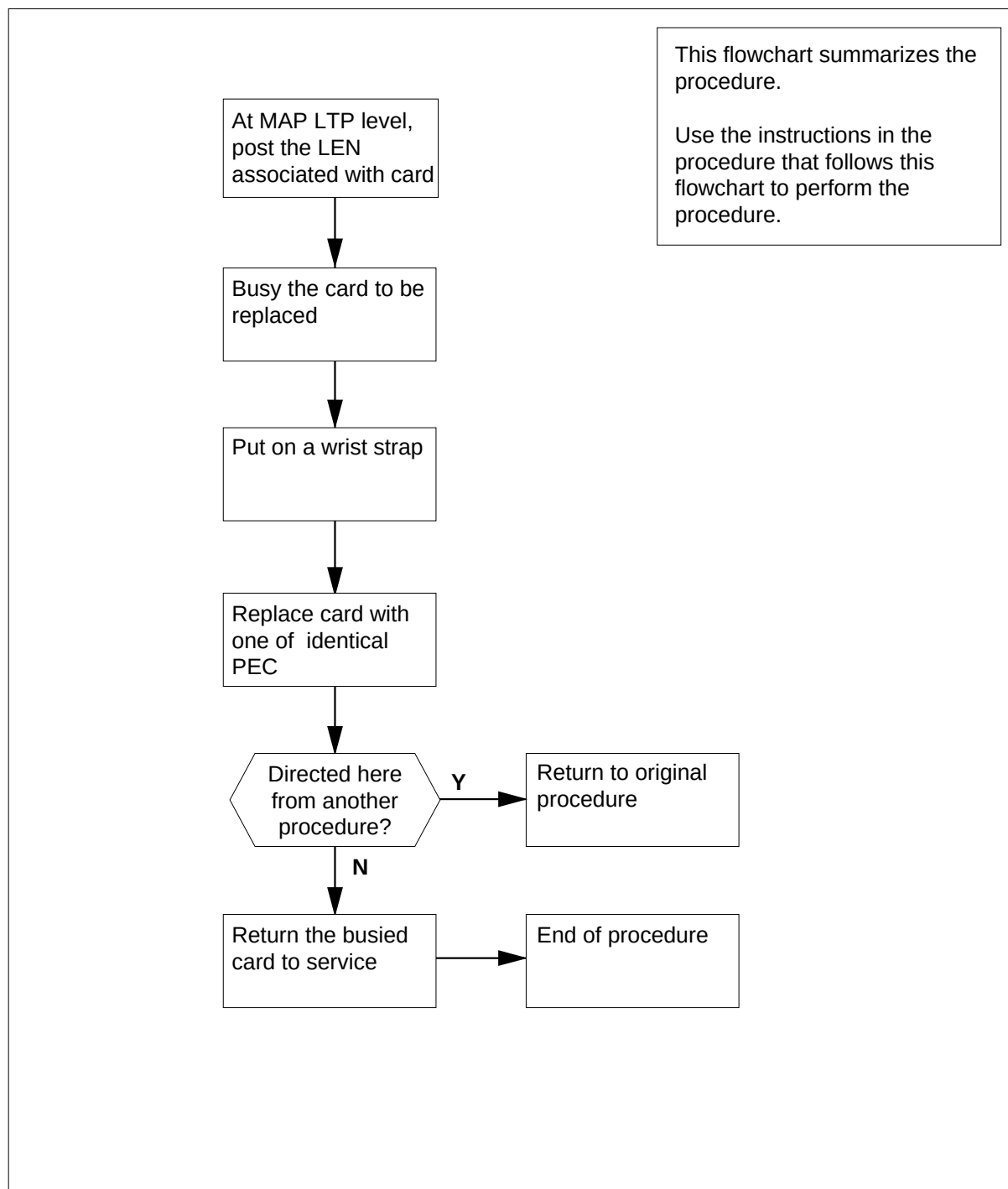
None

Action

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

NT6X71 in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NT6X71 card in RSC-S LCME



NT6X71

in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NT6X71 card in RSC-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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Post the LEN of the card to be replaced by typing
**>MAPCI;MTC;LNS;LTP;POST L site lcme_no unit_no lsg_no
ckt_no**

and pressing the Enter key.

where

site

is the location name of the LCME with the faulty card

lcme_no

is the number of the LCME with the faulty card

unit_no

is the number of the LCME 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

Example of a MAP display:

NT6X71 in an RSC-S (DS-1) Model B LCME (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
LTP									
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	IDL		
5	BSY								
6	RTS								
7	DIAG								
8									
9	AIMStat								
10	CKTLOC								
11	Hold								
12	Next_								
13									
14									
15									
16	Prefix								
17	LCO								
18	Level								

- 4 Busy the NT6X71 line card by typing

>BSY

and pressing the Enter key.

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
LTP									
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	IDL		
5	BSY								
6	RTS								
7	DIAG								
8									
9	AIMStat								
10	CKTLOC								
11	Hold								
12	Next_								
13									
14									
15									
16	Prefix								
17	LCO								
18	Level								

NT6X71
in an RSC-S (DS-1) Model B LCME (continued)

At the LCE frame

5

**DANGER****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 an 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 switch frame.

Store and transport circuit cards in an ESD protective container.

**DANGER****Equipment damage**

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**DANGER****Hot materials**

Exercise care when handling the line card. The line feed resistor may be very hot.

**CAUTION****Special tools required**

Card shrouds and removal tools are required for removing cards from the line drawers.

Put on a wrist strap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards.

NT6X71

in an RSC-S (DS-1) Model B LCME (continued)

Descriptions of these shrouds follow.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available. Descriptions of these tools follow.

Card removal tool for	Apparatus code	Common product code
3-4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

- 6 Prepare to remove the faulty card by opening the line drawer, determined in step 1, and following these substeps:
 - a Face the drawer shelf and grasp the handle at the bottom of the drawer with your right hand.
 - b Push up on the drawer latch with your thumb and pull the drawer out until fully withdrawn. It is fully withdrawn when the drawer stop, at the top, prevents further travel.
 - c Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (1 in).
 - d While holding the drawer in this position, push the bottom of the drawer, nearest the shelf with your left hand, to a position about 1 cm (.5 in) to the right.
 - e Hold the drawer in this position with your left hand and lower the faceplate of the drawer by releasing the grip of your right hand.
 - f Ensure a card shroud and line card extractor are available.
- 7 Remove the line card to be replaced by following these substeps:
 - a 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.
 - b 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 your right hand.
 - c Squeeze the handles of the extractor together to grasp the card tightly.
 - d Hold the front cover of the line drawer to steady it using your left hand.
 - e Pull the extractor away from the drawer, and the card will become unplugged from its socket on the drawer backplane.

NT6X71

in an RSC-S (DS-1) Model B LCME (continued)

- f Continue pulling the card with the extractor until the card is clear of the shroud.
- g Insert the removed card into the ESD container and store using local procedures.
- 8 Replace the faulty card by following these substeps:
 - a Remove the replacement card from the ESD container.
 - b Slide the card in the shroud guide slots toward the drawer backplane.
 - c Hold the front cover of the line drawer with your left hand to steady it.
 - d Grasp the top and bottom edges of the card with the fingers of your right hand.
 - e Push the card toward the backplane until it plugs fully into the backplane socket.
- 9 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 14
other	step 10

At the MAP terminal

- 10 Test the NT6X71 line card by typing
>DIAG
 and pressing the Enter key.

If DIAG	Do
passed	step 11
failed	step 14

- 11 Return the NT6X71 card to service by typing
>RTS
 and pressing the Enter key.

If RTS	Do
passed	step 12
failed	step 15

- 12 Send any faulty cards for repair according to local procedure.
- 13 Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 16.

NT6X71

in an RSC-S (DS-1) Model B LCME (end)

- 14** Return to *Alarm Clearing Procedures* or another procedure 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.
- 15** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.
- 16** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X71
in a STAR or RLD**

Application

Use this procedure to replace the following card in a STAR or remote line drawer (RLD).

PEC	Suffixes	Name
NT6X71	AA, AB, AC	Standard line card type D
NT6X71	BA	Data line card

Common procedures

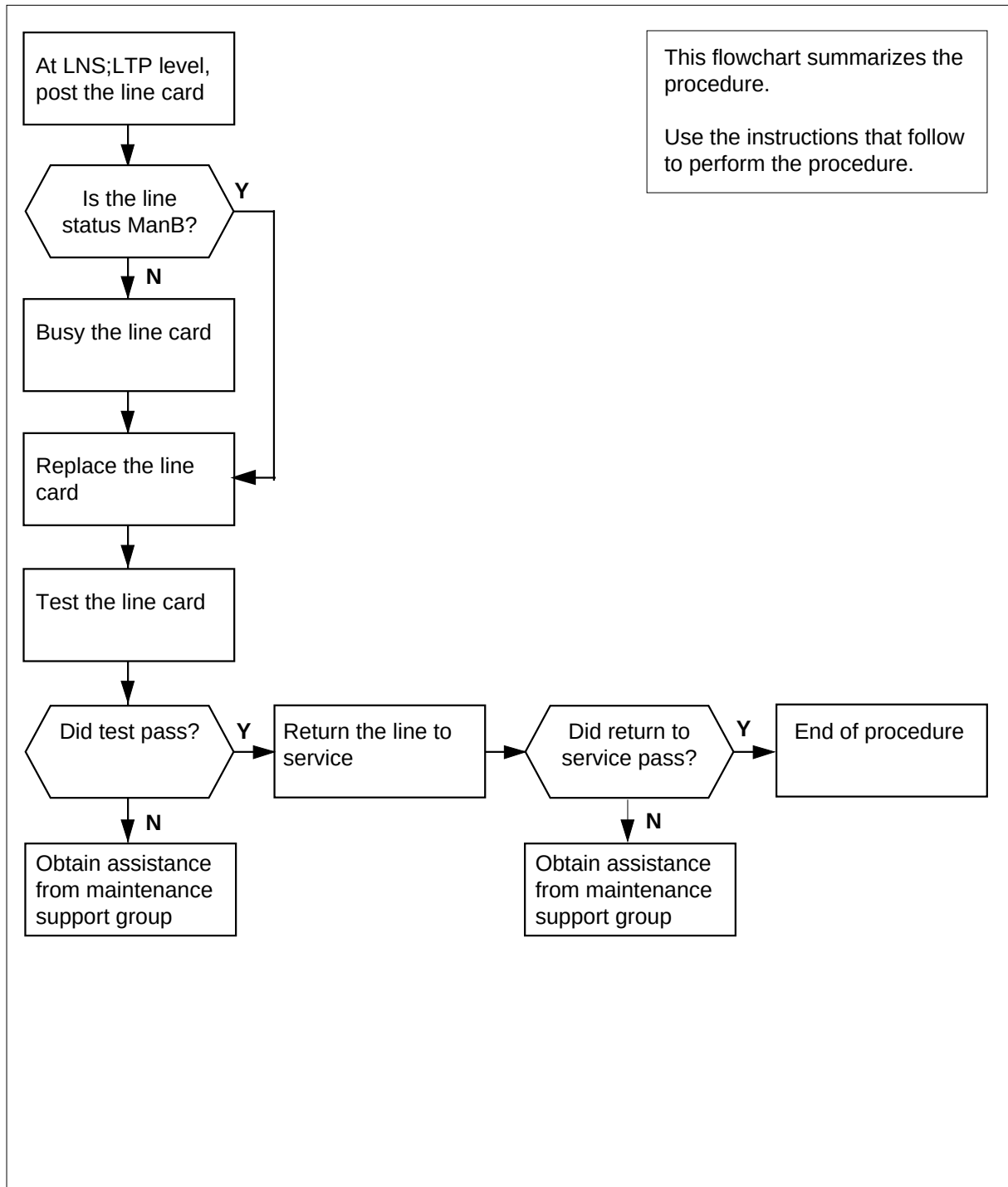
The common replacing a line card procedure is referenced in this procedure.

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.

NT6X71 in a STAR or RLD (continued)

Summary of card replacement procedure for an NT6X71 card in a STAR or RLD



NT6X71 in a STAR or RLD (continued)

Replacing an NT6X71 card in a STAR or RLD

At your current location

- 1 Get a replacement card. Make sure the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.

At the MAP terminal

- 2 To access the line test position (LTP) level of the MAP display and post the line associated with the card to be replaced, type

>MAPCI;MTC;LNS;LTP;POST L site frame unit lsg ckt

and press the Enter key.

where

site

is the name of the site where the STAR is located

frame

is the frame number of the STAR with the faulty card (0 to 511)

unit

is 0 for the STAR

lsg

is the number of the line subgroup with the faulty card (0 to 35)

ckt

is the number of the circuit associated with the faulty card (0 to 31)

Example of a MAP display:

```
LCC PTY RNG .....LEN.....DN STA F S LTA TE RESULT
RES      REM1 00 0 03 03      7213355 MB
```

- 3 Check the status of the posted line.

If the line status is	Do
ManB	step 5
not ManB	step 4

- 4 To busy the line, type

>BSY

and press the Enter key.

- 5 Go to the common replacing a line card procedure in this document. When you have completed the procedure, return here.

NT6X71

in a STAR or RLD (end)

At the MAP

- 6** To test the line card just replaced, type
>DIAG
and press the Enter key.

If the DIAG	Do
passes	step 7
fails	step 10

- 7** To return the line card to service, type
>RTS
and press the Enter key.

If RTS	Do
passes	step 8
fails	step 10

- 8** Send any faulty cards for repair according to local procedure.

- 9** Record the following items in office records:

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

Go to step 11.

- 10** Get additional help replacing this card by contacting the personnel responsible for a higher level of support.

- 11** You have correctly completed this procedure.

**NT6X72
in an RSC**

Application

Use this procedure to replace the following card in an RSC RCC.

PEC	Suffixes	Name
NT6X72	AB, BA	host link formatter

Common procedures

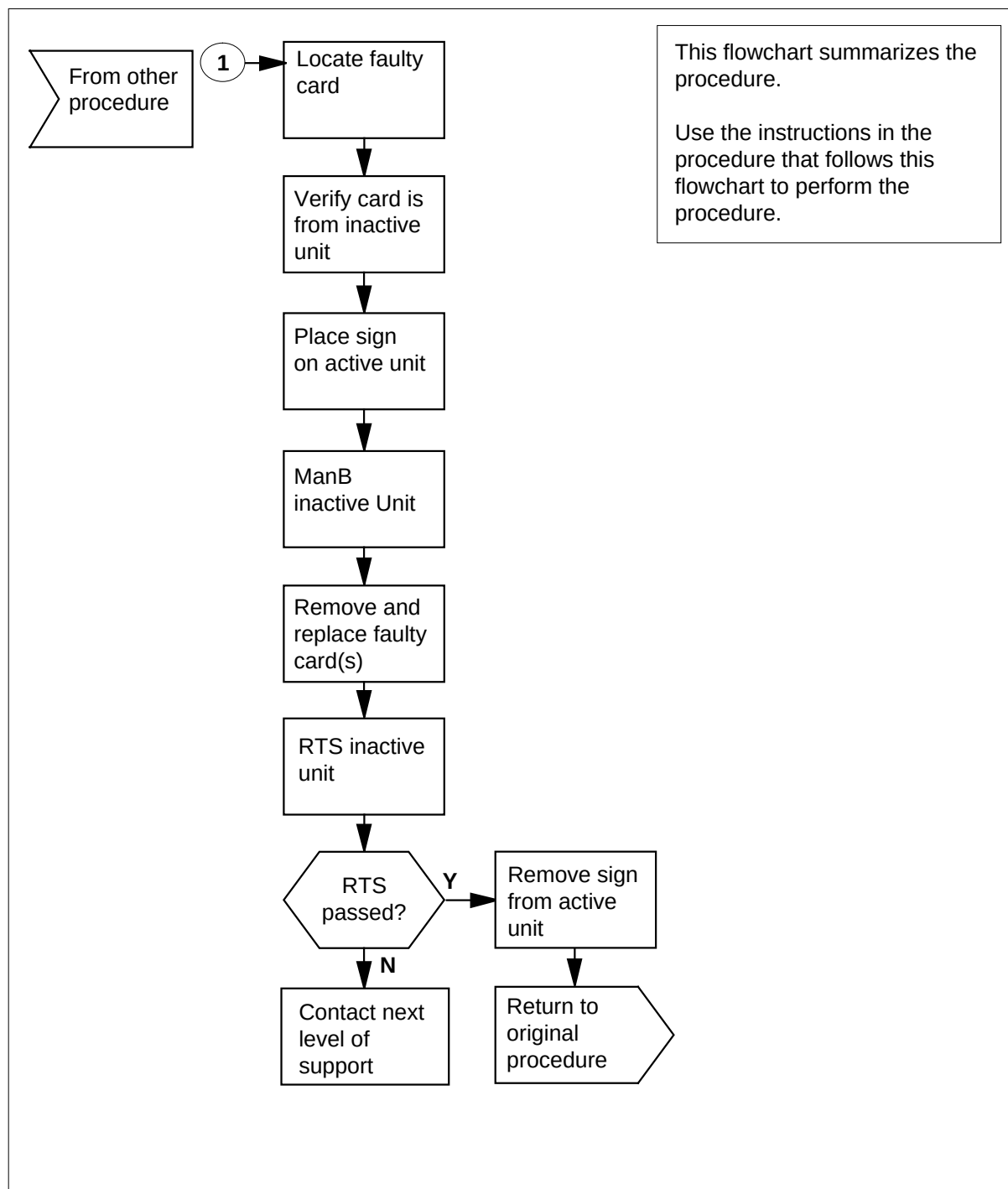
None

Action

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

NT6X72 in an RSC (continued)

Summary of card replacement procedure for an NT6X72 card in an RSC RCC



NT6X72 in an RSC (continued)

Replacing an NT6X72 card in an RSC RCC

At your Current Location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in the RCC ensure the unit where you are replacing the card is INACTIVE and the mate unit is ACTIVE.

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

At the MAP terminal

- 3 Access the PM level and post the RCC by typing
>MAPCI;MTC;PM;POST RCC rcc_unit_no
and pressing the Enter key.
where
rcc_unit_no
is the number of the RCC unit to be busied (0 or 1)
Example of a MAP display:

NT6X72 in an RSC (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	1RCC	.	.	.	.	.
RCC		SysB	ManB	OffL	CBsy	ISTb		InSv	
0	Quit PM	0	0	2	0	2	25		
2	Post_ RCC	0	0	0	0	1	1		
3	ListSet								
4		RCC	0	ISTb	Links_OOS:	CSide	0, PSide	0	
5	TRNSL_	Unit0:	Inact	SysB	Mtce				
6	TST_	Unit1:	Act	InSv					
7	BSY								
8	RTS								
9	OffL								
10	LoadPM_								
11	Disp_								
12	Next								
13									
14	QueryPM								
15									
16	IRLINK								
17	Perform								
18									

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

At the RCE frame

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

At the MAP terminal

- 6 Busy the inactive RCC unit by typing
>BSY UNIT rcc_unit_no
 and pressing the Enter key.
where
rcc_unit_no
 is the number of the inactive RCC unit (0 or 1)
- 7 Prevent the PM from trapping by typing
>PMRESET UNIT rcc_unit_no NORUN
 and pressing the Enter key.
where
rcc_unit_no
 is the number of the inactive RCC unit (0 or 1)

NT6X72
in an RSC (continued)**At the RCE frame****8****DANGER****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 RCC. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

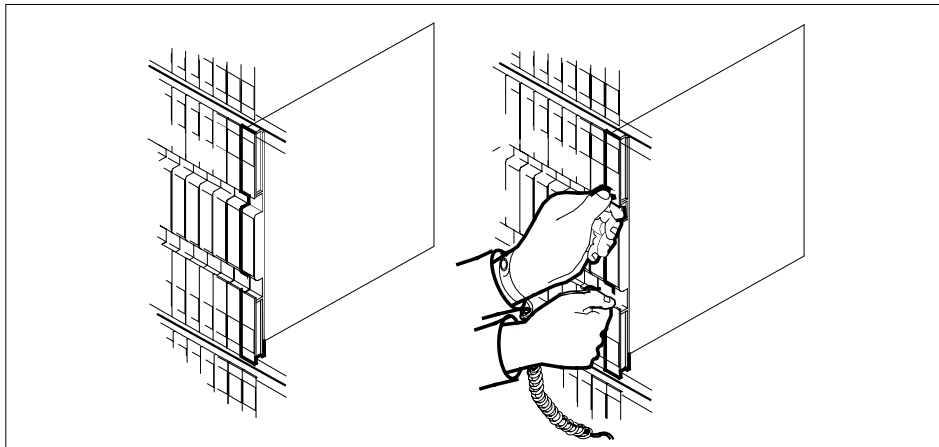
Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

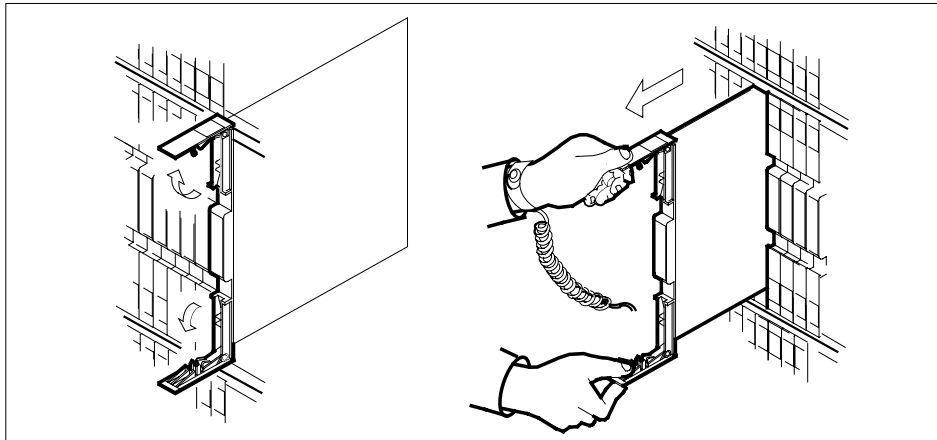
9 Remove the NT6X72 card as shown in the following figures.

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



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

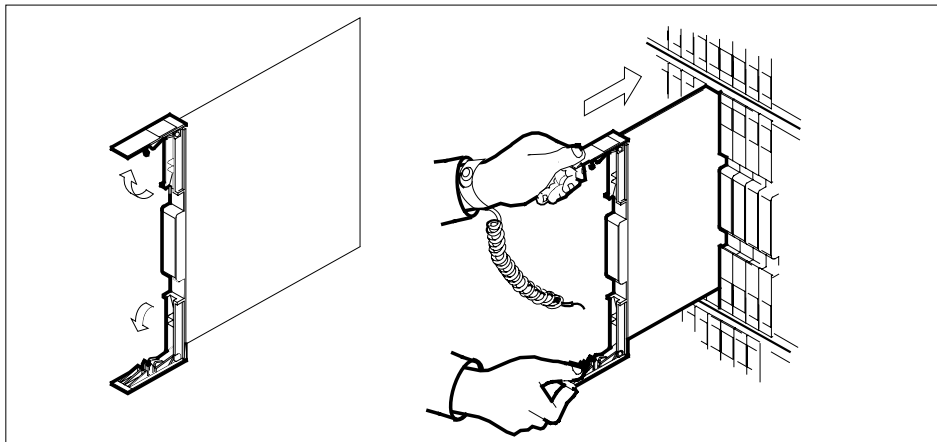
NT6X72 in an RSC (continued)



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

10 Open the locking levers on the replacement card.

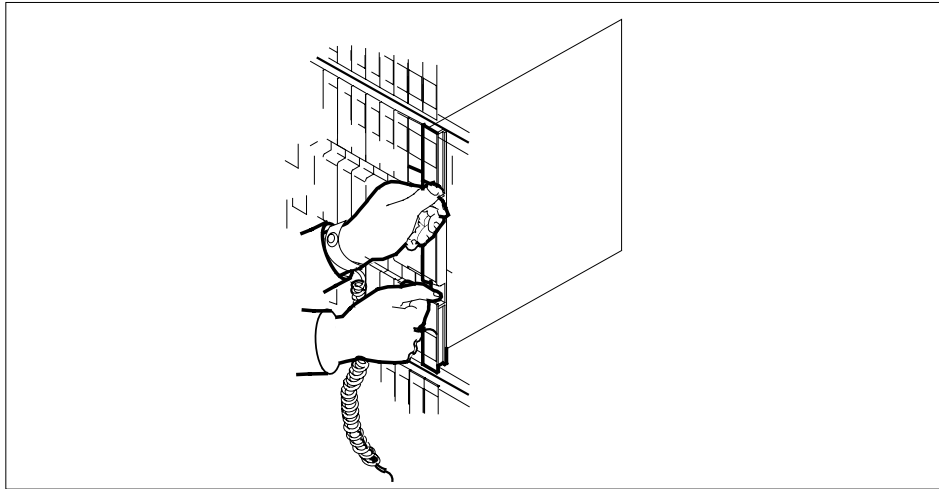
- a** Align the card with the slots in the shelf and gently slide the card into the shelf.



11 Seat and lock the card.

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

NT6X72 in an RSC (continued)



- 12** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
an alarm clearing procedure	step 18
other	step 13

At the MAP terminal

- 13** Return to service the inactive RCC unit by typing
>RTS UNIT rcc_unit_no
 and pressing the Enter key.
 where

rcc_unit_no
 is the number of the inactive RCC unit

Example of a MAP response:

Test Passed

or

Test Failed

If RTS	Do
passed	step 16

NT6X72

in an RSC (continued)

	If RTS	Do
	failed	step 14
14	Load the inactive RCC unit by typing >LOADPM UNIT rcc_unit_no and pressing the Enter key. <i>where</i> rcc_unit_no is the number of the inactive RCC unit	
	If load	Do
	passed	step 15
	failed	step 19
15	Return the inactive RCC unit to service by typing >RTS UNIT rcc_unit_no and pressing the Enter key. <i>where</i> rcc_unit_no is the number of the inactive RCC unit	
	If the RTS	Do
	passed	step 16
	failed	step 19
16	Send any faulty cards for repair according to local procedure. Remove sign from active unit.	
17	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 20.	
18	Return to the <i>Alarm Clearing Procedure</i> that directed you to this procedure. If necessary, go to the point where the 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.	
19	Obtain further assistance in replacing this card by contacting personnel responsible for higher level of support.	

NT6X72
in an RSC (end)

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

NT6X73 in an IOPAC HIE

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

PEC	Suffixes	Name
NT6X73	AA	Link control card

Common procedures

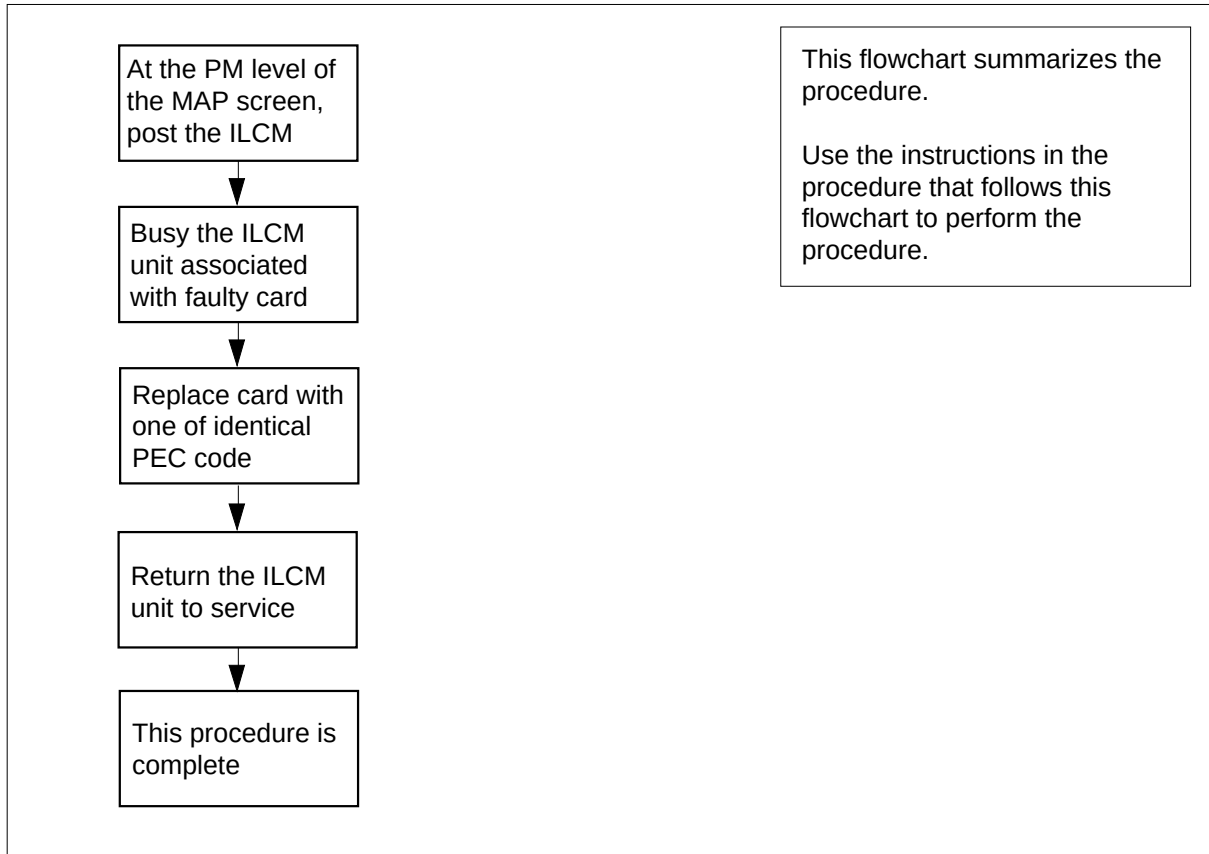
The common replacing a card procedure is referenced in this procedure.

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.

NT6X73 in an IOPAC HIE (continued)

Summary of card replacement procedure for an NT6X73 card in an HIE



Replacing an NT6X73 in an HIE

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 the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 7. Otherwise, continue with step 4.

NT6X73 in an IOPAC HIE (continued)

At the MAP terminal

- 4 Access the peripheral module (PM) level and post the ILCM by typing
>MAPCI;MTC;PM;POST ILCM site frame lcm
and pressing the Enter key.
where
site
is the site name of the IOPAC (alphanumeric)
frame
is the frame number of the IOPAC cabinet
lcm
is the number of the ILCM
- 5 Use the following table to determine which ILCM unit is associated with the faulty NT6X73.

LCM unit	LCC card	HIE slot
0	LCC 0	17
1	LCC 1	18

6



CAUTION

Loss of service

This procedure contains directions to busy one or more peripheral modules (PM) in a frame. Since busying a PM affects subscriber service, replace the link control card (LCC) only during periods of low traffic

Busy the ILCM unit associated with the faulty NT6X73 by typing

>BSY UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit
is the ILCM unit number (0 to 1)

At the IOPAC cabinet

- 7 Replace the NT6X73 card using the common replacing a card procedure in this document. When you have completed the procedure, return to this step.

NT6X73
in an IOPAC HIE (end)

- 8** If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 9.

At the MAP terminal

- 9** Return the busied unit to service by typing

>RTS UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the ILCM unit busied in step 6 (0 or 1)

If RTS	Do
Failed	step 12
Passed	step 10

- 10** Send any faulty cards for repair according to local procedure.
- 11** Record the following items in office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Proceed to step 13.
- 12** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 13** You have successfully completed this procedure.

NT6X73 in an OPAC HIE

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

PEC	Suffixes	Name
NT6X73	AA	Link control card

Common procedures

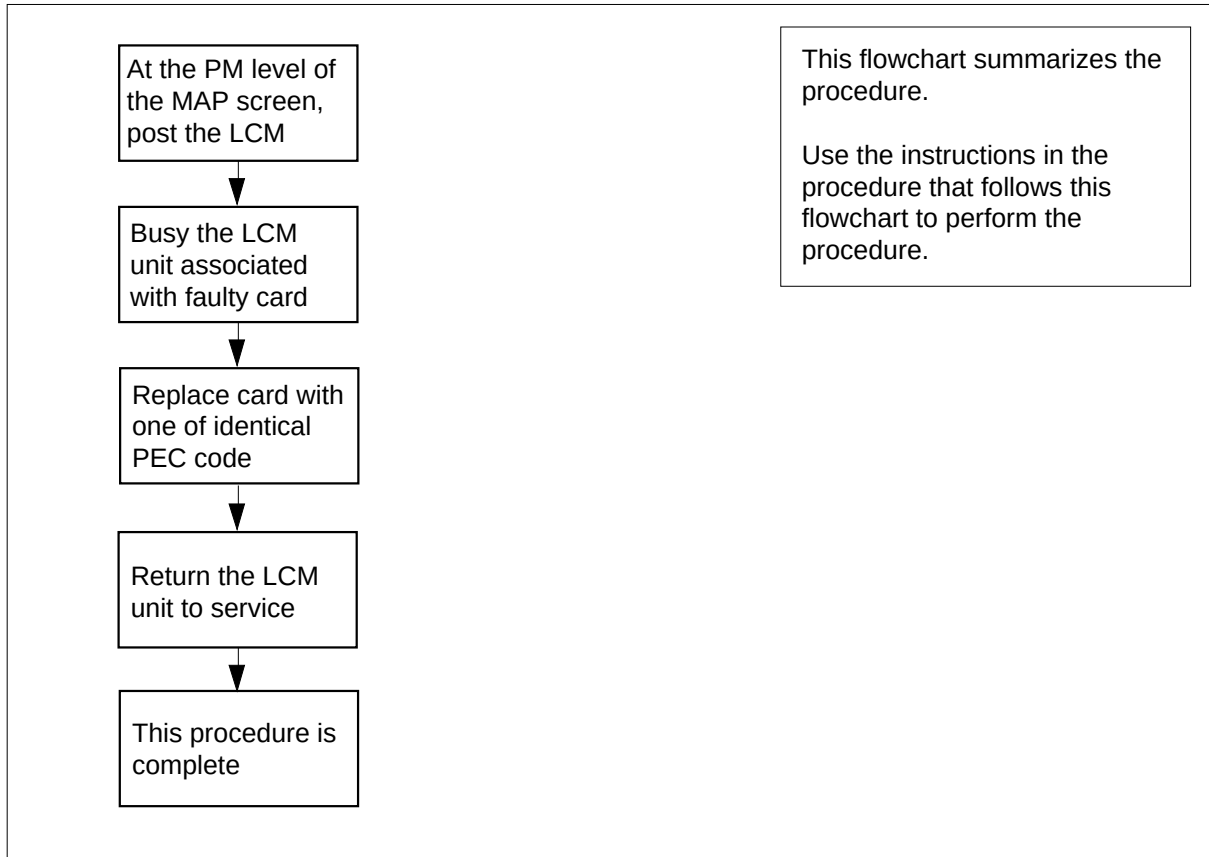
The common replacing a card procedure is referenced in this procedure.

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.

NT6X73 in an OPAC HIE (continued)

Summary of card replacement procedure for an NT6X73 card in an HIE



Replacing an NT6X73 in an HIE

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 the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 7. Otherwise, continue with step 4.

NT6X73 in an OPAC HIE (continued)

At the MAP terminal

- 4 Access the peripheral module (PM) level and post the line concentrating module (LCM) by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.
where
site
is the site name of the OPAC (alphanumeric)
frame
is the frame number of the OPAC (0 to 99)
lcm
is the number of the LCM
- 5 Use the following table to determine which LCM unit is associated with the faulty NT6X73.

LCM unit	LCC card	HIE slot
0	LCC 0	17
1	LCC 1	18

6



CAUTION

Loss of service

This procedure contains directions to busy one or more peripheral modules (PM) in a frame. Since busy-ing a PM affects subscriber service, replace the link control card (LCC) only during periods of low traffic

Busy the LCM unit associated with the faulty NT6X73 by typing

>BSY UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the LCM unit number (0 to 1)

At the HIE

- 7 Replace the NT6X73 card using the common replacing a card procedure in this document.

NT6X73
in an OPAC HIE (end)

- 8** If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 9.

At the MAP terminal

- 9** Return the busied unit to service by typing

>RTS UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the LCM unit busied in step 6 (0 or 1)

If RTS	Do
Failed	step 12
Passed	step 10

- 10** Send any faulty cards for repair according to local procedure.
- 11** Record the following items in office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Proceed to step 13.
- 12** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 13** You have successfully completed this procedure.

NT6X73 in an OPM HIE

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

PEC	Suffixes	Name
NT6X73	AA	Link Control Card (LCC)

Common procedures

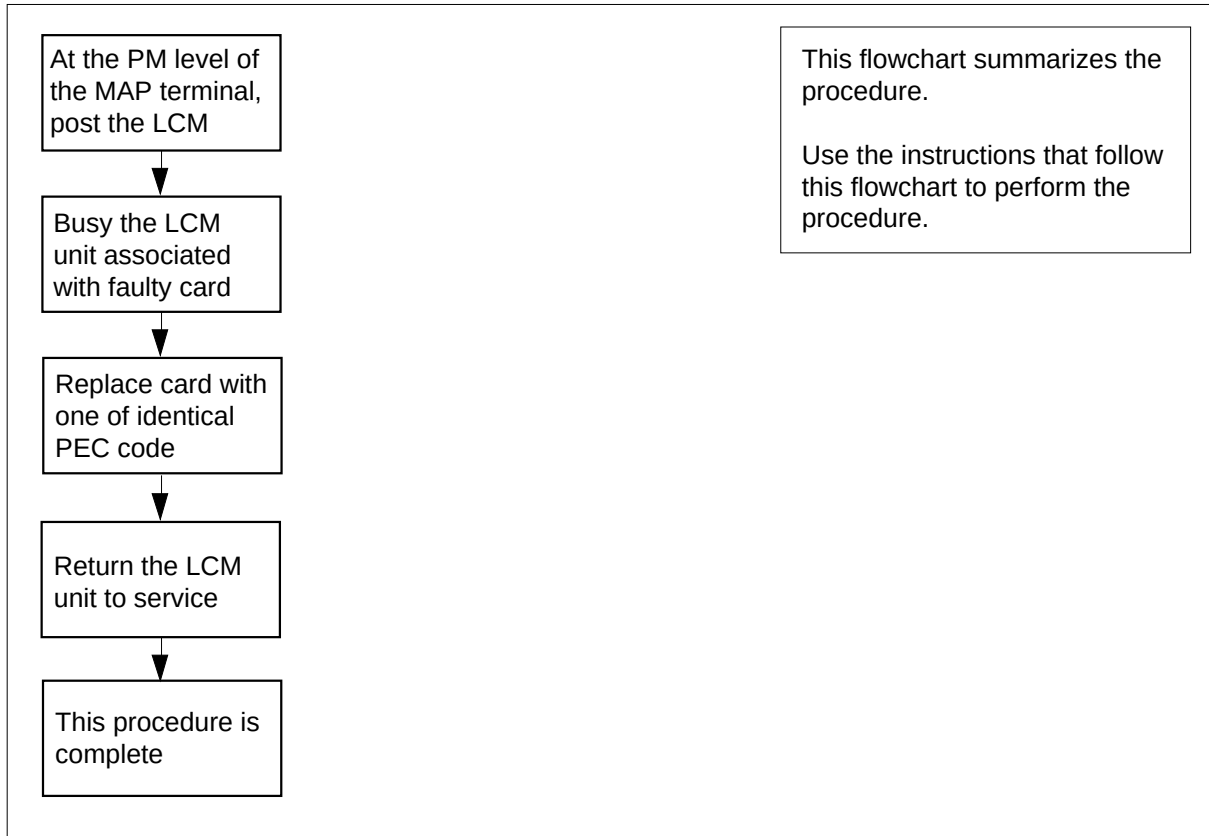
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X73 in an OPM HIE (continued)

Summary of card replacement procedures for an NT6X73 card in an HIE



Replacing an NT6X73 card in an HIE

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 the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from another maintenance procedure, go to step 7. Otherwise, continue with step 4.

NT6X73 in an OPM HIE (continued)

At the MAP terminal

- 4 Access the peripheral module (PM) level and post the line concentrating module (LCM) by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.
where
site
is the site name of the OPM (alphanumeric)
frame
is the frame number of the OPM cabinet (0 to 511)
lcm
is the number of the LCM
- 5 Use the following table to determine which LCM unit is associated with the faulty NT6X73.

LCM unit	LCC card	LCC slot
0	LCC0	17
1	LCC1	18

6



CAUTION

Loss of service

This procedure contains directions to busy one or more peripheral modules (PM) in a frame. Since busy-ing a PM affects subscriber service, replace the link control card (LCC) only during periods of low traffic

Busy the LCM unit associated with the faulty NT6X73 by typing

>BSY UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the LCM unit number (0 to 1)

At the HIE shelf

- 7 Replace the NT6X73 card using the common replacing a card procedure in this document.

NT6X73
in an OPM HIE (end)

- 8** If you were directed to this procedure from another maintenance procedure, return now to the alarm clearing procedure that directed you here; otherwise, continue with step 9.

At the MAP terminal

- 9** Return the busied unit to service by typing

>RTS UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the OPM unit busied in step 6

If RTS	Do
failed	step 12
passed	step 10

- 10** Send any faulty cards for repair according to local procedure.
- 11** Record the following items in office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Proceed to step 13.
- 12** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 13** You have successfully completed this procedure.

NT6X73 in an RLCM-EDC HIE

Application

Use this procedure to replace the following card in the shelves or frames identified in the the following table:

PEC	Suffixes	Cardname	Shelf/frame name
NT6X73	AA	Link Control Card (LCC)	HIE/RLCC

If you cannot identify the:

- Product Engineering Code (PEC)
- PEC suffix
- shelf or frame

For the card you are to replace, refer to the Index. The index in this manual documents a list of cards, shelves and frames.

Common procedures

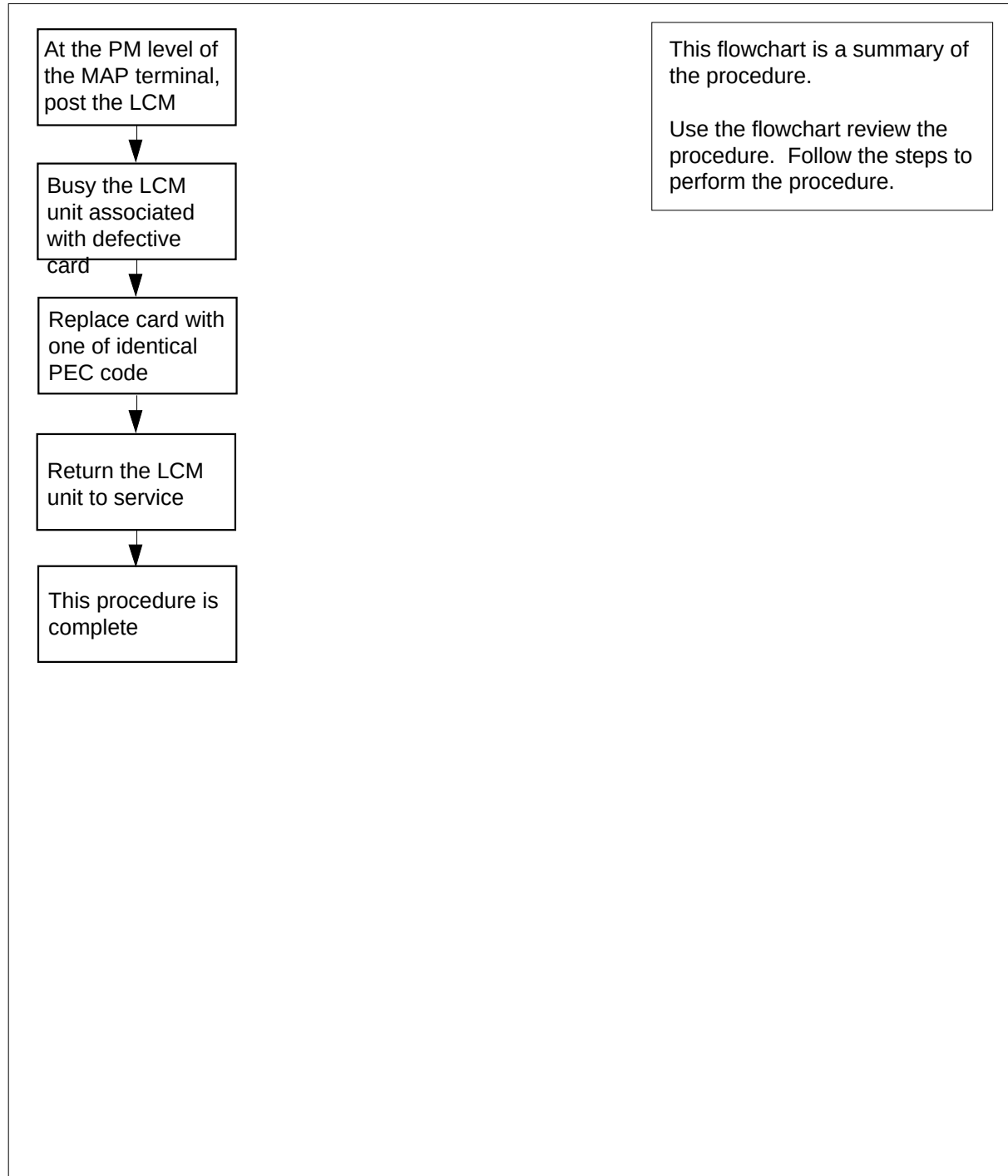
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X73 in an RLCM-EDC HIE (continued)

Summary of Replacing an NT6X73 card in HIE



NT6X73 in an RLCM-EDC HIE (continued)

Replacing an NT6X73 card in HIE

At your current location

- 1 Continue with this procedure if:
 - a step in a maintenance procedure directs you to this card replacement procedure
 - you use this procedure to verify or accept cards
 - your maintenance support group directs you to this procedure.
- 2 Obtain a replacement card. Make sure the replacement card has the same PEC and PEC suffix of the card to be removed.
- 3 If another maintenance procedure directed you to this procedure, go to step 7. If another maintenance procedure did not direct you to this procedure, continue with step 4.

At the MAP terminal

- 4 To access the peripheral module (PM) level and to post the line concentrating module (LCM), type:
>MAPCI;MTC;PM;POST LCM site cabinet lcm
and press the Enter key.
where
 - site**
is the site name of the RLCM-EDC (alphanumeric)
 - cabinet**
is the number of the RLCC-EDC cabinet
 - lcm**
is the number of the LCM
- 5 Use the following table to determine the LCM unit associated with the defective NT6X73:

LCM unit	LCC card	LCC slot
0	LCC0	17
1	LCC1	18

NT6X73 in an RLCM-EDC HIE (continued)

6

**CAUTION****Loss of service**

This procedure contains directions to busy one or more PMs in a frame. Busying a PM affects subscriber service. Replace power converters during periods of low traffic

To busy the LCM unit associated with the damaged NT6X73, type:

>BSY UNIT unit_no

and press the Enter key.

where

unit_no

is the LCM unit number zero or one associated with the defective card.

At the HIE shelf

- 7 To replace the NT6X73 card, use the common replacing a card procedure in this document.
- 8 If another maintenance procedure directed you to this procedure, return to the alarm clearing procedure that directed you here. If another maintenance procedure did not direct you to this procedure, continue with step 9.

At the MAP terminal

- 9 To return the busy LCM unit to service, type:

>RTS UNIT unit_no

and press the Enter key.

where

unit_no

is the LCM unit zero or one busied in step 6

If RTS	Do
fails	step 12
passes	step 10

- 10 Send the defective cards for repair according to local procedure.
- 11 Record the following items in office records:
 - date of card replacement
 - serial number of the card
 - problems that prompted replacement of the card.

NT6X73
in an RLCM-EDC HIE (end)

Proceed to step 13.

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

13 This procedure is complete.

**NT6X73
in an RLCM HIE**

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

PEC	Suffixes	Name
NT6X73	AA	Link Control Card (LCC)

Common procedures

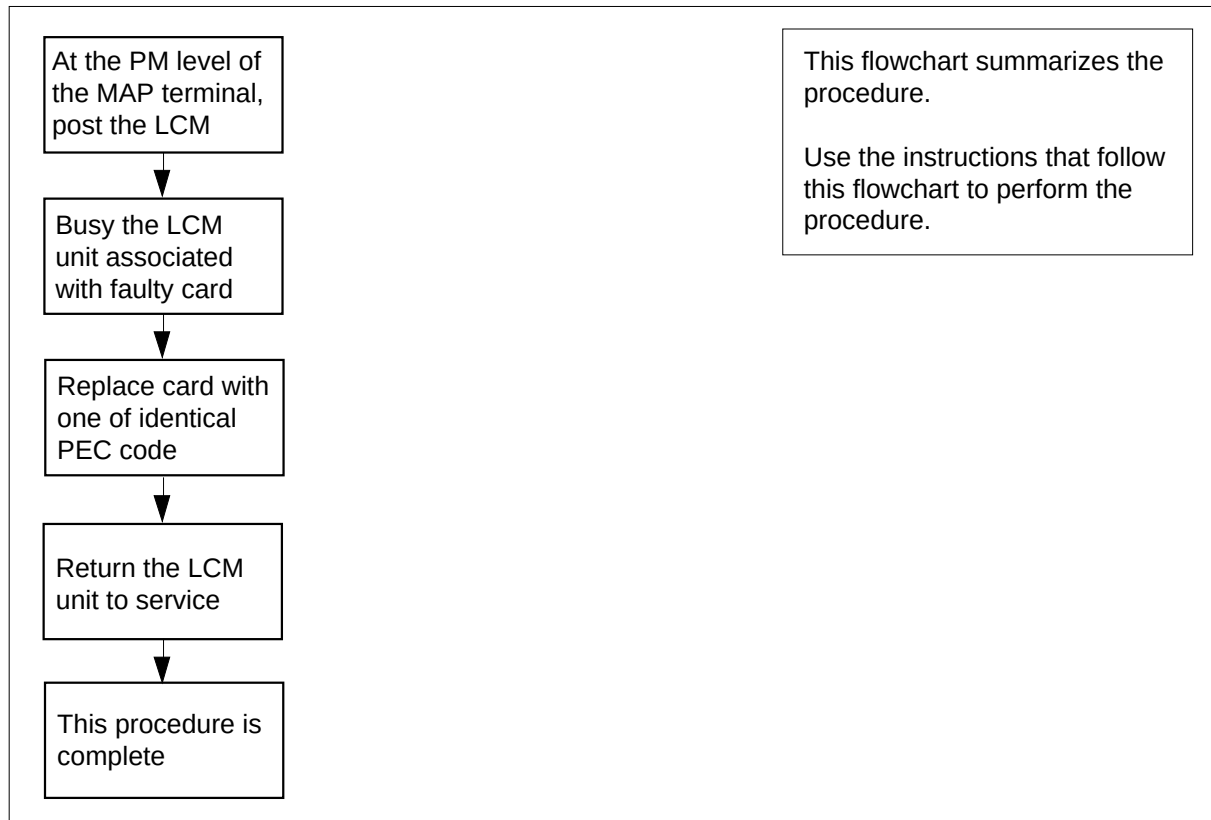
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X73 in an RLCM HIE (continued)

Summary of card replacement procedure for an NT6X73 card in an HIE



Replacing an NT6X73 card in an HIE

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 the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from another maintenance procedure, go to step 7. Otherwise, continue with step 4.

NT6X73
in an RLCM HIE (continued)

At the MAP terminal

- 4 Access the peripheral module (PM) level and post the line concentrating module (LCM) by typing
- >MAPCI;MTC;PM;POST LCM site frame lcm**
- and pressing the Enter key.
- where
- site**
is the site name of the RLCM (alphanumeric)
- frame**
is the frame number of the RLCE (0 to 511)
- lcm**
is the number of the LCM
- 5 Use the following table to determine which LCM unit is associated with the faulty NT6X73.

LCM unit	LCC card	LCC slot
0	LCC0	17
1	LCC1	18

6

**CAUTION****Loss of service**

This procedure contains directions to busy one or more peripheral modules (PM) in a frame. Since busy-ing a PM affects subscriber service, replace the link control card (LCC) only during periods of low traffic

Busy the LCM unit associated with the faulty NT6X73 by typing

>BSY UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the LCM unit number (0 to 1)

At the HIE shelf

- 7 Replace the NT6X73 card using the common replacing a card procedure in this document. When the card is replaced, return to this point.

NT6X73

in an RLCM HIE (end)

- 8 If you were directed to this procedure from another maintenance procedure, return now to the alarm clearing procedure that directed you here; otherwise, continue with step 9.

At the MAP terminal

- 9 Return the busied unit to service by typing

>RTS UNIT lcm_unit

and pressing the Enter key.

where

lcm_unit

is the RLCM unit busied in step 6

If RTS	Do
failed	step 12
passed	step 10

- 10 Send any faulty cards for repair according to local procedure.
- 11 Record the following items in office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Proceed to step 13.
- 12 Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 13 You have successfully completed this procedure.

**NT6X74
in an IOPAC RMM**

Application

Use this procedure to replace the following card in a remote maintenance module (RMM) shelf.

PEC	Suffix	Name
NT6X74	AB	RMM control card

Common procedures

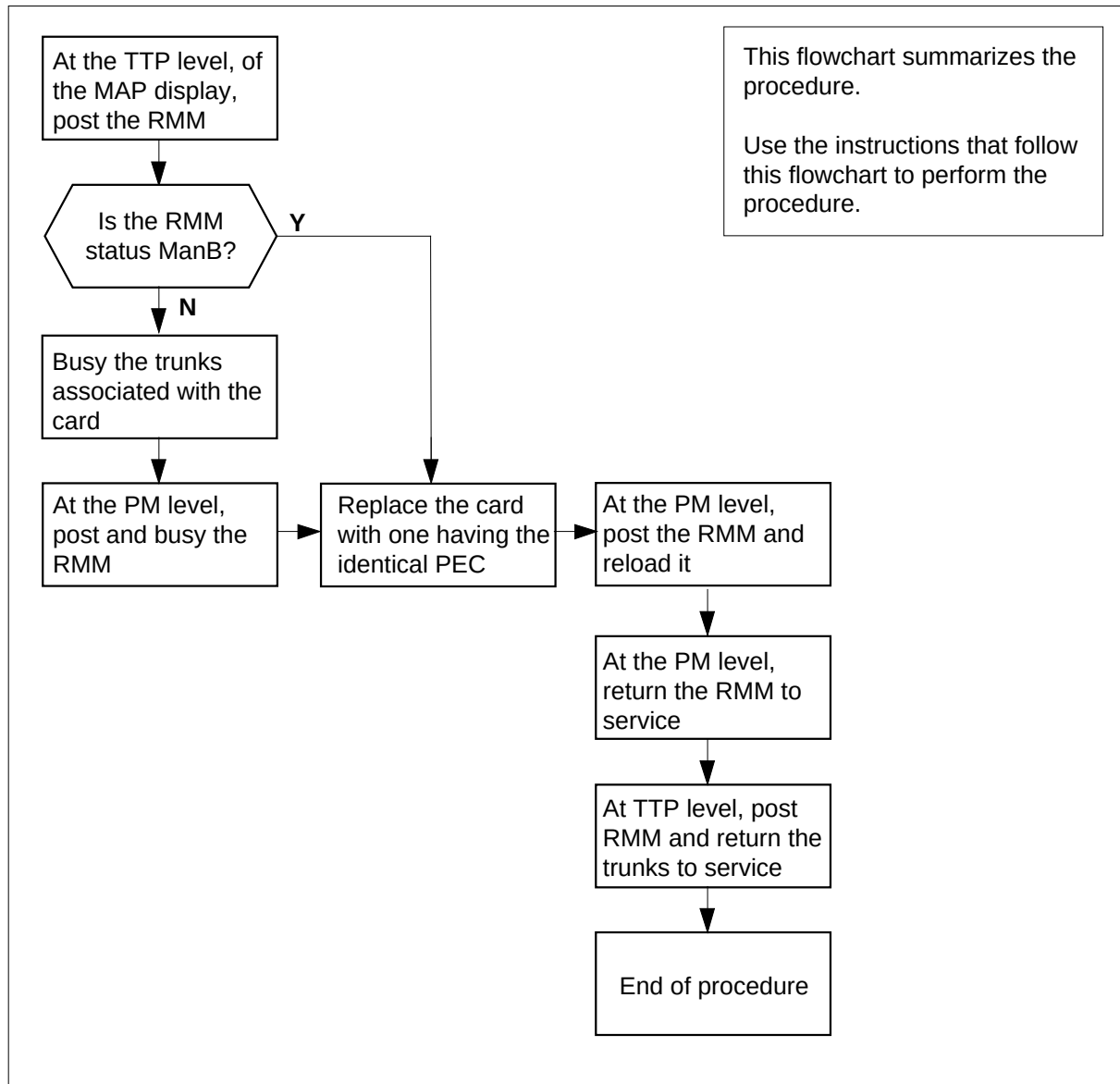
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X74 in an IOPAC RMM (continued)

Summary of replacing an NT6X74 in an RMM



Replacing an NT6X74 in an RMM

At your Current Location

- 1 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card to be removed.
- 2 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 5.

NT6X74 in an IOPAC RMM (continued)

Otherwise, continue with step 3.

At the MAP terminal

- 3** Go to the peripheral module (PM) level of the MAP display and post the RMM by typing

>MAPCI;MTC;PM;POST RMM rmm_no

and pressing the Enter key.

where

rmm_no

is the number of the RMM shelf where the card is to be replaced

Example of a MAP response:

	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	0	2	2	0	7	21
RMM	1	0	1	0	0	6

RMM 0 SysB

- 4** Busy the RMM by typing

>BSY

and pressing the Enter key.

At the IOPAC cabinet

- 5** Replace the NT6X74 card using the common replacing a card procedure in this document. When you have completed the procedure, return here.
- 6** If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 7.

At the MAP terminal

- 7** Reload the RMM by typing

>LOADPM

and pressing the Enter key.

If	Do
The message loadfile not found in directory is received.	step 8
load passed	step 26
load failed	step 29

NT6X74 in an IOPAC RMM (continued)

- 8 Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 9
IOC disk	step 15
SLM disk	step 20

- 9 Locate the tape that contains the PM load files.

At the IOE frame

- 10 Mount the tape on a magnetic tape drive.

At the MAP terminal

- 11 Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape containing the PM load files

- 12 List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape containing the PM load files

- 13 Demount the tape drive by typing

>DEMOUNT T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 14 Go to step 25.

- 15 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.

- 16 Access the disk utility level of the MAP terminal by typing

>DSKUT

and pressing the Enter key.

NT6X74 in an IOPAC RMM (continued)

- 17** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
 and pressing the Enter key.
where
volume_name
 is the name of the volume that contains the PM load files obtained in step 15.
- 18** Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
- 19** Go to step 25.
- 20** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 21** Access the disk utility level of the MAP terminal by typing
>DSKUT
 and pressing the Enter key.
- 22** List all Disk volumes to user Directory by typing
>LV CM
 and pressing the Enter key.
- 23** List the SLM file names into your user directory by typing
>LF file_name
 and pressing the Enter key.
where
file_name
 is the name of the SLM disk volume containing the PM load files obtained in step 20.
- 24** Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
- 25** Reload the RMM by typing
>LOADPM
 and pressing the Enter key.

If	Do
load failed	step 29
load passed	step 26

NT6X74
in an IOPAC RMM (end)

- 26** Return the RMM to service by typing
>RTS
and pressing the Enter key.
- | If RTS | Do |
|---------------|-----------|
| passed | step 27 |
| failed | step 29 |
- 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 30.
- 29** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 30** You have completed this procedure.

**NT6X74
in an OPM RMM**

Application

Use this procedure to replace the following card in an RMM.

PEC	Suffixes	Name
NT6X74	AB	RMM Control Card

Common procedures

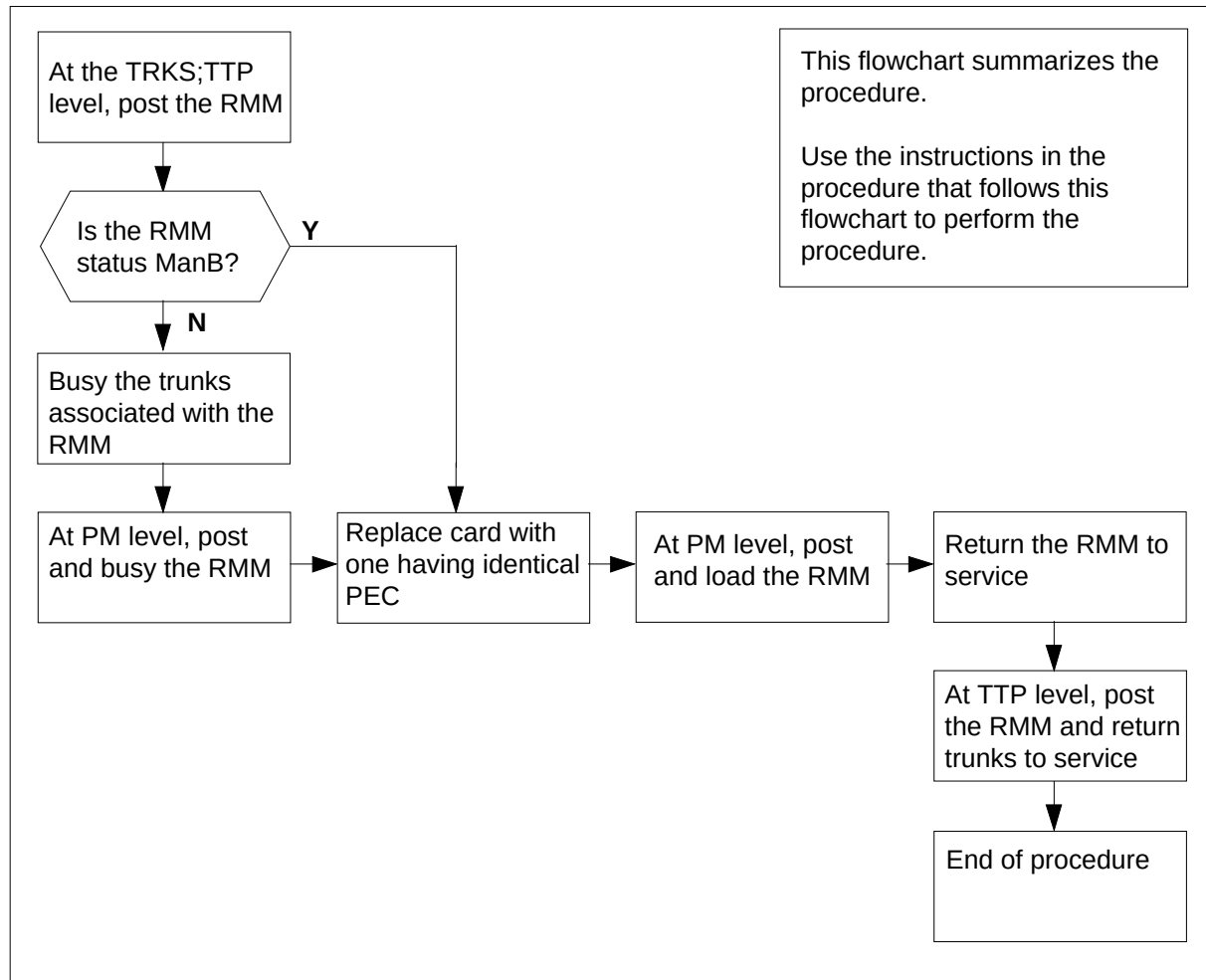
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X74 in an OPM RMM (continued)

Summary of card replacement procedures for an NT6X74 card in an RMM



Replacing an NT6X74 card in an RMM

At your Current Location

- 1 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 8; otherwise, continue with step 3.

NT6X74

in an OPM RMM (continued)

At the MAP display

- 3** Access the TTP level of the MAP and post the RMM that contains the card to be replaced by typing

>MAPCI;MTC;TRKS;TTP;POST P RMM rmm_no

and pressing the Enter key.

where

rmm_no

is the number of the RMM shelf in which the card is to be replaced

Example of a MAP response:

LAST CIRCUIT = 27

POST CKT IDLED

SHORT CLLI IS: OTDA00

OK, CLLI POSTED

POST 20 DELQ BUSY Q DIG

TTP 6-006

CKT TYPE PM NO. COM LANG STA S R DOT TE R

OG MF RMM 0 0 OTWAON23DA00 2001 LO
P_IDL

- 4** Check the status of the RMM.

If RMM status is	Do
MB, PMB, RMB	step 8
other	step 5

- 5** Busy the trunks that are associated with the card to be replaced by typing

>BSY ALL

and pressing the Enter key.

- 6** Go to the PM level of the MAP and post the RMM by typing

>PM;POST RMM rmm_no

and pressing the Enter key.

where

rmm_no

is the number of the RMM shelf in which the card is to be replaced

Example of a MAP response:

NT6X74 in an OPM RMM (continued)

	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	0	2	2	0	7	21
RMM	0	0	1	0	0	6

RMM 0 InSv

- 7 Busy the RMM by typing
>BSY
 and pressing the Enter key.

At the RMM

- 8 Replace the NT6X74 card using the common replacing a card procedure in this document. When the card has been replaced, return to this point.
- 9 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 10.

At the MAP display

- 10 Load the RMM by typing
>LOADPM
 and pressing the Enter key.
where

rmm_no

is the number of the RMM shelf in which the card is to be replaced

If		Do
message "loadfile not found in directory" is received		step 11
load passed		step 27
load failed		step 32
11 Determine the type of device on which the PM load files are located.		
If load files are located on		Do
tape		step 12
IOC disk		step 17
SLM disk		step 22
12 Locate the tape that contains the PM load files.		
13 Mount the tape on a magnetic tape drive.		

NT6X74
in an OPM RMM (continued)

- 14** Download the tape by typing
>MOUNT tape_no
and pressing the Enter key.
where
tape_no
is the number of the tape drive containing the PM load files
- 15** List the contents of the tape in your user directory by typing
>LIST T tape_no
and pressing the Enter key.
where
tape_no
is the number of the tape drive containing the PM load files.
- 16** Demount the tape drive by typing
>DEMOUNT T tape_no
and pressing the Enter key.
where
tape_no
is the number of the tape drive containing the PM load files.
Go to step 27.
- 17** From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 18** Access the disk utility level of the MAP by typing
>DSKUT
and pressing the Enter key.
- 19** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 17.
- 20** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 21** Go to step 27.
- 22** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.

NT6X74

in an OPM RMM (continued)

- 23 Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 24 List all disk volumes to user directory by typing
>LV CM
and pressing the enter key.
- 25 List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 22.
- 26 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 27 Reload the RMM by typing
>LOADPM
and pressing the Enter key.
- | If | Do |
|-------------|---------|
| load failed | step 33 |
| load passed | step 28 |
- 28 Return the RMM unit to service by typing
>RTS
and pressing the Enter key.
- | If RTS | Do |
|--------|---------|
| passed | step 29 |
| failed | step 33 |
- 29 Go to the TTP level of the MAP and post the RMM by typing
>TRKS;TTP;POST P RMM rmm_no
and pressing the Enter key.
where
rmm_no
is the number of the RMM shelf in which the card is to be replaced

NT6X74
in an OPM RMM (end)

- 30** Return to service the circuits busied in step 5 by typing
>RTS ALL
and pressing the Enter key.

If RTS	Do
passed	step 31
failed	step 33

- 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 34.

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

- 34** You have successfully completed this procedure.

NT6X74 in an RLCM-EDC RMM

Application

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

PEC	Suffixes	Card name	Shelf/frame name
NT6X74	AB	RMM Control Card	RMM/RLCC

If you cannot identify the PEC, suffix, and shelf or frame for the card you want to replace, refer to the index. The index contains a list of cards, shelves, and frames that this maintenance manual documents.

Common procedures

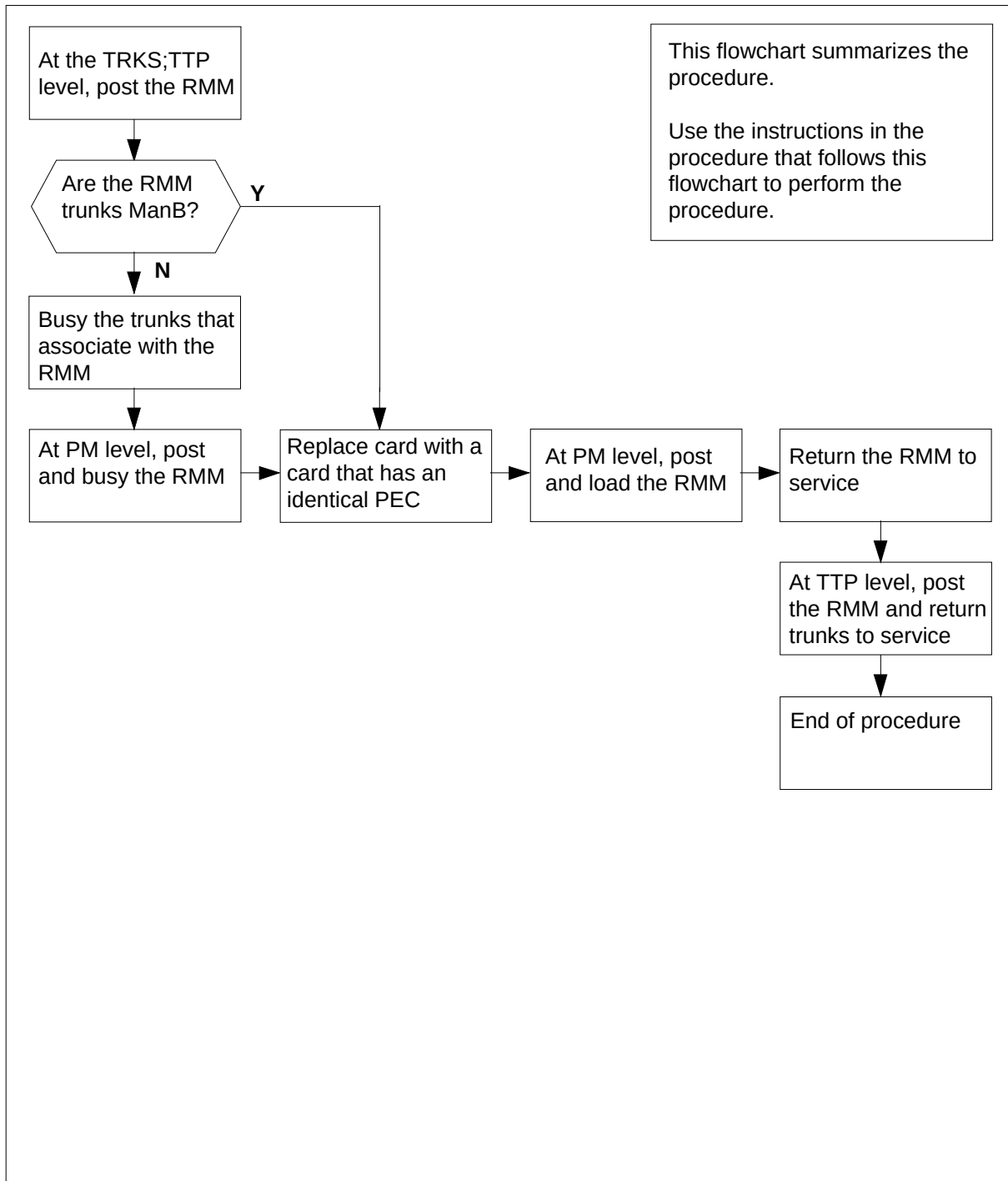
The common replacing a card procedure is referenced in this procedure..

Action

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

NT6X74 in an RLCM-EDC RMM (continued)

Summary of replacing an NT6X74 card in RMM



NT6X74 in an RLCM-EDC RMM (continued)

How to replace an NT6X74 card in RMM

At your current location

- 1 Obtain a replacement card. Make sure that the replacement card has the same product equipment code (PEC) and PEC suffix as the card to remove.
- 2 If another maintenance procedure directs you to this procedure, go to step 8. If another maintenance procedure does not direct you to this procedure, proceed to step 3.

At the MAP display

- 3 To access the trunk test position (TTP) level of the MAP terminal and post the remote maintenance module (RMM) that contains the card to replace, type
>MAPCI;MTC;TRKS;TTP;POST P RMM rmm_no
and press the Enter key.

where

rmm_no

is the number of the RMM shelf in which you replace the card

Example of a MAP response:

```
LAST CIRCUIT = 27
POST CKT IDLED
SHORT CLLI IS:  OTDA00
OK, CLLI POSTED
```

```
POST  20    DELQ          BUSY Q          DIG
TTP  6-006
CKT TYPE  PM NO.        COM LANG          STA S R DOT TE R
OG      MF RMM 0 0    OTWA0N23DA00  2001    LO
                                           P_IDL
```

- 4 Check the status of the RMM trunk circuits.

If RMM status	Do
is MB, PMB, RMB	step 6
is other than listed here	step 5

- 5 To busy the trunks that associate with the card you must replace, type
>BSY ALL
and press the Enter key.

NT6X74 in an RLCM-EDC RMM (continued)

- 6 To access the peripheral module (PM) level of the MAP terminal and post the RMM, type

>PM;POST RMM rmm_no

and press the Enter key.

where

rmm_no

is the number of the RMM shelf in which you replace the card

Example of a MAP response:

	SysB	ManB	Offl	CBSy	ISTb	InSv
PM	0	2	2	0	7	21
RMM	0	0	1	0	0	6

RMM	0	InSv

- 7 To busy the RMM, type

>BSY

and press the Enter key.

At the RMM

- 8 To replace the NT6X74 card, use the common replacing a card procedure in this document. After you replace the card, return to this point.
- 9 If another maintenance procedure directed you to this procedure, return to the procedure that directed you here. Continue as directed. If another maintenance procedure does not direct you to this procedure, proceed to step 10.

At the MAP display

- 10 To load the RMM, type

>LOADPM

and press the Enter key.

where

rmm_no

is the number of the RMM shelf in which you replace the card

If	Do
message "loadfile not found in directory" appears	step 11
load passes	step 28
load fails	step 33

NT6X74

in an RLCM-EDC RMM (continued)

	If load files	Do
11	Determine the type of device that holds the PM load files.	
	are on tape	step 12
	are on IOC disk	step 17
	are on SLM disk	step 22
12	Locate the tape that contains the PM load files.	
13	Mount the tape on a magnetic tape drive.	
14	To download the tape, type >MOUNT tape_no and press the Enter key. <i>where</i> tape_no is the number of the tape drive that contains the PM load files.	
15	To list the contents of the tape in your user directory, type >LIST T tape_no and press the Enter key. <i>where</i> tape_no is the number of the tape drive that contains the PM load files.	
16	To demount the tape drive, type >DEMOUNT T tape_no and press the Enter key. <i>where</i> tape_no is the number of the tape drive that contains the PM load files. Proceed to step 27.	
17	From office records, determine and note the number of the input/output controller (IOC) disk. Determine the name of the volume that contains the PM load files.	
18	To access the disk utility level of the MAP display, type >DSKUT and press the Enter key.	
19	To list the IOC file names into your user directory, type >LISTVOL volume_name ALL and press the Enter key. <i>where</i>	

NT6X74
in an RLCM-EDC RMM (continued)

volume_name
is the name of the volume that contains the PM load files you obtain in step 17.

- 20** To leave the disk utility, type
>QUIT
and press the Enter key.
- 21** Proceed to step 27.
- 22** From office records, determine and note the number of the system load module (SLM) disk. Determine the name of the volume that contains the PM load files.
- 23** To access the disk utility level of the MAP, type
>DISKUT
and press the Enter key.
- 24** To list all disk volumes to user directory, type
>LV CM
and press the enter key.
- 25** To list the SLM file names into your user directory, type
>LF volume_name
and press the Enter key.
where
volume_name
is the name of the volume that contains the PM load files you obtain in step 22
- 26** To leave the disk utility, type
>QUIT
and press the Enter key.
- 27** To reload the RMM, type
>LOADPM
and press the Enter key.

If load	Do
fails	step 33
passes	step 28

- 28** To return the RMM unit to service, type
>RTS

NT6X74

in an RLCM-EDC RMM (end)

and press the Enter key.

If RTS	Do

passes

step 29

fails

step 33

- 29** To go to the TTP level of the MAP terminal and post the RMM, type
>TRKS;TTP;POST P RMM rmm_no
and press the Enter key.
where

rmm_no

is the number of the RMM shelf in which you replace the card.

- 30** To return to service the circuits busied in step 5, type
>RTS ALL
and press the Enter key.

If RTS	Do

passes

step 31

fails

step 33

- 31** Send defective cards for repair according to local procedure.

- 32** Record the items that follow in office records:

- date that card replacement occurred
- serial number of the card
- indications that prompt replacement of the card

Proceed to step 34.

- 33** For additional help, contact the next level of maintenance.

- 34** The procedure is complete.

**NT6X74
in an RLCM RMM**

Application

Use this procedure to replace the following card in an RMM.

PEC	Suffixes	Name
NT6X74	AB	RMM Control Card

Common procedures

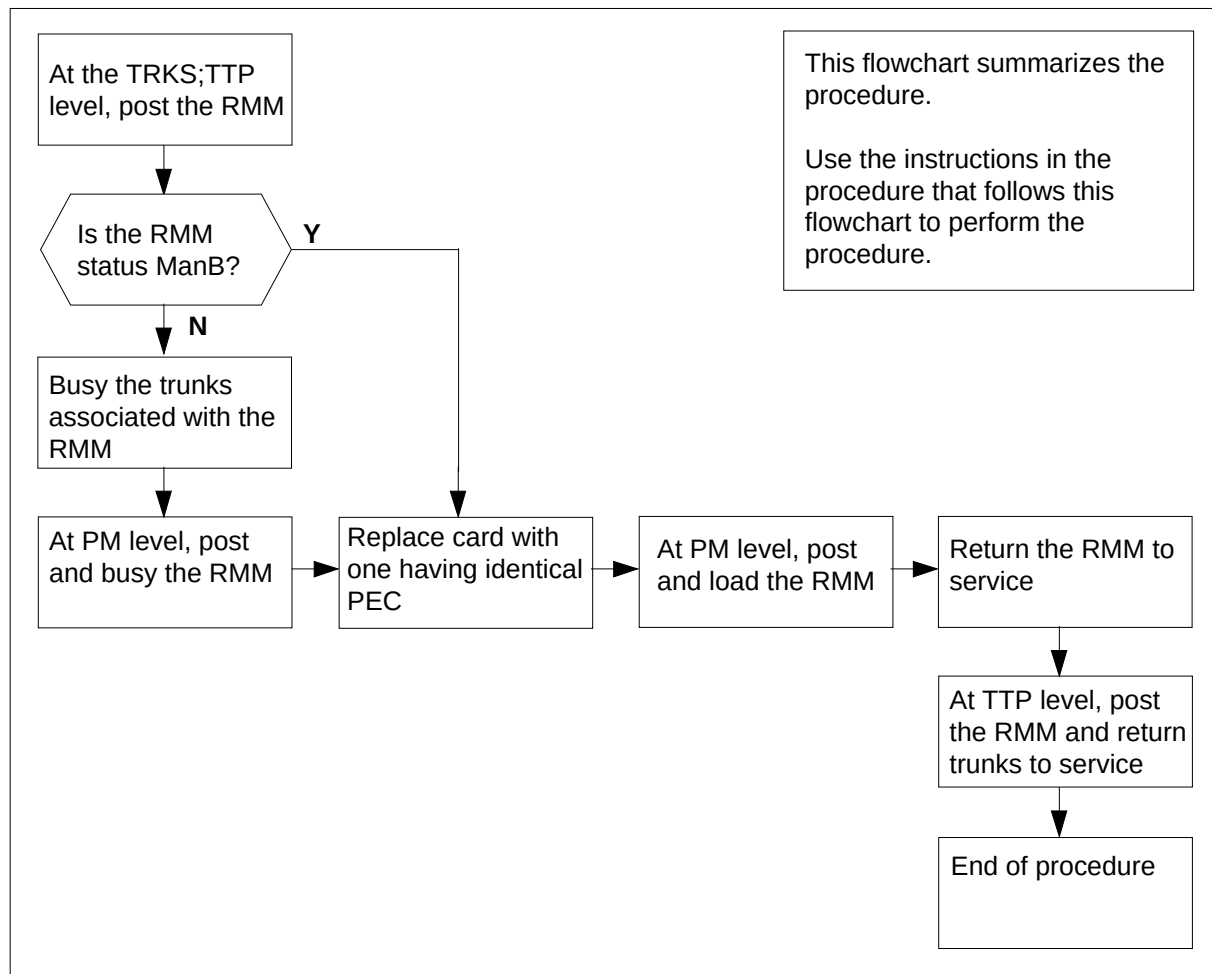
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X74 in an RLCM RMM (continued)

Summary of card replacement procedures for an NT6X74 card in an RMM



Replacing an NT6X74 card in an RMM

At your current location

- 1 Obtain a replacement card. Ensure that the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.
- 2 If you were directed to this procedure from another maintenance procedure, go to step 8; otherwise, continue with step 3.

NT6X74

in an RLCM RMM (continued)

At the MAP display

- 3** Access the TTP level of the MAP and post the RMM that contains the card to be replaced by typing

>MAPCI;MTC;TRKS;TTP;POST P RMM rmm_no

and pressing the Enter key.

where

rmm_no

is the number of the RMM shelf in which the card is to be replaced

Example of a MAP response:

LAST CIRCUIT = 27

POST CKT IDLED

SHORT CLLI IS: OTDA00

OK, CLLI POSTED

POST 20 DELQ BUSY Q DIG

TTP 6-006

CKT TYPE PM NO. COM LANG STA S R DOT TE R

OG MF RMM 0 0 OTWAON23DA00 2001 LO
P_IDL

- 4** Check the status of the RMM.

If RMM status is	Do
MB, PMB, RMB	step 8
other	step 5

- 5** Busy the trunks that are associated with the card to be replaced by typing

>BSY ALL

and pressing the Enter key.

- 6** Go to the PM level of the MAP and post the RMM by typing

>PM;POST RMM rmm_no

and pressing the Enter key.

where

rmm_no

is the number of the RMM shelf in which the card is to be replaced

Example of a MAP response:

NT6X74 in an RLCM RMM (continued)

	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	0	2	2	0	7	21
RMM	0	0	1	0	0	6

RMM 0 InSv

- 7 Busy the RMM by typing
>BSY
 and pressing the Enter key.

At the RMM

- 8 Replace the NT6X74 card using the common replacing a card procedure in this document. When the card is replaced, return to this point.
- 9 If you were directed to this procedure from another maintenance procedure, return now to the procedure that directed you here and continue as directed; otherwise, continue with step 10.

At the MAP display

- 10 Load the RMM by typing
>LOADPM
 and pressing the Enter key.
where

rmm_no

is the number of the RMM shelf in which the card is to be replaced

If		Do
message "loadfile not found in directory" is received		step 11
load passed		step 28
load failed		step 33
11 Determine the type of device on which the PM load files are located.		
If load files are located on		Do
tape		step 12
IOC disk		step 17
SLM disk		step 22
12 Locate the tape that contains the PM load files.		
13 Mount the tape on a magnetic tape drive.		

NT6X74
in an RLCM RMM (continued)

- 14** Download the tape by typing
>MOUNT tape_no
and pressing the Enter key.
where
tape_no
is the number of the tape drive containing the PM load files
- 15** List the contents of the tape in your user directory by typing
>LIST T tape_no
and pressing the Enter key.
where
tape_no
is the number of the tape drive containing the PM load files.
- 16** Demount the tape drive by typing
>DEMOUNT T tape_no
and pressing the Enter key.
where
tape_no
is the number of the tape drive containing the PM load files.
Go to step 27.
- 17** From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 18** Access the disk utility level of the MAP by typing
>DSKUT
and pressing the Enter key.
- 19** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 17.
- 20** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 21** Go to step 27.
- 22** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.

NT6X74

in an RLCM RMM (continued)

- 23 Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 24 List all disk volumes to user directory by typing
>LV CM
and pressing the enter key.
- 25 List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 22.
- 26 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 27 Reload the RMM by typing
>LOADPM
and pressing the Enter key.
- | If | Do |
|-------------|---------|
| load failed | step 33 |
| load passed | step 28 |
- 28 Return the RMM unit to service by typing
>RTS
and pressing the Enter key.
- | If RTS | Do |
|--------|---------|
| passed | step 29 |
| failed | step 33 |
- 29 Go to the TTP level of the MAP and post the RMM by typing
>TRKS;TTP;POST P RMM rmm_no
and pressing the Enter key.
where
rmm_no
is the number of the RMM shelf in which the card is to be replaced

NT6X74
in an RLCM RMM (end)

- 30** Return to service the circuits busied in step 5 by typing
>RTS ALL
and pressing the Enter key.

If RTS	Do
passed	step 31
failed	step 33

- 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 34.

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

- 34** You have successfully completed this procedure.

NT6X74 in an RSC RMM

Application

Use this procedure to replace the following card in an RSC RMM.

PEC	Suffixes	Name
NT6X74	AB	RMM control card

Common procedures

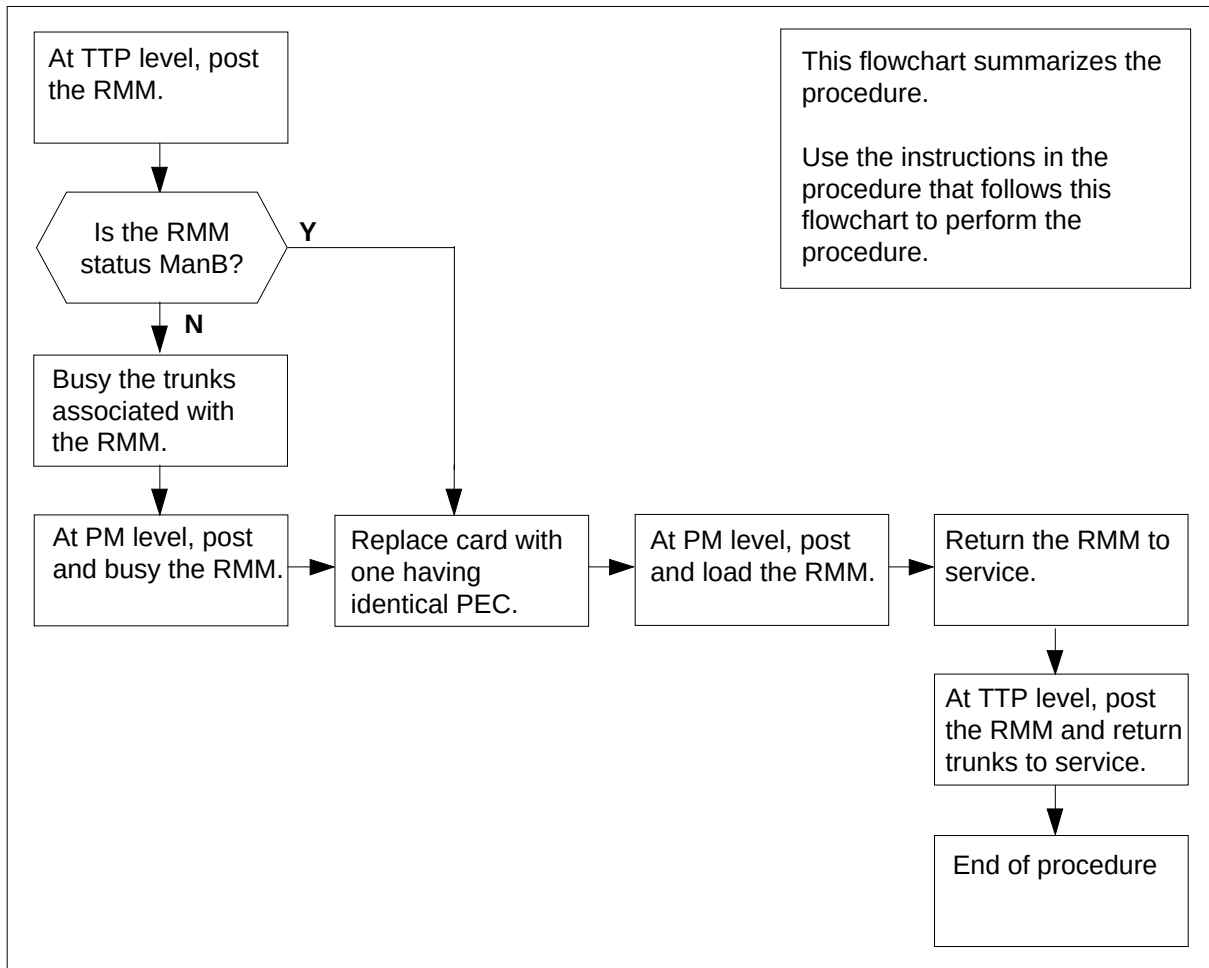
None

Action

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

NT6X74 in an RSC RMM (continued)

Summary of card replacement procedure for NT6X74 card in an RSC RMM



Replacing an NT6X74 card in an RSC RMM

At your Current Location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2 Obtain a replacement card. Ensure the replacement card has the same product equipment code (PEC) including suffix, as the card to be removed.

NT6X74

in an RSC RMM (continued)

At the MAP terminal

- 3 Access the TTP level of the MAP and post the RMM by typing

>MAPCI;MTC;TRKS;TTP;POST P RMM rmm_no

and pressing the Enter key.

where

rmm_no

is the number of the RMM shelf in which the card is to be replaced

- 4 Installation busy all the RMM circuits by typing

>BSY INB ALL

and pressing the Enter key.

- 5 Access the PM level and post the RMM by typing

>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	APPL
.	.	.	.	4SysB	.	.	.	.	.
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	SysB					
5	TrnsL								
6	Tst								
7	Bsy								
8	RTS								
9	OffL								
10	LoadPM								
11	Disp_								
12	Next								
13									
14	QueryPM								
15									
16									
17									
18									

- 6 Busy the RMM by typing

>BSY

and pressing the Enter key.

NT6X74
in an RSC RMM (continued)

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	4SysB	.	.	.	.	.
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	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

7

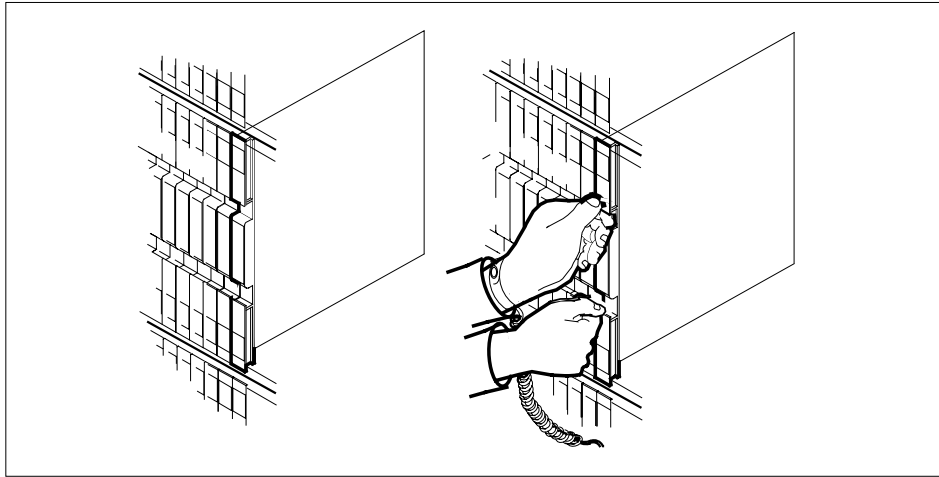


CAUTION
Static discharge may cause damage to circuit packs
Put on a wrist strap and connect it to the frame of the RMM
before removing any cards. This protects the RMM against
service degradation caused by static electricity.

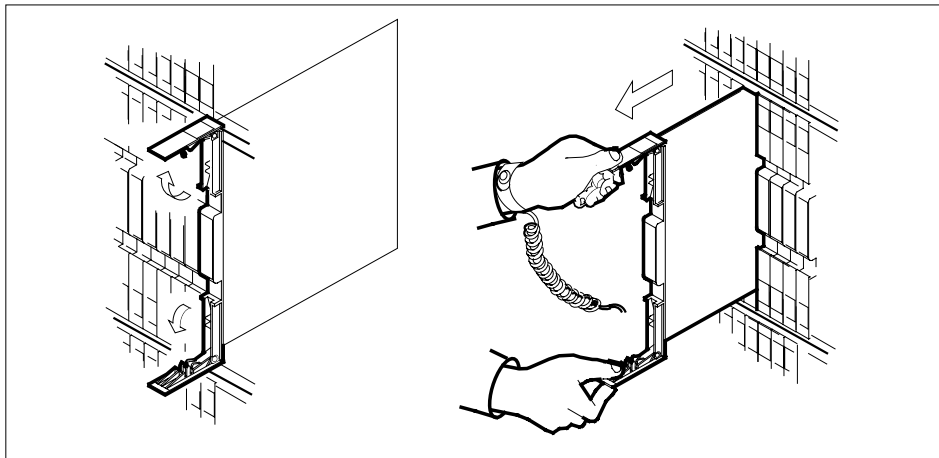
Put on a wrist strap.

- 8 Remove the NT6X74 card as shown in the following figures.
- a Locate the card to be removed on the appropriate shelf.

NT6X74 in an RSC RMM (continued)

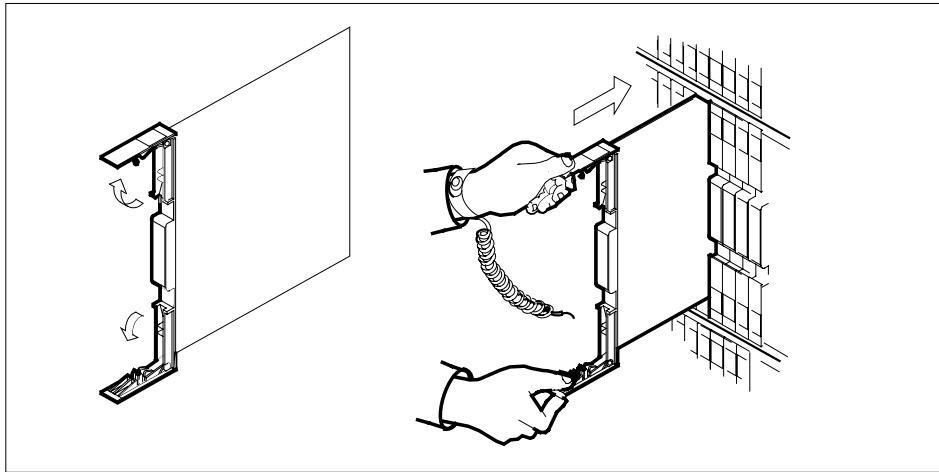


- b** Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.



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

NT6X74 in an RSC RMM (continued)



10



DANGER

Equipment damage

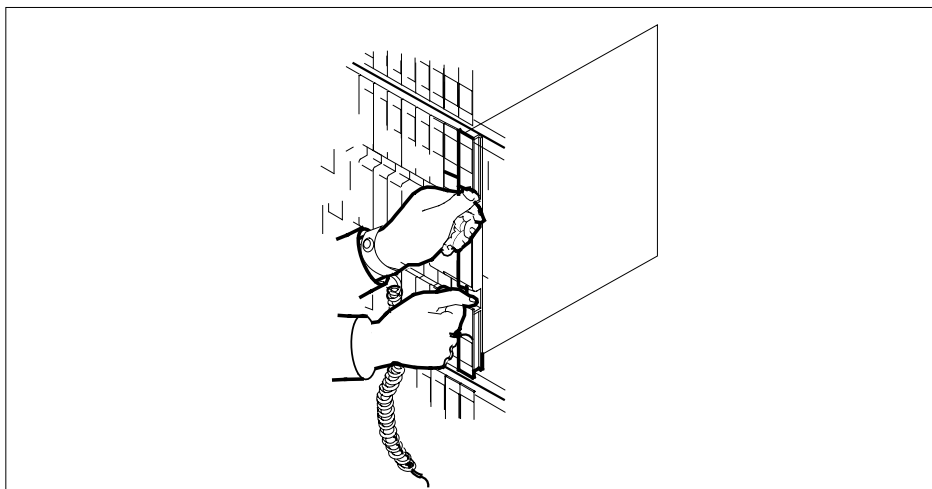
Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Seat and lock the card.

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

NT6X74 in an RSC RMM (continued)



- 11** Reload the RMM by typing
>loadpm
and pressing the Enter key.

If load	Do
passed	step 12
failed	step 19

- 12** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 18
other	step 13

- 13** Return the RMM shelf to service by typing
>RTS
and pressing the Enter key.

If the RTS	Do
failed	step 19
passed	step 14

NT6X74
in an RSC RMM (end)

At the MAP terminal

- 14** Access the TTP level of the MAP display and post the RMM by typing
>TRKS;TTP;POST P RMM rmm_no
and pressing the Enter key.
where

rmm_no

is the number of the RMM associated with the new NT6X74 card

- 15** Return to service the circuits busied in step 4 by typing
>RTS ALL
and pressing the Enter key.

If the RTS**Do**

failed

step16

passed

step19

- 16** Send any faulty cards for repair according to local procedure.
- 17** 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 20.
- 18** Return to the *Alarm Clearing Procedure* that directed you to this procedure. If necessary, go to the point where the 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.
- 19** Obtain further assistance in replacing this card by contacting personnel responsible for higher level of support.
- 20** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X74 in an RSC-S (DS-1) Model A RMM

Application

Use this procedure to replace an NT6X74 card in an RSC-S RMM.

PEC	Suffixes	Name
NT6X74	AB	RMM Control Card (RMMC)

Common procedures

None

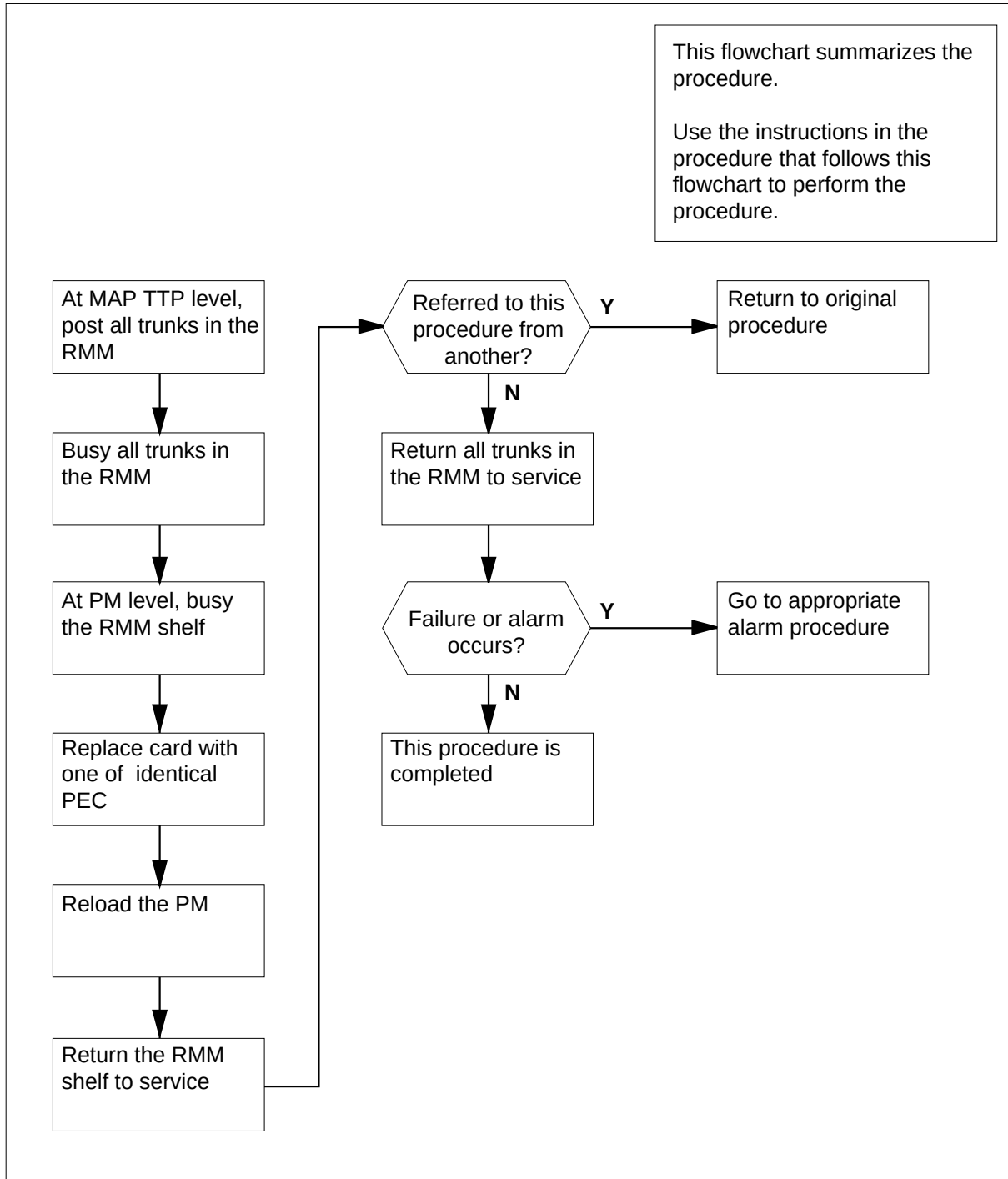
Action

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

NT6X74

in an RSC-S (DS-1) Model A RMM (continued)

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



NT6X74

in an RSC-S (DS-1) Model A RMM (continued)

Replacing an NT6X74 card in an RSC-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.

At the MAP terminal

- 2** Set the MAP display to the TTP level and post the RMM by typing
>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
- 3** Busy all trunks in the RMM by typing
>BSY INB ALL
and pressing the Enter key.
- 4** At the PM level, busy the RMM shelf by typing
>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 display:

NT6X74
in an RSC-S (DS-1) Model A RMM (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	4SysB	.	.	.	.	.
RMM			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	4	1	10	3	3	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

5



DANGER
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 (FSP) of the RMM. This protects the equipment against damage caused by static electricity.



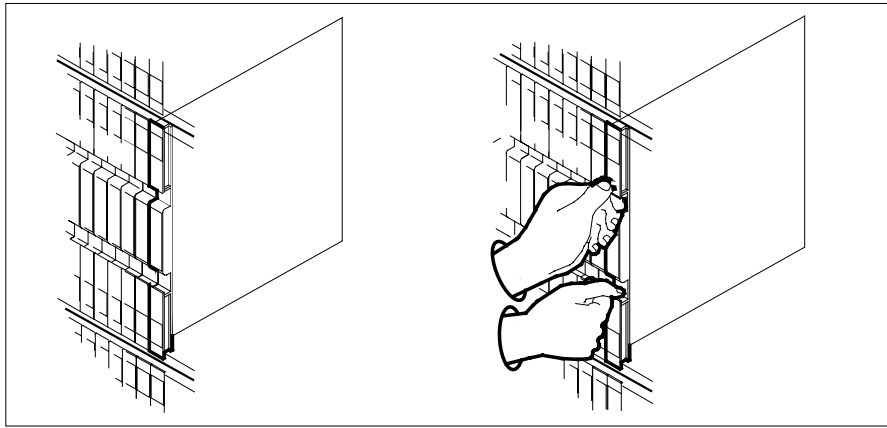
DANGER
Improper insertion may cause damage to circuit packs
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

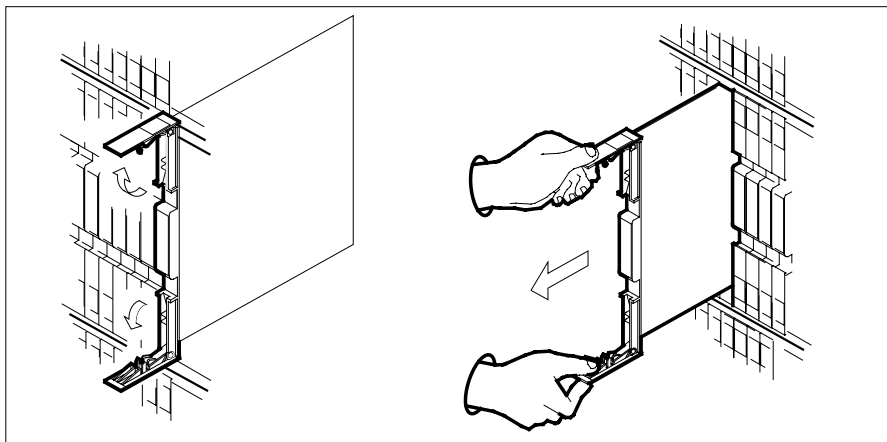
6

- Remove the NT6X74 card as shown in the following figures.
- a Locate the card to be removed on the appropriate shelf.

NT6X74
in an RSC-S (DS-1) Model A RMM (continued)

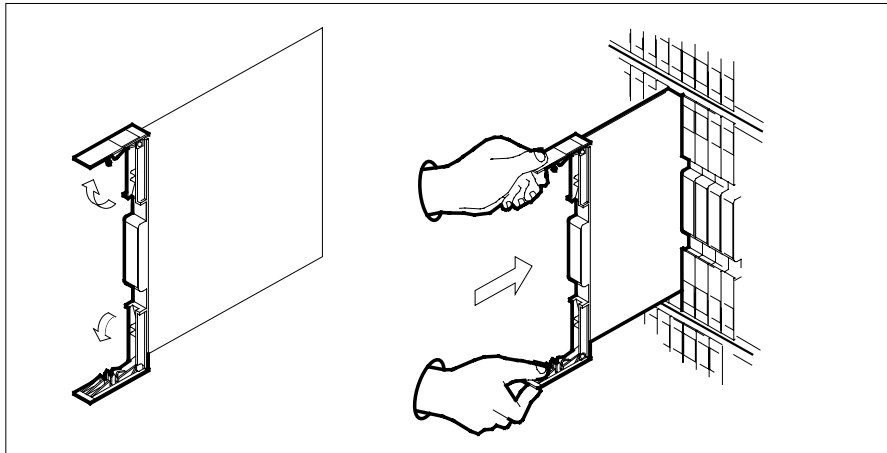


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 7** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X74
in an RSC-S (DS-1) Model A RMM (continued)



8



DANGER

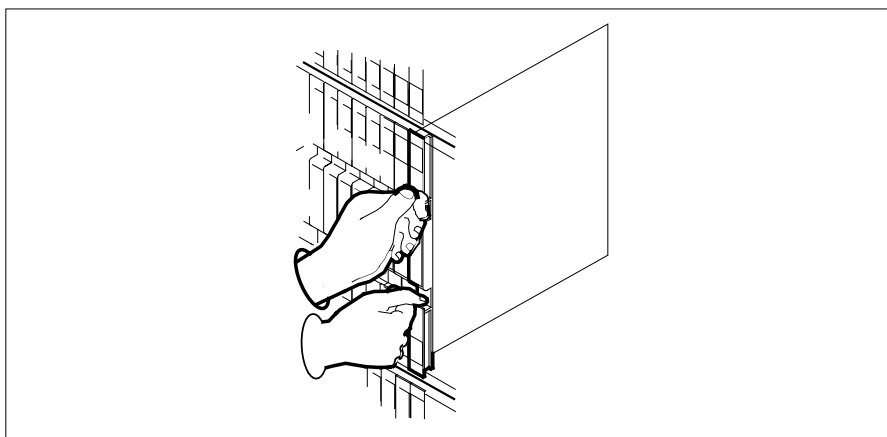
Equipment damage

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Seat and lock the card.

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



NT6X74**in an RSC-S (DS-1) Model A RMM** (continued)

- 9 Reload the RMM by typing
>LOADPM
 and pressing the Enter key.
- 10 Use the following information to determine where to proceed.
- | If | Do |
|---------------------------------|---------|
| loadfile not found in directory | step 11 |
| load passes | step 15 |
| load fails | step 22 |
- 11 Refer to the following table to determine the next step in this procedure.
- | If the system load module is | Do |
|------------------------------|---------|
| version 1 | step 12 |
| version 2 | step 13 |
- 12 List the loadfile in the directory by typing
> DSKUT;LISTVOL D000 ALL
 and pressing the Enter key.
 or
> DSKUT;LISTVOL D010 ALL
 and pressing the Enter key.
 Local operating company policy determines which disk, D000 or D010, the loadfile will be on.
 Proceed to step14.
- 13 List the loadfile in the directory by typing
>DISKUT;LV S00D
>LF
 and pressing the Enter key.
 or
> DISKUT;LV S01d
>LF
 and pressing the Enter key.
- 14 Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
 Return to step 9.

NT6X74

in an RSC-S (DS-1) Model A RMM (continued)

- 15** Return the RMM shelf to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 16
failed	step 22

- 16** Continue this procedure depending on where you were directed to this procedure.

If directed to this procedure from	Do
an alarm clearing procedure	step 21
other	step 17

At the MAP terminal

- 17** Post all trunks in the RMM in order to return to them service by typing

>TRKS;TTP;POST TM RMM rmm_no

and pressing the Enter key.

where

rmm_no

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

- 18** Busy and return to service all trunks by typing

>BSY ALL;RTS ALL

and pressing the Enter key.

- 19** Use the following information to determine where to proceed.

If RTS	Do
passed	step 20
failed	step 22

- 20** Observe the alarm that is produced and go to the appropriate alarm clearing procedure in *Alarm Clearing Procedures*. Go to step 23.

- 21** Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.

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

NT6X74
in an RSC-S (DS-1) Model A RMM (end)

- 23 You have successfully completed this procedure. Return to the maintenance procedure that directed you to this procedure and continue as directed.

NT6X74
in an RSC-S (DS-1) Model B RMM

Application

Use this procedure to replace an NT6X74 card in an RSC-S RMM.

PEC	Suffixes	Name
NT6X74	AB	RMM Control Card (RMMC)

Common procedures

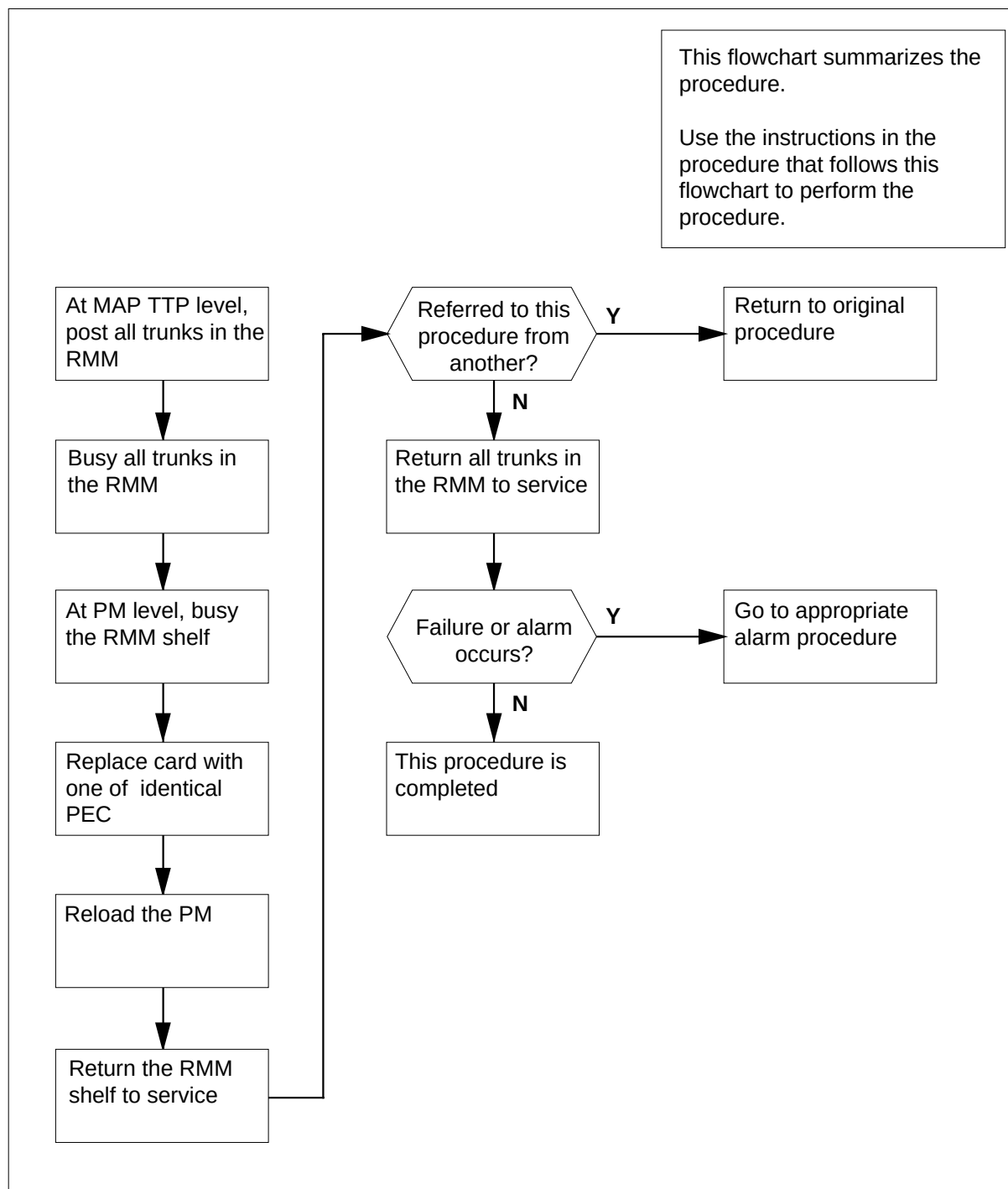
None

Action

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

NT6X74 in an RSC-S (DS-1) Model B RMM (continued)

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



NT6X74

in an RSC-S (DS-1) Model B RMM (continued)

Replacing an NT6X74 card in an RSC-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.

At the MAP terminal

- 2** Set the MAP display to the TTP level and post the RMM by typing
>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
- 3** Busy all trunks in the RMM by typing
>BSY INB ALL
and pressing the Enter key.
- 4** At the PM level, busy the RMM shelf by typing
>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 display:

NT6X74
in an RSC-S (DS-1) Model B RMM (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	4SysB	.	.	.	.	.
RMM			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	4	1	10	3	3	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

5



DANGER
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 modular supervisory panel (MSP) of the RMM. This protects the equipment against damage caused by static electricity.

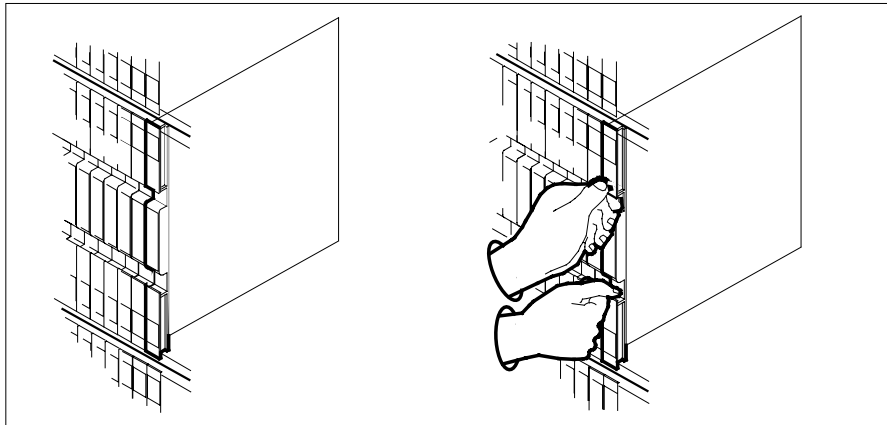


DANGER
Improper insertion may cause damage to circuit packs
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

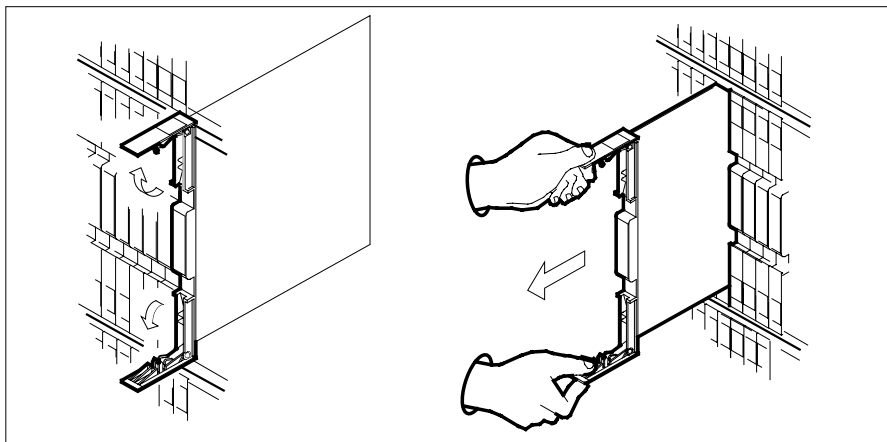
6

- Put on a wrist strap.
- Remove the NT6X74 card as shown in the following figures.
- a** Locate the card to be removed on the appropriate shelf.

NT6X74
in an RSC-S (DS-1) Model B RMM (continued)

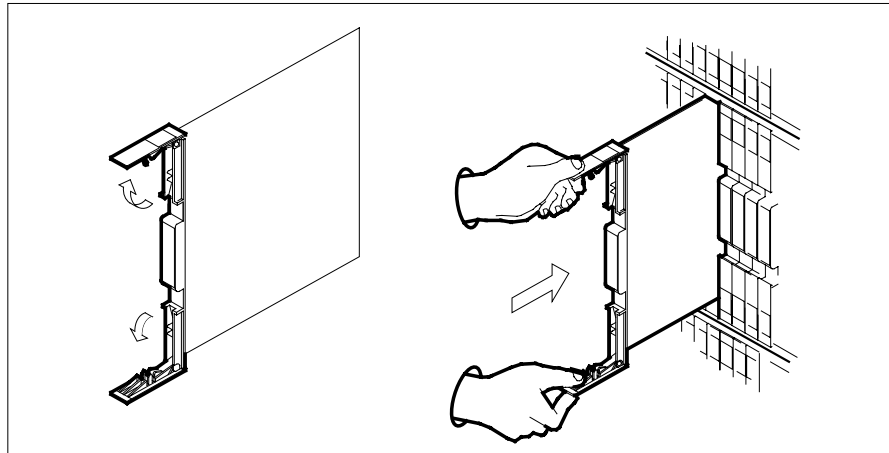


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 7** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X74 in an RSC-S (DS-1) Model B RMM (continued)



8



DANGER

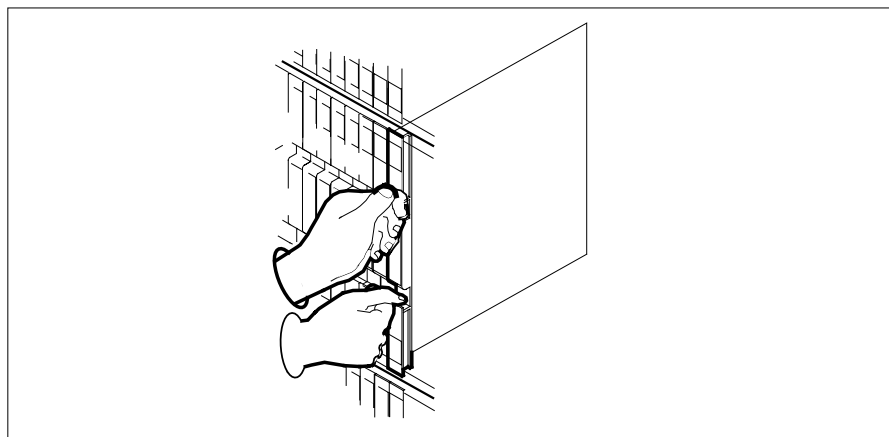
Equipment damage

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Seat and lock the card.

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



NT6X74

in an RSC-S (DS-1) Model B RMM (continued)

- 9 Reload the RMM by typing
>LOADPM
 and pressing the Enter key.
- 10 Use the following information to determine where to proceed.
- | If | Do |
|---------------------------------|---------|
| loadfile not found in directory | step 11 |
| load passes | step 15 |
| load fails | step 22 |
- 11 Refer to the following table to determine the next step in this procedure.
- | If the system load module is | Do |
|------------------------------|---------|
| version 1 | step 12 |
| version 2 | step 13 |
- 12 List the loadfile in the directory by typing
> DSKUT;LISTVOL D000 ALL
 and pressing the Enter key.
 or
> DSKUT;LISTVOL D010 ALL
 and pressing the Enter key.
 Local operating company policy determines which disk, D000 or D010, the loadfile will be on.
 Proceed to step14.
- 13 List the loadfile in the directory by typing
>DISKUT;LV S00D
>LF
 and pressing the Enter key.
 or
> DISKUT;LV S01D
>LF
 and pressing the Enter key.
- 14 Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
 Return to step 9.

NT6X74

in an RSC-S (DS-1) Model B RMM (continued)

- 15** Return the RMM shelf to service by typing
>RTS
and pressing the Enter key.

If RTS	Do
passed	step 16
failed	step 22

- 16** Continue this procedure depending on where you were directed to this procedure.

If directed to this procedure from	Do
an alarm clearing procedure	step 21
other	step 17

At the MAP terminal

- 17** Post all trunks in the RMM in order to return to them service by typing
>TRKS;TTP;POST TM RMM rmm_no
and pressing the Enter key.
where

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

- 18** Busy and return to service all trunks by typing
>BSY ALL ; RTS ALL
and pressing the Enter key.

- 19** Use the following information to determine where to proceed.

If RTS	Do
passed	step 20
failed	step 22

- 20** Observe the alarm that is produced and go to the appropriate alarm clearing procedure in *Alarm Clearing Procedures*. Go to step 23.

- 21** Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.

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

NT6X74

in an RSC-S (DS-1) Model B RMM (end)

- 23** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this procedure and continue as directed.

NT6X74 in an RSC-S (PCM-30) Model A RMM

Application

Use this procedure to replace an NT6X74 card in an RSC-S RMM.

PEC	Suffixes	Name
NT6X74	AB	RMM Control Card (RMMC)

Common procedures

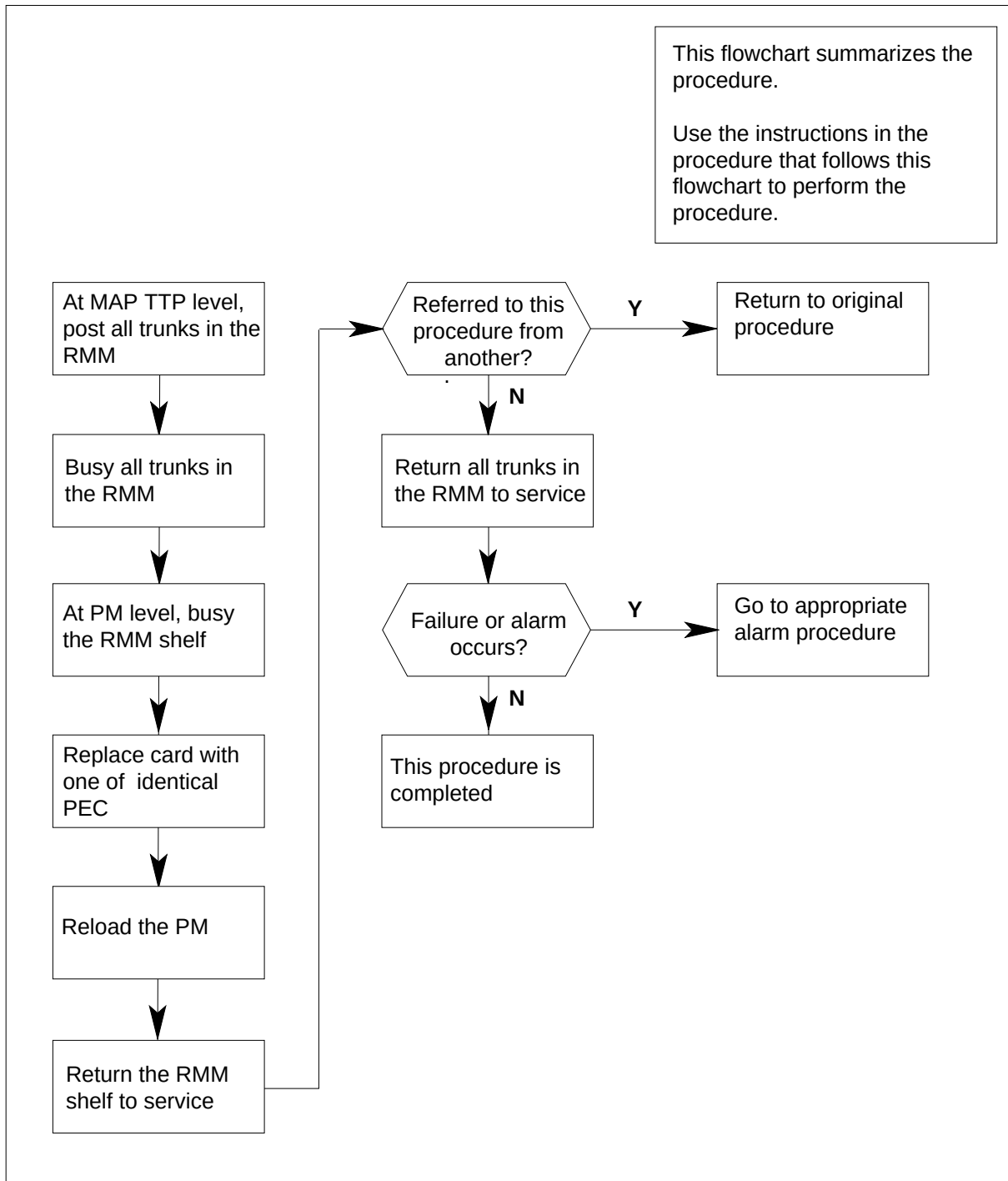
None

Action

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

NT6X74 in an RSC-S (PCM-30) Model A RMM (continued)

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



NT6X74 in an RSC-S (PCM-30) Model A RMM (continued)

Replacing an NT6X74 card in an RSC-S RMM

- 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.

At the MAP terminal

- 2 Set the MAP display to the PM level and post the RMM by typing
>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
- 3 Busy all trunks in the RMM by typing
>BSY INB ALL
and pressing the Enter key.
- 4 At the PM level, busy the RMM shelf by typing
>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 display:

NT6X74
in an RSC-S (PCM-30) Model A RMM (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	4SysB	.	.	.	.	.
RMM			SysB	ManB	OffL	CBsy	ISTb	InSv	
0	Quit	PM	4	1	10	3	3	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

5



DANGER
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 (FSP) of the RMM. This protects the equipment against damage caused by static electricity.



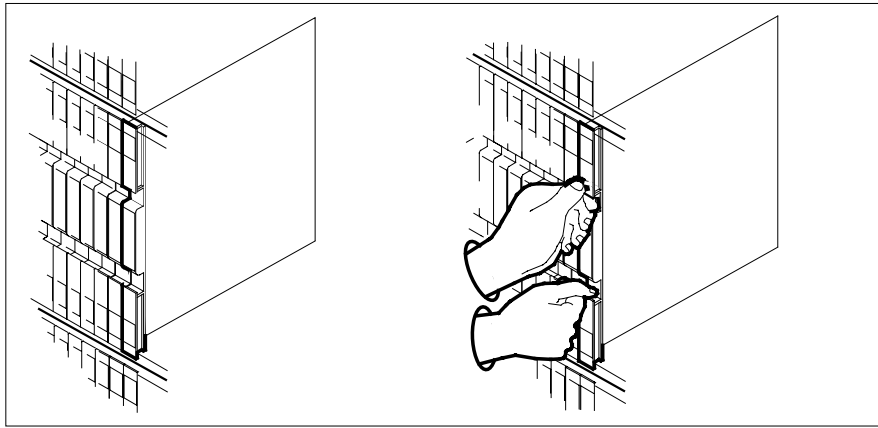
DANGER
Improper insertion may cause damage to circuit packs
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

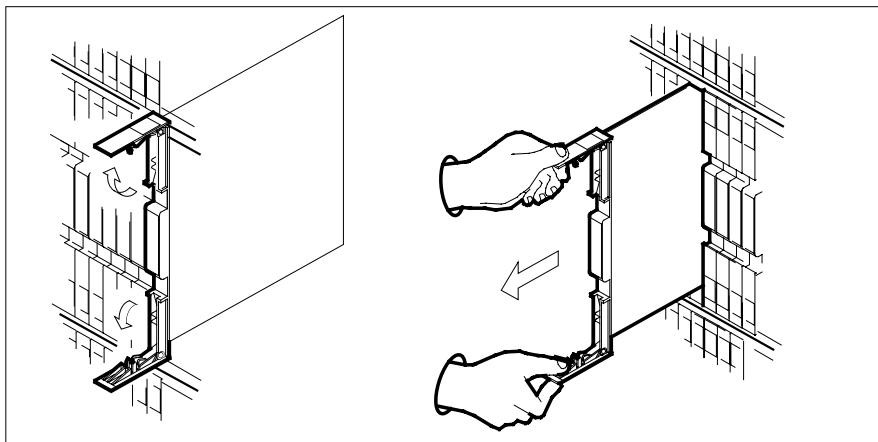
6

Remove the NT6X74 card as shown in the following figures.
a Locate the card to be removed on the appropriate shelf.

NT6X74
in an RSC-S (PCM-30) Model A RMM (continued)

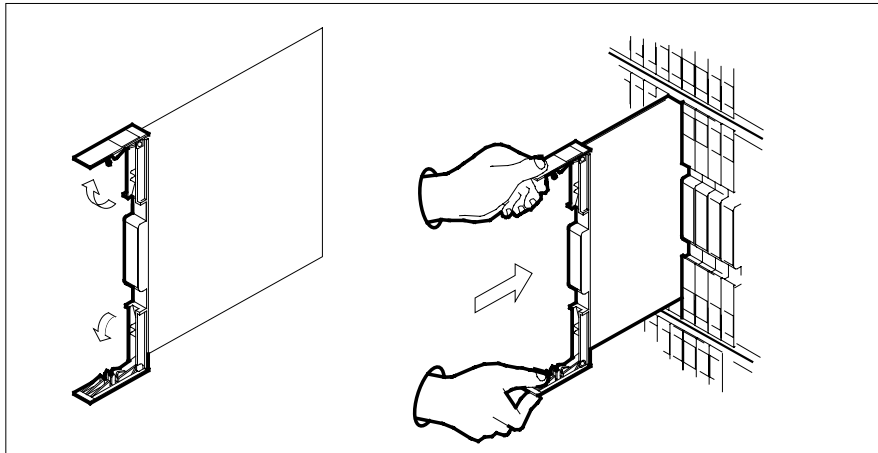


- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 7** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

NT6X74
in an RSC-S (PCM-30) Model A RMM (continued)



8



DANGER

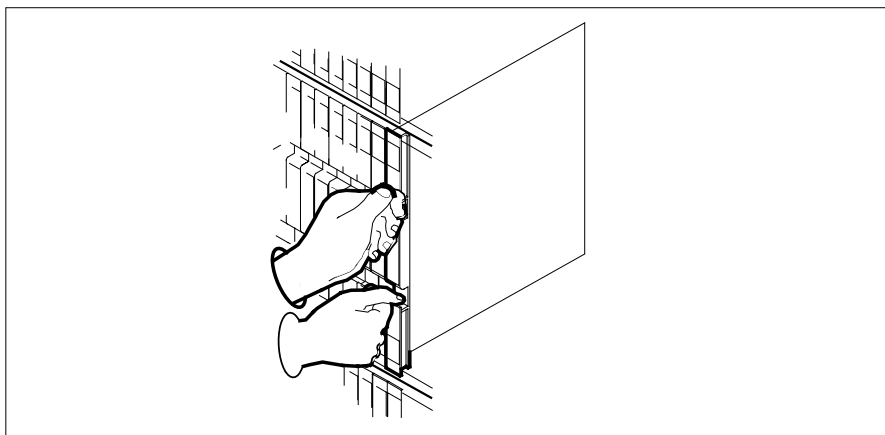
Equipment damage

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Seat and lock the card.

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



NT6X74

in an RSC-S (PCM-30) Model A RMM (continued)

- 9 Reload the RMM by typing
>LOADPM
and pressing the Enter key.
- 10 Use the following information to determine where to proceed.
- | If | Do |
|---------------------------------|---------|
| loadfile not found in directory | step 11 |
| load passes | step 15 |
| load fails | step 22 |
- 11 Refer to the following table to determine the next step in this procedure.
- | If the system load module is | Do |
|------------------------------|---------|
| version 1 | step 12 |
| version 2 | step 13 |
- 12 List the loadfile in the directory by typing
> DSKUT;LISTVOL D000 ALL
and pressing the Enter key.
or
> DSKUT;LISTVOL D010 ALL
and pressing the Enter key.
Local operating company policy determines which disk, D000 or D010, the loadfile will be on.
Proceed to step14.
- 13 List the loadfile in the directory by typing
>DISKUT;LV S00D
>LF
and pressing the Enter key.
or
> DISKUT;LV S01D
>LF
and pressing the Enter key.
- 14 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
Return to step 9.

NT6X74

in an RSC-S (PCM-30) Model A RMM (continued)

- 15** Return the RMM shelf to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 16
failed	step 22

- 16** Continue this procedure depending on where you were directed to this procedure.

If directed to this procedure from	Do
an alarm clearing procedure	step 21
other	step 17

At the MAP terminal

- 17** Post all trunks in the RMM in order to return to them service by typing

>TRKS;TTP;POST TM RMM rmm_no

and pressing the Enter key.

where

rmm_no

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

- 18** Busy and return to service all trunks by typing

>BSY ALL;RTS ALL

and pressing the Enter key.

- 19** Use the following information to determine where to proceed.

If RTS	Do
passed	step 20
failed	step 22

- 20** Observe the alarm that is produced and go to the appropriate alarm clearing procedure in *Alarm Clearing Procedures*. Go to step 23.

- 21** Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.

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

NT6X74
in an RSC-S (PCM-30) Model A RMM (end)

- 23 You have successfully completed this procedure. Return to the maintenance procedure that directed you to this procedure and continue as directed.

**NT6X75
in an IOPAC HIE**

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

PEC	Suffix	Name
NT6X75	KA	ESA tone and clock card

Common procedures

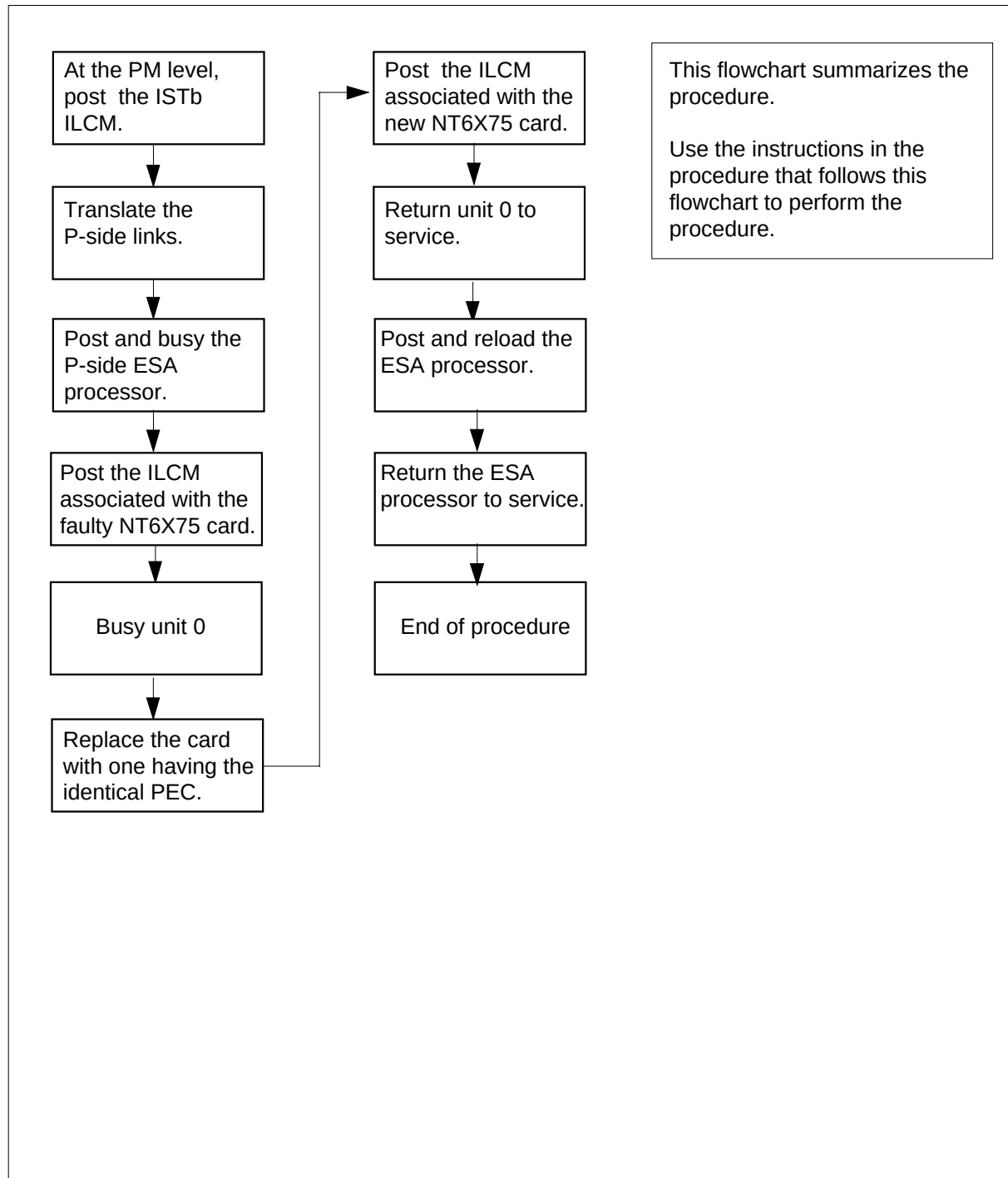
The common replacing a card procedure is referenced in this procedure.

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.

NT6X75 in an IOPAC HIE (continued)

Summary of card replacement procedure for an NT6X75 in an HIE



NT6X75 in an IOPAC HIE (continued)

Replacing an NT6X75 in an HIE

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. Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 10. Otherwise, continue with step 4.

At the MAP terminal

- 4 Post the ILCM associated with the faulty NT6X75 card by typing
>MAPCI;MTC;PM;POST ILCM site frame lcm
and pressing the Enter key.

where

site

is the name of the location of the IOPAC

frame

is the number of the IOPAC cabinet

lcm

is the number of the ILCM

- 5 Translate the links to the P-side peripherals by typing
>TRNSL P
and pressing the Enter key.

- 6 Post the Emergency Stand-Alone (ESA) processor by typing
>POST ESA esa_no
and pressing the Enter key.

where

esa_no

is the number of the ESA processor identified in step 5.

- 7 Busy the ESA processor by typing
>BSY
and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

NT6X75 in an IOPAC HIE (continued)

- and pressing the Enter key.
- 8 Post the ILCM associated with the faulty NT6X75 card by typing
>POST ILCM site frame lcm
and pressing the Enter key.
where
site
is the name of the location of the IOPAC
frame
is the number of the IOPAC cabinet
lcm
is the number of the ILCM
- 9 Busy unit 0 by typing
>BSY UNIT 0
and pressing the Enter key.

At the IOPAC cabinet

- 10 Replace the NT6X75 card using the common replacing a card procedure in this document. When you have completed the procedure, return here.
- 11 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 12.

At the MAP terminal

- 12 Return to service unit 0 by typing
>RTS UNIT 0
and pressing the Enter key.

If RTS	Do
passed	step 13
failed	step 35

- 13 Post the Emergency Stand-Alone (ESA) processor identified in step 5 by typing
>POST ESA esa_no
and pressing the Enter key.
where
esa_no
is the number of the ESA processor
- 14 Load the ESA processor by typing
>LOADPM

NT6X75 in an IOPAC HIE (continued)

and pressing the Enter key.

If	Do
The message <code>loadfile not found in directory</code> is received.	step 15
load passed	step 32
load failed	step 35

- 15** Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 16
IOC disk	step 22
SLM disk	step 27

- 16** Locate the tape that contains the PM load files.

At the IOE frame

- 17** Mount the tape on a magnetic tape drive.

at the MAP terminal

- 18** Download the tape by typing
>MOUNT tape_no
 and pressing the Enter key.
where
 tape_no
 is the number of the tape drive containing the PM load files.
- 19** List the contents of the tape in your user directory by typing
>LIST T tape_no
 and pressing the Enter key.
where
 tape_no
 is the number of the tape containing the PM load files
- 20** Demount the tape drive by typing
>DEMOUNT T tape_no
 and pressing the Enter key.
where

NT6X75 in an IOPAC HIE (continued)

- tape_no**
is the number of the tape drive containing the PM load files.
- 21 Go to step 31.
- 22 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.
- 23 Access the disk utility level of the MAP terminal by typing
>DSKUT
and pressing the Enter key.
- 24 List the IOC file names into your user directory by typing
LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files identified in step 22.
- 25 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 26 Go to step 31.
- 27 From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 28 Access the disk utility level of the MAP terminal by typing
>DISKUT
and pressing the Enter key.
- 29 List the SLM file names into your user directory by typing
>LV CM;LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the disk volume that contains the PM load files identified in step 27.
- 30 Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 31 Reload the ESA processor by typing
>LOADPM

NT6X75
in an IOPAC HIE (end)

and pressing the Enter key.

If loadpm**Do**

passed

step 32

failed

step 35

- 32** Return the ESA processor to service by typing
>RTS
and pressing the Enter key.

If RTS**Do**

passed

step 33

failed

step 35

- 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

Go to step 36.

- 35** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.

- 36** You have completed this procedure. If you were directed here from an alarm clearing procedure, return to the maintenance procedure that directed you to this procedure and continue as directed.

NT6X75 in an OPAC HIE

Application

Use this procedure to replace the following card in a host interface equipment (HIE) shelf.

PEC	Suffix	Name
NT6X75	AA	ESA tone and clock card

Common procedures

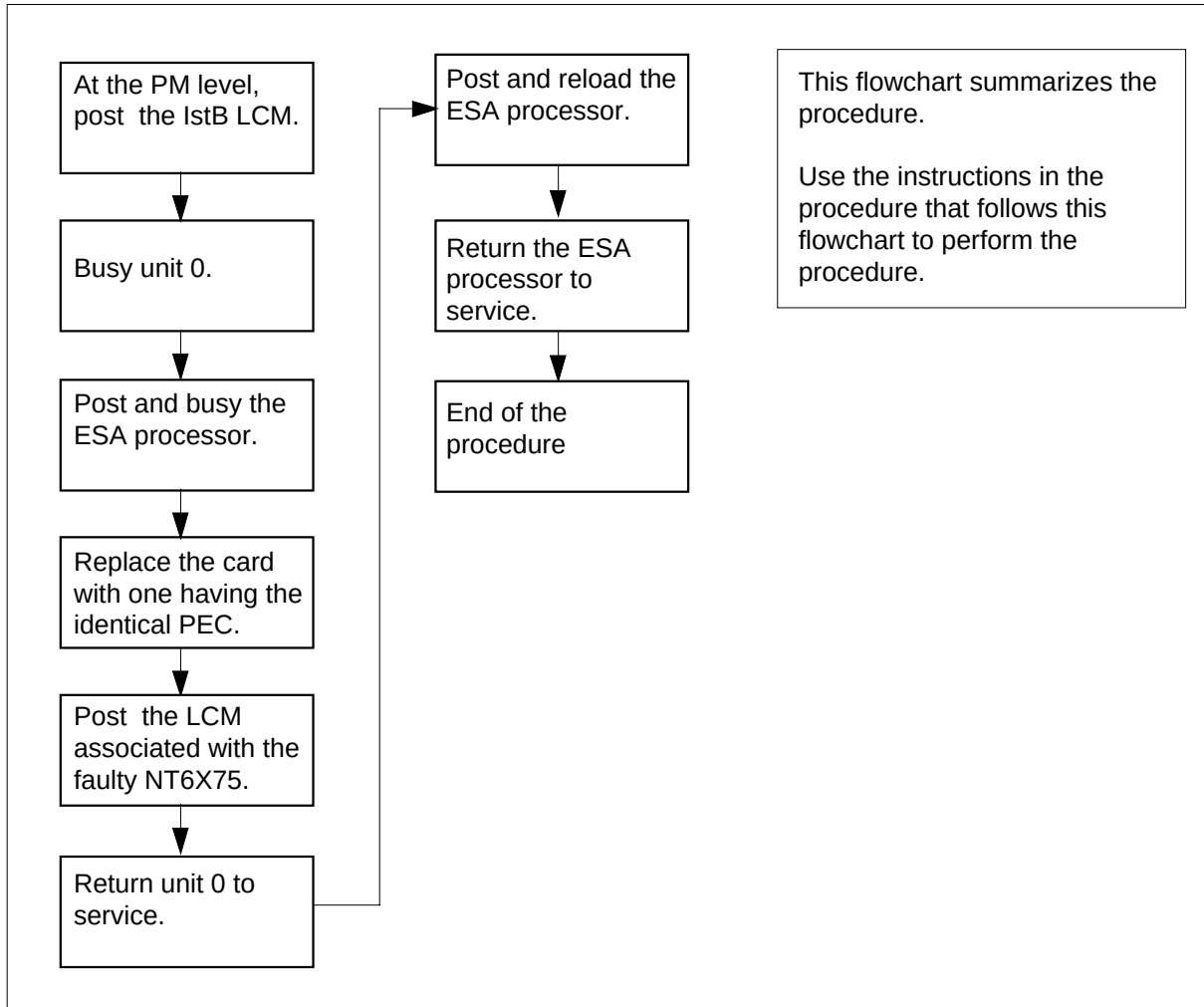
The common replacing a card procedure is referenced in this procedure.

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.

NT6X75 in an OPAC HIE (continued)

Summary of card replacement procedure for an NT6X75 in an HIE



Replacing an NT6X75 in an HIE

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. Verify that the replacement card has the same product engineering code (PEC), including suffix, as the card to be removed.
- 3 If you were directed to this procedure from the *Alarm Clearing Procedures*, go to step 10. Otherwise, continue with step 4.

NT6X75 in an OPAC HIE (continued)

At the MAP terminal

- 4 Post the LCM associated with the faulty NT6X75 card by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the location of the OPAC

frame

is the number of the OPAC cabinet

lcm

is the number of the LCM in the OPAC cabinet

- 5 Translate the links to the P-side peripherals by typing
>TRNSL P
and pressing the Enter key.

- 6 Post the Emergency Stand-Alone (ESA) processor by typing
>POST ESA esa_no
and pressing the Enter key.

where

esa_no

is the number of the ESA processor identified in step 5.

- 7 Busy the ESA processor by typing
>BSY
and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

- 8 Post the LCM associated with the faulty NT6X75 card by typing
>POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the location of the OPAC

frame

is the number of the OPAC cabinet

NT6X75 in an OPAC HIE (continued)

lcm

is the number of the LCM in the OPAC cabinet

- 9 Busy unit 0 by typing
>BSY UNIT 0
 and pressing the Enter key.

At the OPAC

- 10 Replace the NT6X75 card using the common replacing a card procedure in this document. When you have completed the procedure, return here.
- 11 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 12.

At the MAP terminal

- 12 Return to service unit 0 by typing
>RTS UNIT 0
 and pressing the Enter key.

If RTS	Do
passed	step 13
failed	step 35

- 13 Post the Emergency Stand-Alone (ESA) processor identified in step 5 by typing
>POST ESA esa_no
 and pressing the Enter key.
where

esa_no

is the number of the ESA processor

- 14 Load the ESA processor by typing
>LOADPM
 and pressing the Enter key.

If	Do
The message <code>loadfile not found in directory</code> is received.	step 15
load passes	step 32
load fails	step 35

NT6X75

in an OPAC HIE (continued)

- 15 Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 16
IOC disk	step 22
SLM disk	step 27

- 16 Locate the tape that contains the PM load files.

At the IOE frame

- 17 Mount the tape on a magnetic tape drive.

at the MAP terminal

- 18 Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files.

- 19 List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape containing the PM load files

- 20 Demount the tape drive by typing

>DEMOUNT T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files.

- 21 Go to step 31.

- 22 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.

- 23 Access the disk utility level of the MAP terminal by typing

>DSKUT

and pressing the Enter key.

NT6X75 in an OPAC HIE (continued)

- 24** List the IOC file names into your user directory by typing
LISTVOL volume_name ALL
 and pressing the Enter key.
where
volume_name
 is the name of the volume that contains the PM load files identified in step 22.
- 25** Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
- 26** Go to step 31.
- 27** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 28** Access the disk utility level of the MAP terminal by typing
>DISKUT
 and pressing the Enter key.
- 29** List the SLM file names into your user directory by typing
>LV CM;LF volume_name
 and pressing the Enter key.
where
volume_name
 is the name of the disk volume that contains the PM load files identified in step 27.
- 30** Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
- 31** Reload the ESA processor by typing
>LOADPM
 and pressing the Enter key.
- | If loadpm | Do |
|-----------|---------|
| passed | step 32 |
| failed | step 35 |
- 32** Return the ESA processor to service by typing
>RTS

NT6X75

in an OPAC HIE (end)

and pressing the Enter key.

If RTS	Do
passed	step 33
failed	step 35

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

Go to step 36.

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

36 You have completed this procedure. If you were directed here from an alarm clearing procedure, return to the maintenance procedure that directed you to this procedure and continue as directed.

**NT6X75
in an OPM HIE**

Application

Use this procedure to replace the following card in an HIE shelf.

PEC	Suffixes	Name
NT6X75	AA	OPM ESA Tone and Clock Card

Common procedures

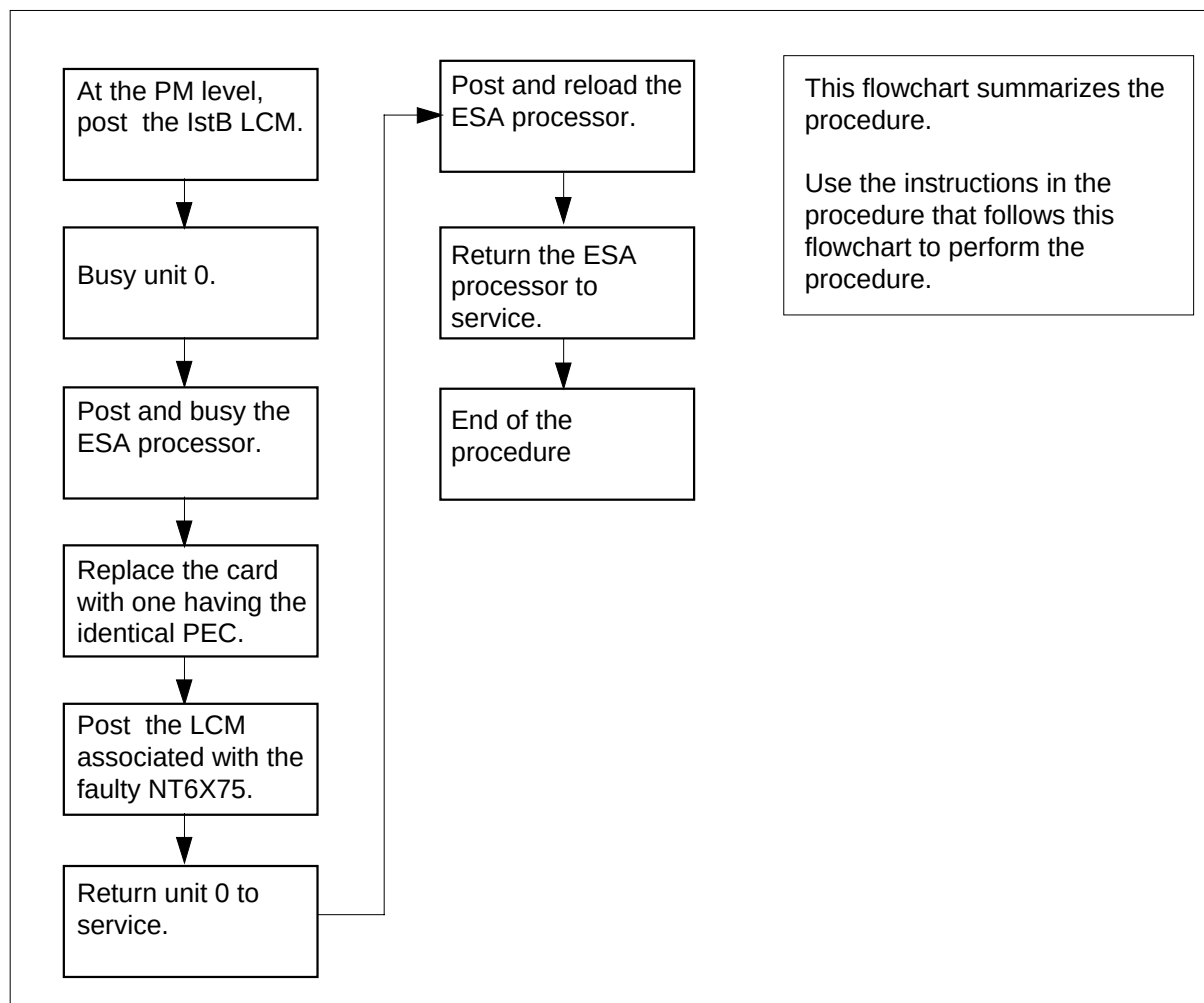
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X75 in an OPM HIE (continued)

Summary of card replacement procedures for an NT6X75 card in an HIE



Replacing an NT6X75 card in an HIE

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 that is to be removed.
- 3 If you were directed to this procedure from another maintenance procedure, go to step 10; otherwise, continue with step 4.

NT6X75 in an OPM HIE (continued)

At the MAP display

- 4 Post the LCM associated with the faulty NT6X75 card by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the location of the OPM

frame

is the number of the OPM cabinet

lcm

is the number of the LCM in the OPM cabinet

- 5 Translate the links to the P-side peripherals by typing
>TRNSL P
and pressing the Enter key.

- 6 Post the Emergency Stand-Alone (ESA) processor by typing
>POST ESA esa_no
and pressing the Enter key.

where

esa_no

is the number of the ESA processor identified in step 5.

- 7 Busy the ESA processor by typing
>BSY
and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

- 8 Post the LCM associated with the faulty NT6X75 card by typing
>POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the location of the OPM

frame

is the number of the OPM cabinet

NT6X75 in an OPM HIE (continued)

lcm

is the number of the LCM in the OPM cabinet

- 9 Busy unit 0 by typing
>BSY UNIT 0
and pressing the Enter key.

At the OPM cabinet

- 10 Replace the NT6X75 card using the common replacing a card procedure in this document. When you have completed the procedure, return to step 11 of this procedure.
- 11 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 12.

At the MAP terminal

- 12 Return to service unit 0 by typing
>RTS UNIT 0
and pressing the Enter key.

If RTS	Do
passed	step 13
failed	step 36

- 13 Post the ESA processor identified in step 5 by typing
>POST ESA esa_no
and pressing the Enter key.
where

esa_no

is the number of the ESA processor

- 14 Load the ESA processor by typing
>LOADPM
and pressing the Enter key.

If	Do
message "loadfile not found in directory" is received	step 15
load passed	step 33
load failed	step 36

NT6X75 in an OPM HIE (continued)

- 15 Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 16
IOC disk	step 22
SLM disk	step 27

- 16 Locate the tape that contains the PM load files.

At the OPM cabinet

- 17 Mount the tape on a magnetic tape drive.

At the MAP display

- 18 Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 19 List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 20 Demount the tape by typing

>DEMOUNT T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 21 Go to step 32.

- 22 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.

- 23 Access the disk utility level of the MAP by typing

>DSKUT

and pressing the Enter key.

NT6X75
in an OPM HIE (continued)

- 24** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 22.
- 25** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 26** Go to step 32.
- 27** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 28** Access the disk utility level of the MAP by typing
>DISKUT
and pressing the Enter key.
- 29** List the disk volume names for both S00D and S01D by typing
>LV CM
and pressing the Enter key.
- 30** List the SLM file names into your user directory by typing
>LF volume_name
and pressing the Enter key.
where
volume_name
is the name of the volume that contains the PM load files, obtained in step 27.
- 31** Leave the disk utility by typing
>QUIT
and pressing the Enter key.
- 32** Reload the ESA processor by typing
>LOADPM
and pressing the Enter key.

If	Do
load failed	step 36
load passed	step 33

NT6X75
in an OPM HIE (end)

- 33** Return the ESA processor to service by typing
>RTS
and pressing the Enter key.

If RTS	Do
passed	step 34
failed	step 36

- 34** Send any faulty cards for repair according to local procedure.

- 35** 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 37.

- 36** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.

- 37** You have successfully completed this procedure.

NT6X75 in an RLCM HIE

Application

Use this procedure to replace the following card in an HIE shelf.

PEC	Suffixes	Name
NT6X75	AA	RLCM ESA Tone and Clock Card

Common procedures

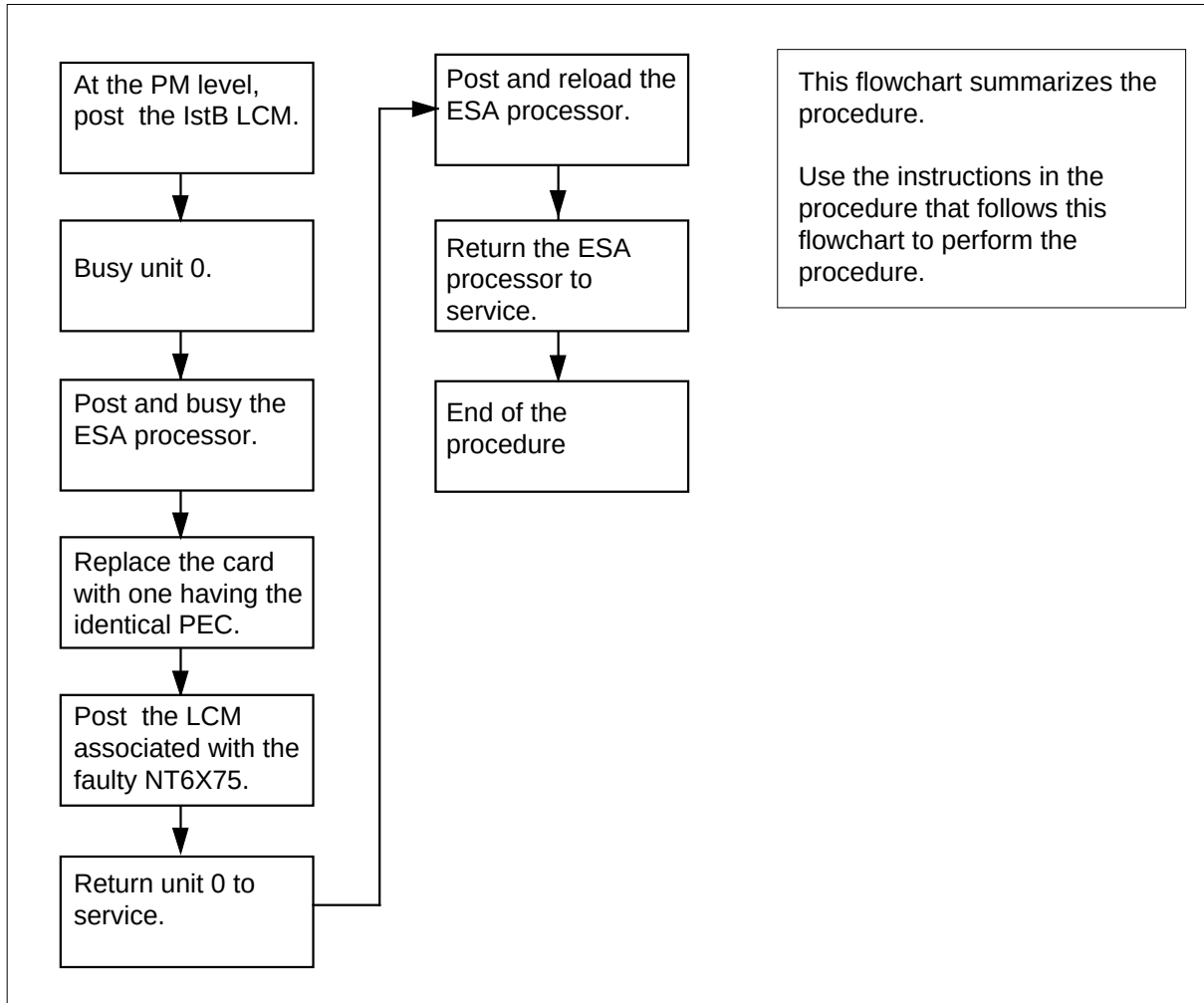
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X75 in an RLCM HIE (continued)

Summary of card replacement procedure for an NT6X75 card in an HIE



Replacing an NT6X75 card in an HIE

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 that is to be removed.
- 3 If you were directed to this procedure from another maintenance procedure, go to step 10; otherwise, continue with step 4.

NT6X75 in an RLCM HIE (continued)

At the MAP display

- 4 Post the LCM associated with the faulty NT6X75 card by typing
>MAPCI;MTC;PM;POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the location of the RLCM

frame

is the number of the RLCE

lcm

is the number of the LCM in the RLCE

- 5 Translate the links to the P-side peripherals by typing
>TRNSL P
and pressing the Enter key.

- 6 Post the Emergency Stand-Alone (ESA) processor by typing
>POST ESA esa_no
and pressing the Enter key.

where

esa_no

is the number of the ESA processor identified in step 5.

- 7 Busy the ESA processor by typing
>BSY
and pressing the Enter key.

Example of a MAP response:

This action will take this PM out of service
Please confirm ("Yes" or "No")

Respond by typing

>YES

and pressing the Enter key.

- 8 Post the LCM associated with the faulty NT6X75 card by typing
>POST LCM site frame lcm
and pressing the Enter key.

where

site

is the name of the location of the RLCM

frame

is the number of the RLCE

NT6X75 in an RLCM HIE (continued)

lcm

is the number of the LCM in the RLCE

- 9 Busy unit 0 by typing
>BSY UNIT 0
 and pressing the Enter key.

At the RLCE frame

- 10 Replace the NT6X75 card using the common replacing a card procedure in this document. When you have completed the procedure, return to step 11 of this procedure.
- 11 If you were directed to this procedure from the *Alarm Clearing Procedures*, return now to the alarm clearing procedure that directed you here. Otherwise, continue with step 12.

At the MAP terminal

- 12 Return to service unit 0 by typing
>RTS UNIT 0
 and pressing the Enter key.

If RTS	Do
passed	step 13
failed	step 36

- 13 Post the ESA processor identified in step 5 by typing
>POST ESA esa_no
 and pressing the Enter key.
where

esa_no

is the number of the ESA processor

- 14 Load the ESA processor by typing
>LOADPM
 and pressing the Enter key.

If	Do
message "loadfile not found in directory" is received	step 15
load passed	step 33
load failed	step 36

NT6X75 in an RLCM HIE (continued)

- 15 Determine the type of device on which the PM load files are located.

If load files are located on	Do
tape	step 16
IOC disk	step 22
SLM disk	step 27

- 16 Locate the tape that contains the PM load files.

At the IOE frame

- 17 Mount the tape on a magnetic tape drive.

At the MAP display

- 18 Download the tape by typing

>MOUNT tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 19 List the contents of the tape in your user directory by typing

>LIST T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 20 Demount the tape by typing

>DEMOUNT T tape_no

and pressing the Enter key.

where

tape_no

is the number of the tape drive containing the PM load files

- 21 Go to step 32.

- 22 From office records, determine and note the number of the input/output controller (IOC) disk and the name of the volume that contains the PM load files.

- 23 Access the disk utility level of the MAP by typing

>DSKUT

and pressing the Enter key.

NT6X75 in an RLCM HIE (continued)

- 24** List the IOC file names into your user directory by typing
>LISTVOL volume_name ALL
 and pressing the Enter key.
where
volume_name
 is the name of the volume that contains the PM load files, obtained in step 22.
- 25** Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
- 26** Go to step 32.
- 27** From office records, determine and note the number of the system load module (SLM) disk and the name of the volume that contains the PM load files.
- 28** Access the disk utility level of the MAP by typing
>DISKUT
 and pressing the Enter key.
- 29** List the disk volume names for both S00D and S01D by typing
>LV CM
 and pressing the Enter key.
- 30** List the SLM file names into your user directory by typing
>LF volume_name
 and pressing the Enter key.
where
volume_name
 is the name of the volume that contains the PM load files, obtained in step 27.
- 31** Leave the disk utility by typing
>QUIT
 and pressing the Enter key.
- 32** Reload the ESA processor by typing
>LOADPM
 and pressing the Enter key.

If	Do
load failed	step 36
load passed	step 33

NT6X75 in an RLCM HIE (end)

- 33** Return the ESA processor to service by typing
>RTS
and pressing the Enter key.
- | If RTS | Do |
|--------|---------|
| passed | step 34 |
| failed | step 36 |
- 34** Send any faulty cards for repair according to local procedure.
- 35** 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 37.
- 36** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.
- 37** You have successfully completed this procedure.

**NT6X76
in an RSC LCME**

Application

Use this procedure to replace an NT6X76 card in an RSCE LCME.

PEC	Suffixes	Name
NT6X76	AC	Asynchronous Interface Line card

Common procedures

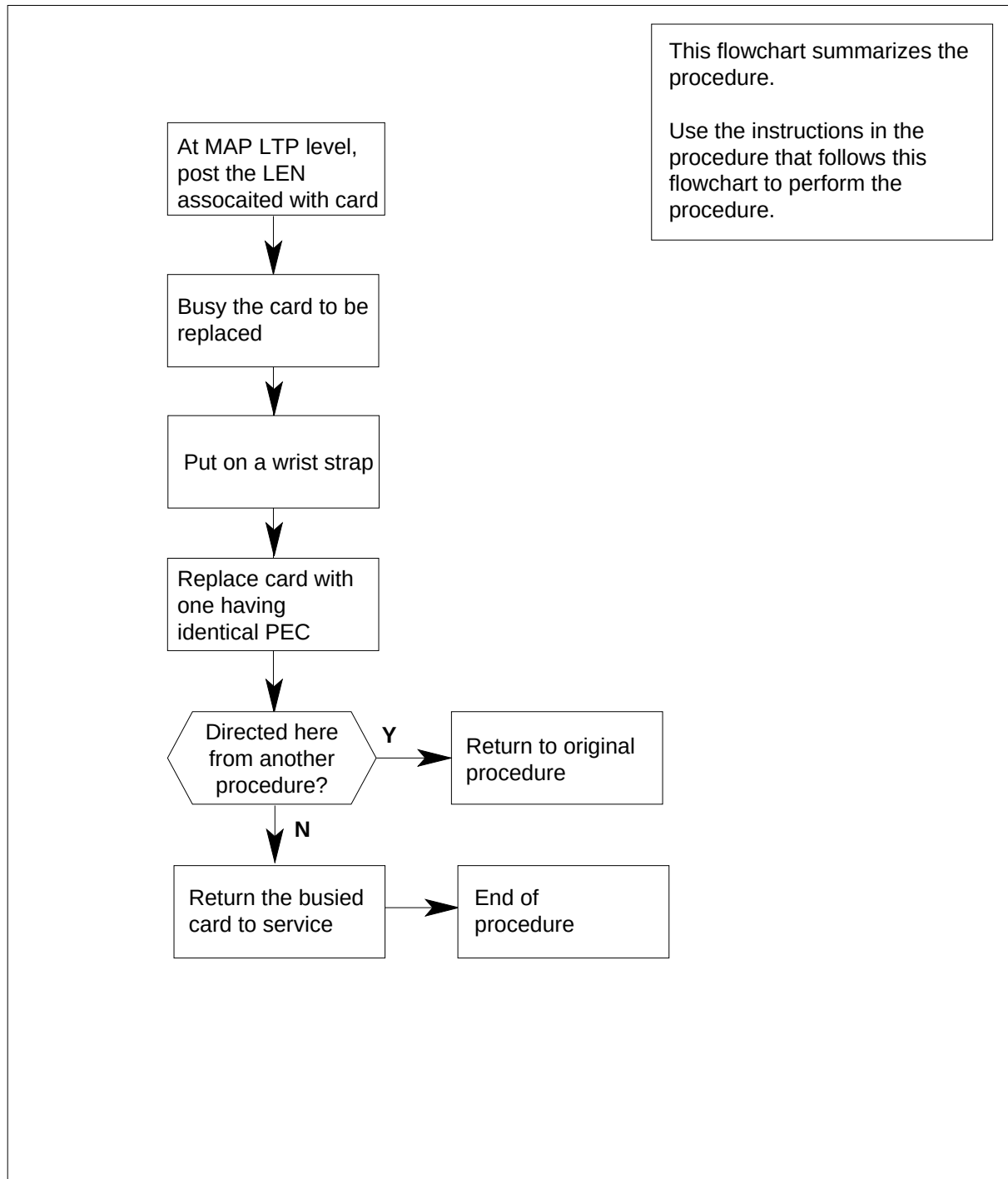
None

Action

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

NT6X76 in an RSC LCME (continued)

Summary of card replacement procedure for an NT6X76 card in RSC LCME



NT6X76 in an RSC LCME (continued)

Replacing an NT6X76 card in RSC 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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Post the LEN of the card to be replaced by typing
**>MAPCI;MTC;LNS;LTP;POST LCME site lcm(e)_no unit_no
lsg_no ckt_no**

and pressing the Enter key.

where

site

is the location name of the LCME with the faulty card

lcm(e)_no

is the number of the LCME with the faulty card

unit_no

is the number of the LCME 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

Example of a MAP response:

NT6X76 in an RSC LCME (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
LTP									
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
5	BSY								
6	RTS								
7	DIAG								
8									
9	AIMStat								
10	CKTLOC								
11	Hold								
12	Next_								
13									
14									
15									
16	Prefix								
17	LC0								
18	Level								

- 4 Busy the NT6X76 line card by typing

>BSY

and pressing the Enter key.

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
LTP									
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
5	BSY								
6	RTS								
7	DIAG								
8									
9	AIMStat								
10	CKTLOC								
11	Hold								
12	Next_								
13									
14									
15									
16	Prefix								
17	LC0								
18	Level								

NT6X76
in an RSC LCME (continued)**At the LCE frame**

5

**DANGER****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 an 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 switch frame (Northern Telecom Corporate Standard 5028).

Store and transport circuit cards in an ESD protective container.

**DANGER****Equipment damage**

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**DANGER****Hot materials**

Exercise care when handling the line card. The line feed resistor may be very hot.

**CAUTION****Special tools required**

Card shrouds and removal tools are required for removing cards from the line drawers. For descriptions of these tools, see the following notes.

NT6X76 in an RSC LCME (continued)

Put on a wrist strap.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note 1: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards. Descriptions of these shrouds follow.

Note 2: Card removal tools are required for removing cards from line drawers. Two sizes are available. Descriptions of these tools follow.

Card removal tool for	Apparatus code	Common product code
3-4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

- 6 Prepare to remove the faulty card by opening the line drawer and following these substeps:
 - a Face the drawer shelf and grasp the handle at the bottom of the drawer with your right hand.
 - b Push up on the drawer latch with your thumb and pull the drawer out until fully withdrawn. It is fully withdrawn when the drawer stop, at the top, prevents further travel.
 - c Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (1 in).
 - d While holding the drawer in this position, push the bottom of the drawer, nearest the shelf with your left hand, to a position about 1 cm (.5 in) to the right.
 - e Hold the drawer in this position with your left hand and lower the faceplate of the drawer by releasing the grip of your right hand.
 - f Ensure a card shroud and line card extractor are available.
- 7 Remove the line card to be replaced by following these substeps:
 - a 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.
 - b 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 your right hand.
 - c Squeeze the handles of the extractor together to grasp the card tightly.
 - d Hold the front cover of the line drawer to steady it using your left hand.

NT6X76 in an RSC LCME (continued)

- e Pull the extractor away from the drawer, and the card will become unplugged from its socket on the drawer backplane.
- f Continue pulling the card with the extractor until the card is clear of the shroud.
- g Insert the card removed into the ESD container and store using local procedures.
- 8 Replace the faulty card by following these substeps:
 - a Remove the replacement card from the ESD container.
 - b Slide the card in the shroud guide slots toward the drawer backplane.
 - c Hold the front cover of the line drawer with your left hand to steady it.
 - d Grasp the top and bottom edges of the card with the fingers of your right hand.
 - e Push the card toward the backplane until it plugs fully into the backplane socket.
- 9 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 14
other	step 10

At the MAP terminal

- 10 Test the NT6X76 line card by typing
>DIAG
and pressing the Enter key.

If DIAG	Do
passed	step 11
failed	step 15

- 11 Return the NT6X76 card to service by typing
>RTS
and pressing the Enter key.

If RTS	Do
passed	step 12
failed	step 15

- 12 Send any faulty cards for repair according to local procedure.

NT6X76
in an RSC LCME (end)

- 13** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 16.
- 14** Return to the procedure 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.
- 15** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.
- 16** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X76
in an RSC-S (DS-1) Model A LCME

Application

Use this procedure to replace the following card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X76	AC	Asynchronous Interface Line card

Common procedures

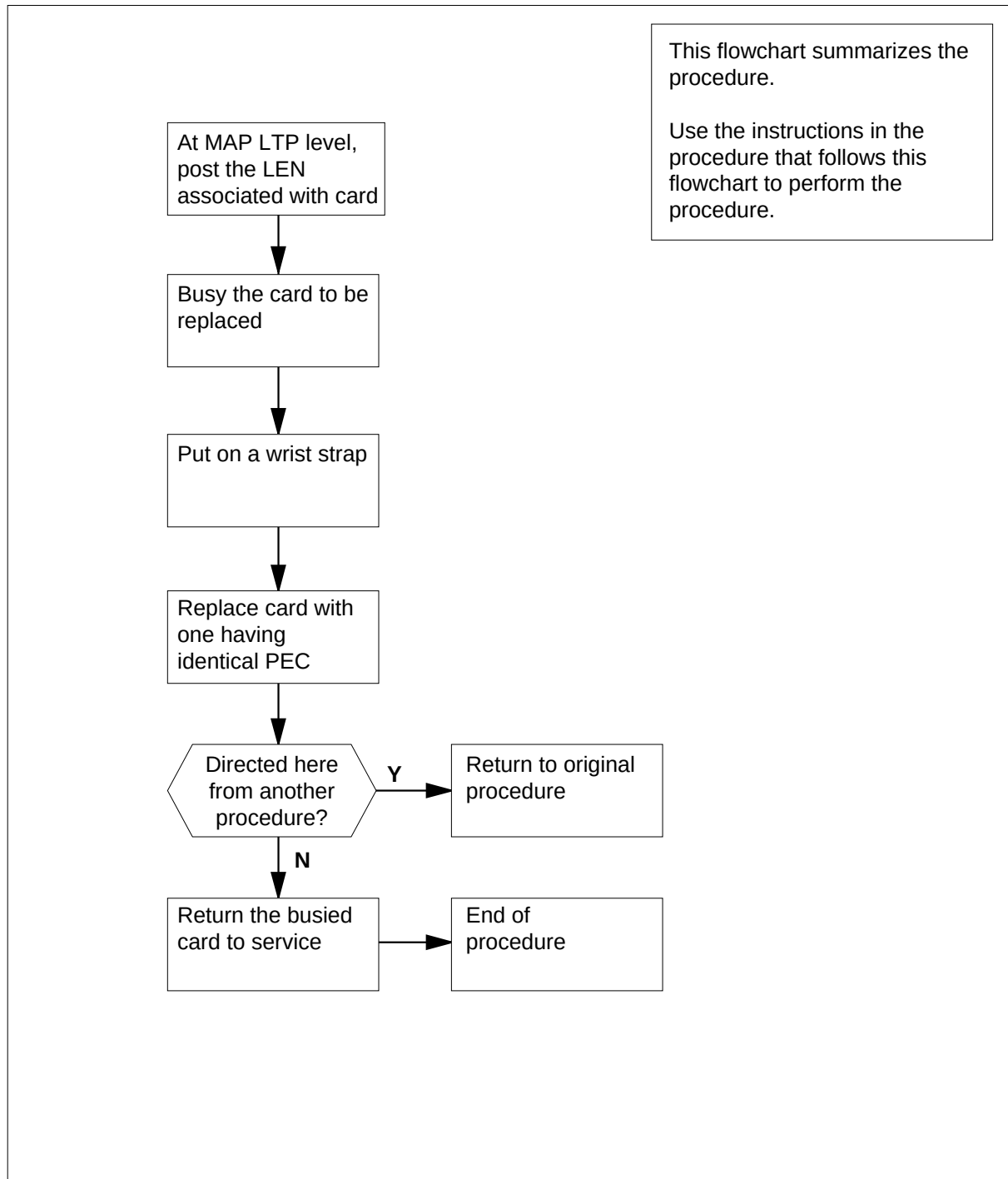
None

Action

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

NT6X76 in an RSC-S (DS-1) Model A LCME (continued)

Summary of card replacement procedure for an NT6X76 card in RSC-S LCME



NT6X76

in an RSC-S (DS-1) Model A LCME (continued)

Replacing an NT6X76 card in RSC-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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Post the LEN of the card to be replaced by typing
**>MAPCI;MTC;LNS;LTP;POST LCME site lcm(e)_nounit_no lsg_no
ckt_no**

and pressing the Enter key.

where

site

is the location name of the LCME with the faulty card

lcm(e)_no

is the number of the LCME with the faulty card

unit_no

is the number of the LCME 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

Example of a MAP display:

NT6X76
in an RSC-S (DS-1) Model A LCME (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl								
.	.	.	.	.	.	.	.	.	.								
LTP																	
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											
5	BSY																
6	RTS																
7	DIAG																
8																	
9	AIMStat																
10	CKTLOC																
11	Hold																
12	Next_																
13																	
14																	
15																	
16	Prefix																
17	LCO																
18	Level																

- 4 Busy the NT6X76 line card by typing
>BSY
and pressing the Enter key.
Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl								
.	.	.	.	.	.	.	.	.	.								
LTP																	
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											
5	BSY																
6	RTS																
7	DIAG																
8																	
9	AIMStat																
10	CKTLOC																
11	Hold																
12	Next_																
13																	
14																	
15																	
16	Prefix																
17	LCO																
18	Level																

NT6X76
in an RSC-S (DS-1) Model A LCME (continued)

At the LCE frame

5

**DANGER****Card damage—transport**

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom [Nortel] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

**DANGER****Static electricity damage**

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the frame supervisory panel (FSP) of the LCME. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**DANGER****Hot materials**

Exercise care when handling the line card. The line feed resistor may be very hot.

NT6X76 in an RSC-S (DS-1) Model A LCME (continued)



CAUTION

Special tools required

Card shrouds and removal tools are required for removing cards from the line drawers. For descriptions of these tools, refer to the following notes.

Put on a wriststrap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

- 6 Prepare to remove the faulty card by opening the line drawer and following these substeps:
 - a Face the drawer shelf and grasp the handle at the bottom of the drawer with your right hand.
 - b Push up on the drawer latch with your thumb and pull the drawer out until fully withdrawn. It is fully withdrawn when the drawer stop, at the top, prevents further travel.
 - c Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (1.0 in).
 - d While holding the drawer in this position, push the bottom of the drawer, nearest the shelf with your left hand, to a position about 1.0 cm (0.5 in) to the right.

NT6X76

in an RSC-S (DS-1) Model A LCME (continued)

- e Hold the drawer in this position with your left hand and lower the faceplate of the drawer by releasing the grip of your right hand.
- f Ensure a card shroud and line card extractor are available.
- 7 Remove the line card to be replaced by following these substeps:
 - a 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.
 - b 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 your right hand.
 - c Squeeze the handles of the extractor together to grasp the card tightly.
 - d Hold the front cover of the line drawer to steady it using your left hand.
 - e Pull the extractor away from the drawer, and the card will become unplugged from its socket on the drawer backplane.
 - f Continue pulling the card with the extractor until the card is clear of the shroud.
 - g Insert the card removed into the ESD container and store using local procedures.
- 8 Replace the faulty card by following these substeps:
 - a Remove the replacement card from the ESD container.
 - b Slide the card in the shroud guide slots toward the drawer backplane.
 - c Hold the front cover of the line drawer with your left hand to steady it.
 - d Grasp the top and bottom edges of the card with the fingers of your right hand.
 - e Push the card toward the backplane until it plugs fully into the backplane socket.
- 9 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 14
other	step 10

At the MAP terminal

- 10 Test the NT6X76 line card by typing
>DIAG
 and pressing the Enter key.

If DIAG	Do
passed	step 11
failed	step 15

NT6X76

in an RSC-S (DS-1) Model A LCME (end)

- 11** Return the NT6X76 card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 12
failed	step 15

- 12** Send any faulty cards for repair according to local procedure.

- 13** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 16.

- 14** Return to the procedure 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.

- 15** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

NT6X76
in an RSC-S (DS-1) Model B LCME

Application

Use this procedure to replace the following card in an RSC-S LCME.

PEC	Suffixes	Name
NT6X76	AC	Asynchronous Interface Line card

Common procedures

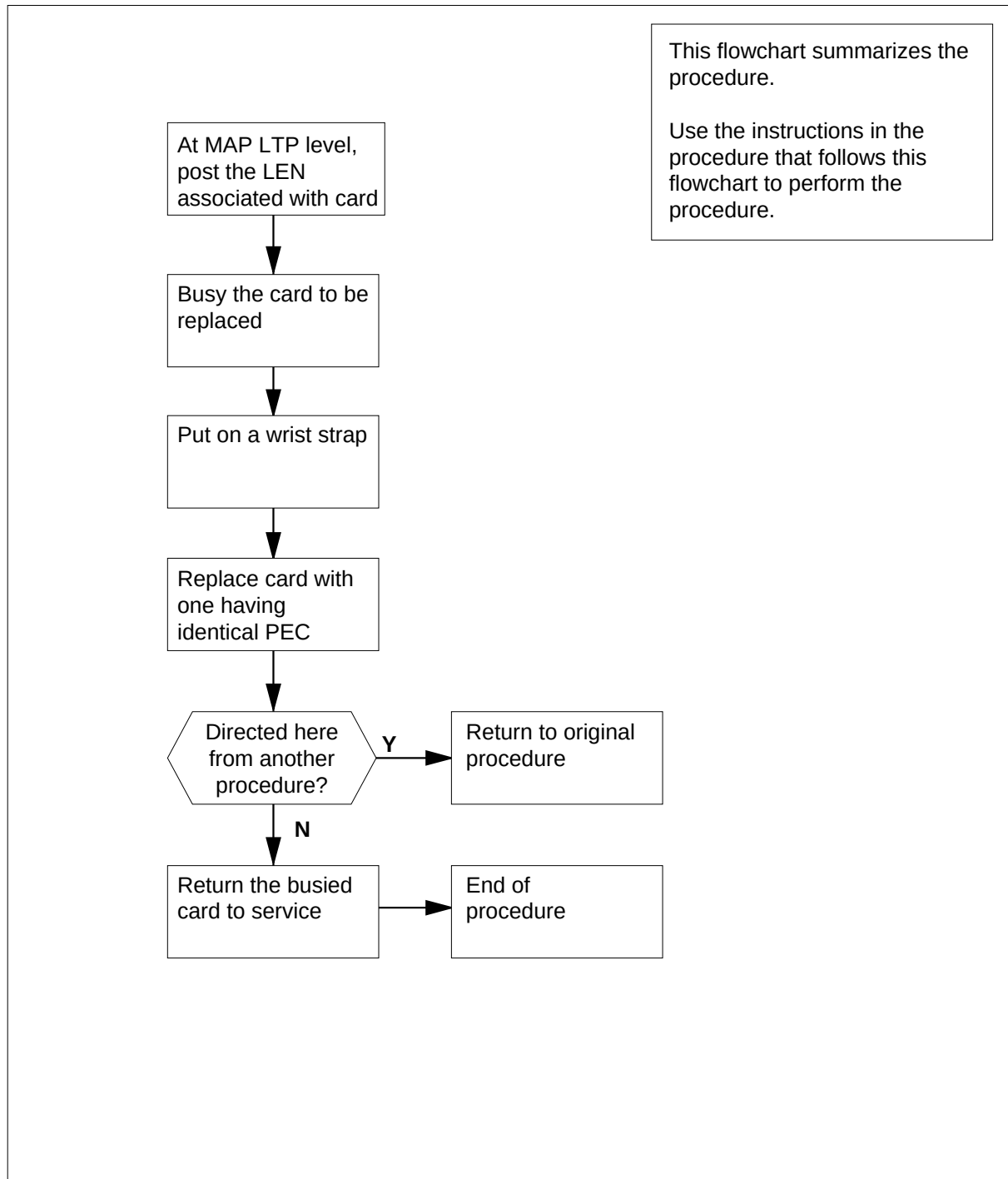
None

Action

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

NT6X76 in an RSC-S (DS-1) Model B LCME (continued)

Summary of card replacement procedure for an NT6X76 card in RSC-S LCME



NT6X76

in an RSC-S (DS-1) Model B LCME (continued)

Replacing an NT6X76 card in RSC-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 the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 Post the LEN of the card to be replaced by typing
**>MAPCI;MTC;LNS;LTP;POST LCME site lcm(e)_no unit_no
lsg_no ckt_no**

and pressing the Enter key.

where

site

is the location name of the LCME with the faulty card

lcm(e)_no

is the number of the LCME with the faulty card

unit_no

is the number of the LCME 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

Example of a MAP display:

NT6X76 in an RSC-S (DS-1) Model B LCME (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
LTP									
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	SB					
5	BSY								
6	RTS								
7	DIAG								
8									
9	AIMStat								
10	CKTLOC								
11	Hold								
12	Next_								
13									
14									
15									
16	Prefix								
17	LCO								
18	Level								

- 4 Busy the NT6X76 line card by typing

>BSY

and pressing the Enter key.

Example of a MAP display:

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	Appl
.	.	.	.	.	.	.	.	.	.
LTP									
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	MB					
5	BSY								
6	RTS								
7	DIAG								
8									
9	AIMStat								
10	CKTLOC								
11	Hold								
12	Next_								
13									
14									
15									
16	Prefix								
17	LCO								
18	Level								

NT6X76
in an RSC-S (DS-1) Model B LCME (continued)

At the LCE frame

5

**DANGER****Card damage—transport**

Take the following precautions to protect circuit cards from electrical and mechanical damage during transport:

When handling a circuit card not in an electrostatic discharge (ESD) protective container, stand on a conductive floor mat and wear a wriststrap connected, through a 1-megohm resistor, to a suitably grounded object, such as a metal workbench or a DMS switch frame (Northern Telecom [Nortel] Corporate Standard 5028). Store and transport circuit cards in an ESD protective container.

**DANGER****Static electricity damage**

Before removing any cards, put on a wriststrap and connect it to the wriststrap grounding point on the left side of the modular supervisory panel (MSP) of the LCME. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

**DANGER****Hot materials**

Exercise care when handling the line card. The line feed resistor may be very hot.

NT6X76 in an RSC-S (DS-1) Model B LCME (continued)



CAUTION

Special tools required

Card shrouds and removal tools are required for removing cards from the line drawers. For descriptions of these tools, refer to the following notes.

Put on a wrist strap.

Note: Card shrouds are required for inserting or removing cards in line drawers. Two sizes are available for use with 3-inch and 6-inch cards, as shown in the following table.

Line card insertion / withdrawal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: Card removal tools are required for removing cards from line drawers. Two sizes are available, as shown in the following table.

Card removal tool for	Apparatus code	Common product code
3—4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

- 6 Prepare to remove the faulty card by opening the line drawer and following these substeps:
 - a Face the drawer shelf and grasp the handle at the bottom of the drawer with your right hand.
 - b Push up on the drawer latch with your thumb and pull the drawer out until fully withdrawn. It is fully withdrawn when the drawer stop, at the top, prevents further travel.
 - c Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (1.0 in).
 - d While holding the drawer in this position, push the bottom of the drawer, nearest the shelf with your left hand, to a position about 1.0 cm (0.5 in) to the right.

NT6X76

in an RSC-S (DS-1) Model B LCME (continued)

- e Hold the drawer in this position with your left hand and lower the faceplate of the drawer by releasing the grip of your right hand.
- f Ensure a card shroud and line card extractor are available.
- 7 Remove the line card to be replaced by following these substeps:
 - a 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.
 - b 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 your right hand.
 - c Squeeze the handles of the extractor together to grasp the card tightly.
 - d Hold the front cover of the line drawer to steady it using your left hand.
 - e Pull the extractor away from the drawer, and the card will become unplugged from its socket on the drawer backplane.
 - f Continue pulling the card with the extractor until the card is clear of the shroud.
 - g Insert the card removed into the ESD container and store using local procedures.
- 8 Replace the faulty card by following these substeps:
 - a Remove the replacement card from the ESD container.
 - b Slide the card in the shroud guide slots toward the drawer backplane.
 - c Hold the front cover of the line drawer with your left hand to steady it.
 - d Grasp the top and bottom edges of the card with the fingers of your right hand.
 - e Push the card toward the backplane until it plugs fully into the backplane socket.
- 9 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 14
other	step 10

At the MAP terminal

- 10 Test the NT6X76 line card by typing
>DIAG
 and pressing the Enter key.

If DIAG	Do
passed	step 11
failed	step 15

NT6X76

in an RSC-S (DS-1) Model B LCME (end)

- 11** Return the NT6X76 card to service by typing

>RTS

and pressing the Enter key.

If RTS	Do
passed	step 12
failed	step 15

- 12** Send any faulty cards for repair according to local procedure.

- 13** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 16.

- 14** Return to the procedure 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.

- 15** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

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

**NT6X76
in a STAR or RLD**

Application

Use this procedure to replace an NT6X76 card in a STAR or remote line drawer (RLD).

PEC	Suffixes	Name
NT6X76	AA, AC, AD	Asynchronous interface line card

Common procedures

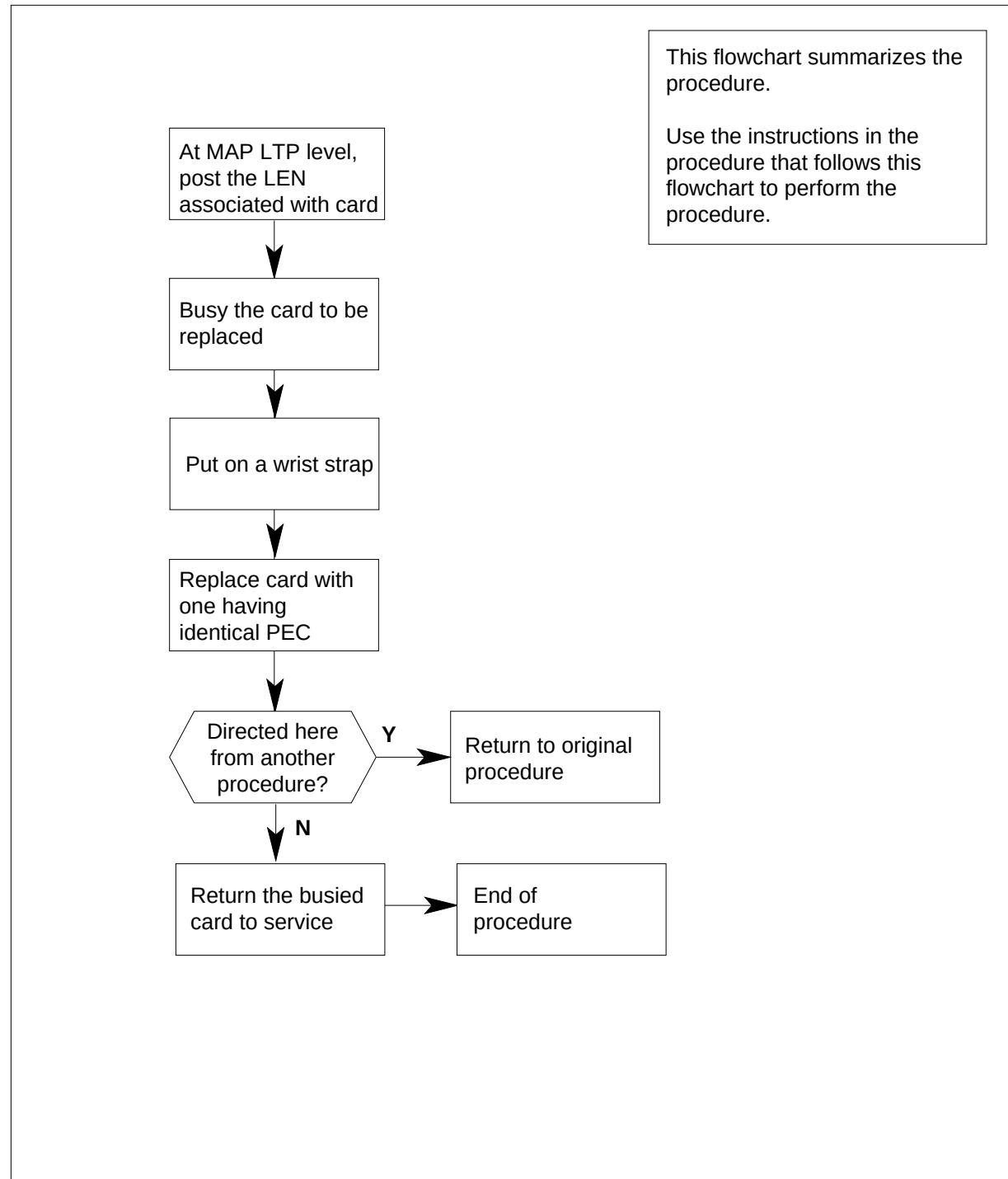
None

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.

NT6X76 in a STAR or RLD (continued)

Summary of card replacement procedure for an NT6X76 card in a STAR or RLD



NT6X76 in a STAR or RLD (continued)

Replacing an NT6X76 card in a STAR or RLD

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 Get a replacement card. Make sure the replacement card has the same product equipment code (PEC), including suffix, as the card that is to be removed.

At the MAP terminal

- 3 To post the LEN of the card to be replaced, type
>MAPCI;MTC;LNS;LTP; POST STAR site frame unit lsg ckt
 and press the Enter key.

where

site

is the name of the site where the STAR is located

frame

is the frame number of the STAR with the faulty card (0 to 511)

unit

is 0 for the STAR

lsg

is the number of the line subgroup with the faulty card (0 to 35)

ckt

is the number of the circuit associated with the faulty card (0 to 31)

Example of a MAP response:

Post	DELQ	BUSYQ	PREFIX
LCC PTY RNG....LEN...		DN	STA F S LTA TE RESULT
CKT TYPE FL	HOST 00 0 03 03		

- 4 To busy the NT6X76 line card, type

>BSY

and press the Enter key.

Example of a MAP display:

Post	DELQ	BUSYQ	PREFIX
LCC PTY RNG....LEN.....		DN	STA F S LTA TE RESULT
CKT TYPE FL	HOST 00 0 03 03		

NT6X76 in a STAR or RLD (continued)

At the SRHE frame

5



DANGER

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 an 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 switch frame (Nortel Networks Corporate Standard 5028).

Store and transport circuit cards in an ESD protective container.



DANGER

Equipment damage

Take these precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.



DANGER

Hot materials

Exercise care when handling the line card. The line feed resistor may be very hot.



CAUTION

Special tools required

Card shrouds and removal tools are required for removing cards from the line drawers. For descriptions of these tools, see the following notes.

NT6X76 in a STAR or RLD (continued)

Put on a wrist strap.

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

Line card insertion / removal tool for	Apparatus code	Common product code
3-inch cards	QTH56A	A0298291
6-inch cards	QTH58A	A0313317

Note: The card removal tool is required for removing cards from line drawers. A descriptions of this tool follows.

Card removal tool for	Apparatus code	Common product code
3-4 inch cards	QTH57A	A0298292
Note: For 4-inch or larger cards, use the large grip tool ITA9953.		

- 6 To prepare to remove the card with faults, open the line drawer and follow these substeps:
 - a Face the drawer shelf and grasp the handle at the bottom of the drawer with your right hand.
 - b Push up on the drawer latch with your thumb and pull the drawer out until fully withdrawn. It is fully withdrawn when the drawer stop, at the top, prevents further travel.
 - c Maintain a slight pull on the handle and lift the faceplate of the drawer approximately 2.5 cm (1 in).
 - d While holding the drawer in this position, push the bottom of the drawer nearest the shelf, with your left hand, to a position about 1 cm (.5 in) to the right.
 - e Hold the drawer in this position with your left hand and lower the faceplate of the drawer by releasing the grip of your right hand.
 - f Make sure a card shroud and line card extractor are available.
- 7 To remove the line card to be replaced, follow these substeps:
 - a 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.
 - b 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 your right hand.
 - c Squeeze the handles of the extractor together to grasp the card tightly.
 - d Hold the front cover of the line drawer to steady it using your left hand.

NT6X76

in a STAR or RLD (continued)

- e Pull the extractor away from the drawer and the card will become unplugged from its socket on the drawer backplane.
 - f Continue pulling the card with the extractor until the card is clear of the shroud.
 - g Insert the card removed into the ESD container and store using local procedures.
- 8 To replace the card with faults, follow these substeps:
 - a Remove the replacement card from the ESD container.
 - b Slide the card in the shroud guide slots toward the drawer backplane.
 - c Hold the front cover of the line drawer with your left hand to steady it.
 - d Grasp the top and bottom edges of the card with the fingers of your right hand.
 - e Push the card toward the backplane until it plugs fully into the backplane socket.
- 9 Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 14
other	step 10

At the MAP terminal

- 10 To test the NT6X76 line card, type
>DIAG
and press the Enter key.

If DIAG	Do
passes	step 11
fails	step 15

- 11 To return the NT6X76 card to service, type
>RTS
and press the Enter key.

If RTS	Do
passes	step 12
fails	step 15

- 12 Send any faulty cards for repair according to local procedure.

NT6X76
in a STAR or RLD (end)

- 13** Record the following items in office records:
- date the card was replaced
 - serial number of the card
 - indications that prompted replacement of the card
- Go to step 16.
- 14** Return to the procedure 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.
- 15** Get additional help replacing this card by contacting the personnel responsible for a higher level support.
- 16** You have correctly completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X78 in an RSC-M

Application

Note: In the examples of this section RSC-M refers to RCO2. When software outputs messages to the MAP terminal the software does not differentiate between the two types of RCO2.

PEC	Suffixes	Name
NT6X78	AB	CLASS Modem Resource

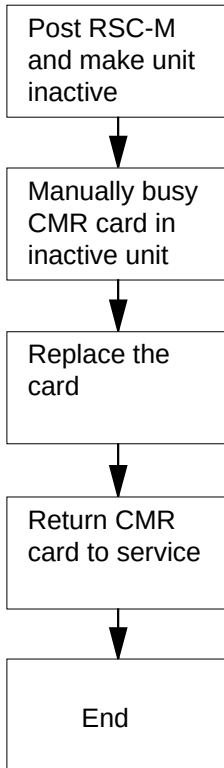
Common procedures

This section refers to the following procedures:

- replacing a card
- returning a card

Action

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

NT6X78
in an RSC-M (continued)**Summary of replacing an NT6X78 in an RSC-M**

This flowchart is a summary of the procedure.

Use the flowchart to review the procedure. Follow the steps to perform the procedure.

NT6X78 in an RSC-M (continued)

Summary of replacing an NT6X78 in an RSC-M

At the MAP display:

- 1 Proceed if one the following conditions apply:
 - a step in a maintenance procedure directs you to this card
 - you use this procedure to verify or accept cards
 - your maintenance support group directs you to this procedure.
- 2



WARNING

Loss of service

When you replace a card in the RSC-M, make sure the unit in which you replace the card is *inactive* and the mate unit is *active*.

Obtain an NT6X78 replacement circuit card. Make sure the replacement circuit has the same product engineering code (PEC) and PEC suffix, as the circuit card to be removed.

At the MAP terminal

- 3 To access the peripheral module (PM) level of the MAP display and to post the RSC-M/RCO2 with the defective card, type:

>MAPCI;MTC;PM;POST RCO2 rco2_no

and press the Enter key.

where

rco2_no

is the PM number zero to 255

Example of a MAP response:

	SysB	ManB	OffL	CBsy	ISTb	InSv
PM	0	0	5	0	1	
RCO2	0	0	0	0	0	0

RCO2 0 InSv Links_00S: CSide 1 , PSide 0
 Unit0: Inact InSv
 Unit1: Act ISTb

- 4 To determine the location of the RCO2 that contains the NT6X78 circuit card you are to replace, type:

>QUERYPM

and press the Enter key.

NT6X78

in an RSC-M (continued)

Example of a MAP response:

```
PM Type: RC02 PM No.: 0 PM Int. No.: 9 Node_No: 24
PMs Equipped: 53 Loadname: UK00ADU6 EEPROM Load:
BNK0N205
WARM SWACT is supported and available
RC02 0 is included in the REX schedule.
REX on RC02 0 has not been performed.
Node Status: {OK, FALSE}
Unit 0 Act, Status: {OK, FALSE}
Unit 1 Inact, Status: {OK, FALSE}
Site Flr RPos Bay_id Shf Description Slot EqPEC
RSC-M 00 C02 RSC-M 00 05 RC02: 000 MX85AA
RSC-M 00 C02 RSC-M 00 47 EXT:LEFT 01:13 MX86AA
```

- 5 Check the MAP display to make sure the circuit card you are to remove is on the inactive unit.

If defective card is on the	Do
active unit	step 6
inactive unit	step 8

- 6 To switch activity of the units, type:

>SWACT

and press the Enter key.

Example of a MAP response:

```
RC02 0      A Warm SwAct will be performed after
             data sync of active terminals.
Please confirm ("YES", "Y", "NO", or "N"):
```

If	Do
the system prompts you to confirm a warm Switch of Activity (SWACT)	step 7
the system rejects the SWACT	step 20

- 7 To confirm the command, type:

>YES

and press the Enter key.

Example of a MAP response:

NT6X78 in an RSC-M (continued)

```
Unit0:   Inact SysB Mtce
Unit1:   Act   ISTb
```

```
RCO2 0      SwAct Passed
```

Note: A maintenance flag (Mtce) can appear. This Mtce indicates system-initiated maintenance tasks are in progress. Wait until the flag disappears from the status lines for both PM units before you proceed to the next step.

If the MAP response is	Do
is SWACT passed	step 8
is other than listed here	step 19

- 8 To busy the inactive unit, type:
>BSY UNIT unit_no CMR
and press the Enter key.
where
unit_no
is the number of the inactive RCO2 unit zero or one

At the cabinet

- 9 Place a sign with the words *Active unit-Do not touch* on the active unit. Do not attach the sign with magnets or tape.

At the shelf

10



WARNING

Static electricity damage

Wear with a strap that connects the wrist-strap grounding modular supervisory panel (MSP) to handle circuit cards. The wrist strap protects the cards against static electricity damage.

Locate the circuit card to be replaced.

Note: The NT6X78 circuit cards, are in slot five of unit zero, and slot 23 of unit one.

- 11 To replace the card, use the common replacing a card procedure in this document. Complete the procedure and return to this point.

Note: If the circuit card you replace has switches, make sure the switches on the replacement circuit card have the same settings.

NT6X78 in an RSC-M (continued)

- 12** Use the following information to determine the next step:

If you	Do
are directed to this procedure from a maintenance procedure	step 13
are not directed to this procedure from a maintenance procedure	step 14

- 13** Remove the sign from the active unit. Return to the maintenance procedure that sent you to this procedure and continue as directed.

- 14** To load the CLASS modem resource (CMR) in the inactive RCO2 unit, type:

>LOADPM UNIT unit_no CC CMR

and press the Enter key.

where

unit_no
is the number of the inactive RCO2 unit

If LOAD	Do
passes	step 15
fails	step 19

- 15** To return to service (RTS) the CMR in the inactive RCO2 unit, type:

>RTS UNIT unit_no CMR

and press the Enter key.

where

unit_no
is the number of the RCO2 unit loaded in step 15

If RTS	Do
passes	step 16
fails	step 19

At the cabinet

- 16** Remove the sign from the active RCO2 unit.
- 17** Go to the common returning a card procedure in this document.
- 18** This procedure is complete. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 19** For additional help, contact the next level of support.

NT6X78
in an RSC-M (end)

- 20 For additional help with the SWACT, contact the the next level of support.

Note: The system can recommend the use of the SWACT command with the FORCE option. If this condition occurs, contact office personnel to determine if use of the FORCE option is correct.

NT6X78
in an RSC RCC/RCC2

Application

Use this procedure to replace the following card in a Remote Switching Center (RSC) Remote Cluster Controller (RCC).

Note: This procedure is used to replace a card in an RCC or an RCC2. In this procedure the term RCC refers to both the RCC in an RSC frame, NT6X10, and an RCC2 in an RSCE cabinet, NTMX89.

PEC	Suffixes	Name
NT6X78	AB , BA	CLASS modem resource (CMR)

Common procedures

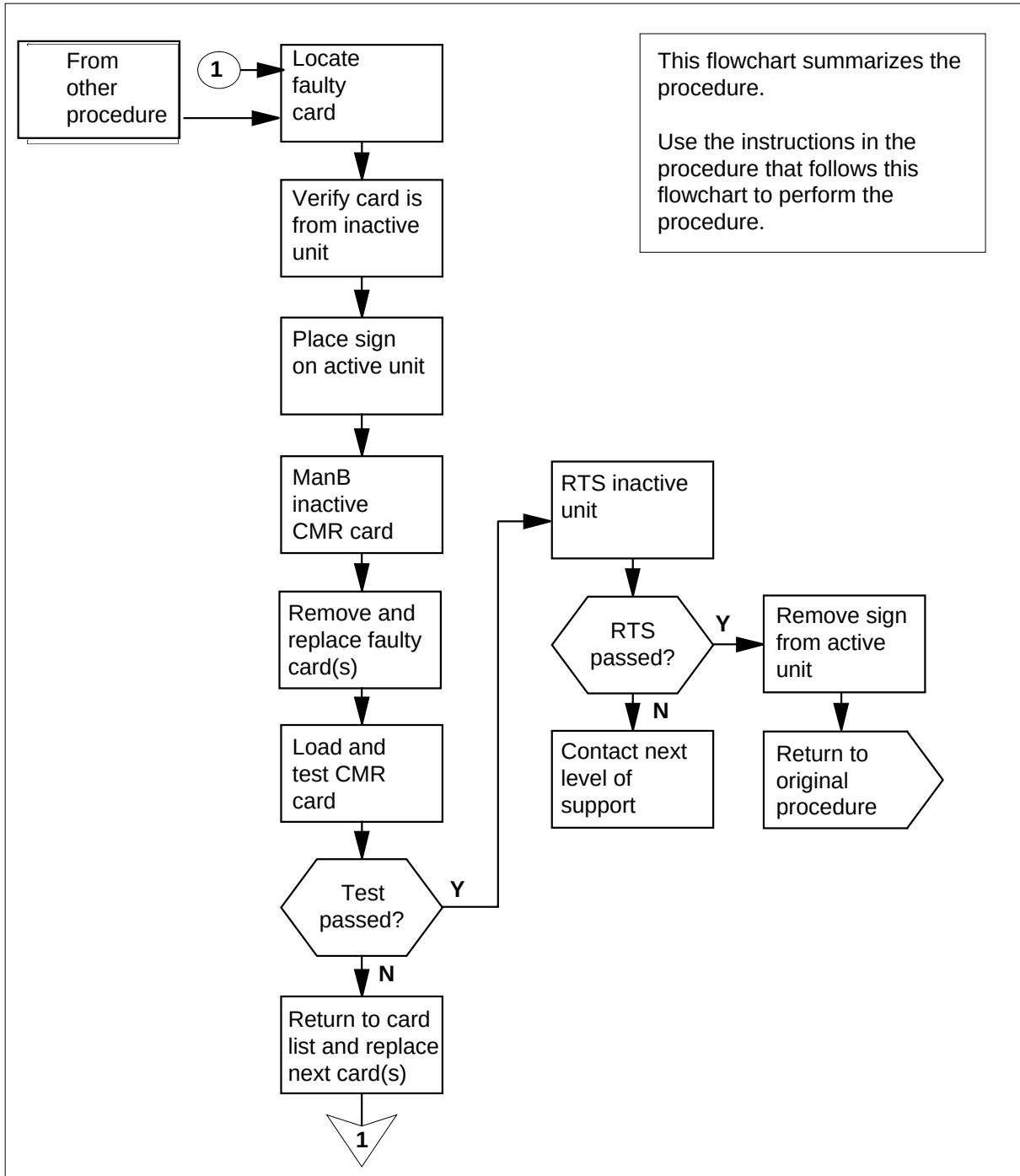
None

Action

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

NT6X78 in an RSC RCC/RCC2 (continued)

Summary of card replacement procedure for an NT6X78 card in an RSC RCC



NT6X78 in an RSC RCC/RCC2 (continued)

Replacing an NT6X78 card in an RSC RCC

At your Current Location

- 1 Proceed only if you were either directed to this card replacement procedure from a step in a maintenance procedure, are using the procedure to verify or accept cards, or were directed to this procedure by your maintenance support group.
- 2



CAUTION

Loss of service

When replacing a card in the RCC ensure the unit in where you are replacing the card is **INACTIVE** and that the mate unit is **ACTIVE**.

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

At the MAP display

- 3 Access the PM level and post the RCC by typing
>MAPCI;MTC;PM;POST RCC rcc_unit_no
and pressing the Enter key.
where
rcc_unit_no
is the number of the RCC unit to be busied (0 or 1)
Example of a MAP display:

NT6X78

in an RSC RCC/RCC2 (continued)

CM	MS	IOD	Net	PM	CCS	LNS	Trks	Ext	APPL
.	.	.	.	1RCC	.	.	.	.	.
RCC			SysB	ManB	OffL	CBsy	ISTb	InSv	
0 Quit	PM		0	0	2	0	2	25	
2 Post_	RCC		0	0	0	0	1	1	
3 ListSet									
4	RCC		0 ISTb	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 IRLINK									
17 Perform									
18									

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

At the RCE frame

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

At the MAP display

- 6 Busy the CMR card on the inactive RCC unit by typing

>BSY UNIT rcc_unit_no CMR

and pressing the Enter key.

where

rcc_unit_no

is the number of the inactive RCC unit (0 or 1)

NT6X78
in an RSC RCC/RCC2 (continued)*At the RCE frame*

7

**WARNING****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 RCC. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

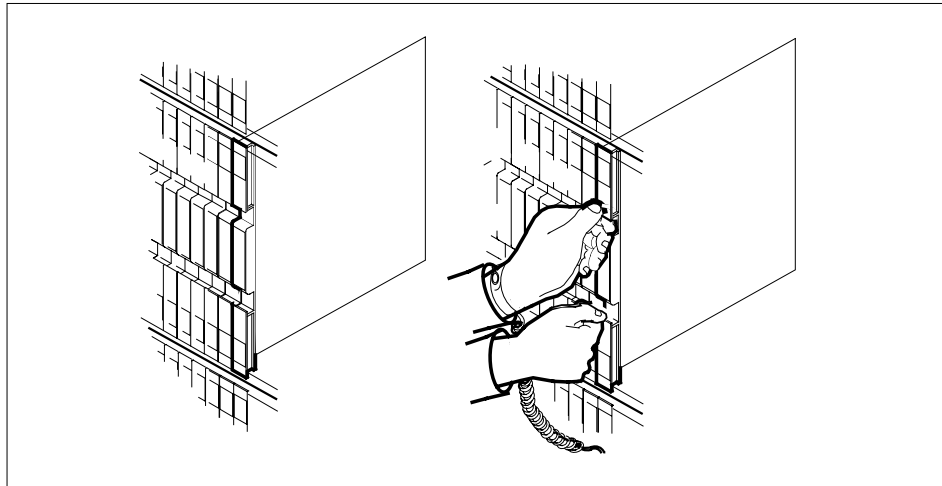
Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

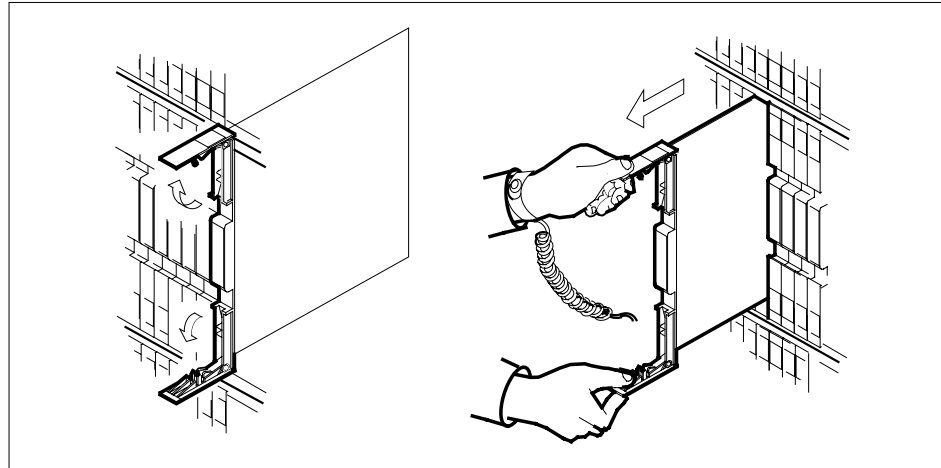
8 Remove the NT6X78 card as shown in the following figures.

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

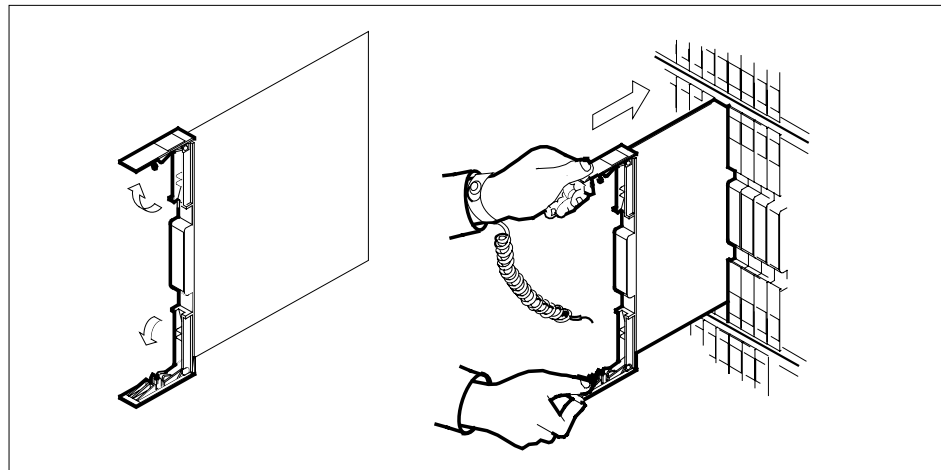


b Open the locking levers on the card to be replaced and gently pull the card towards you until it clears the shelf.

NT6X78 in an RSC RCC/RCC2 (continued)

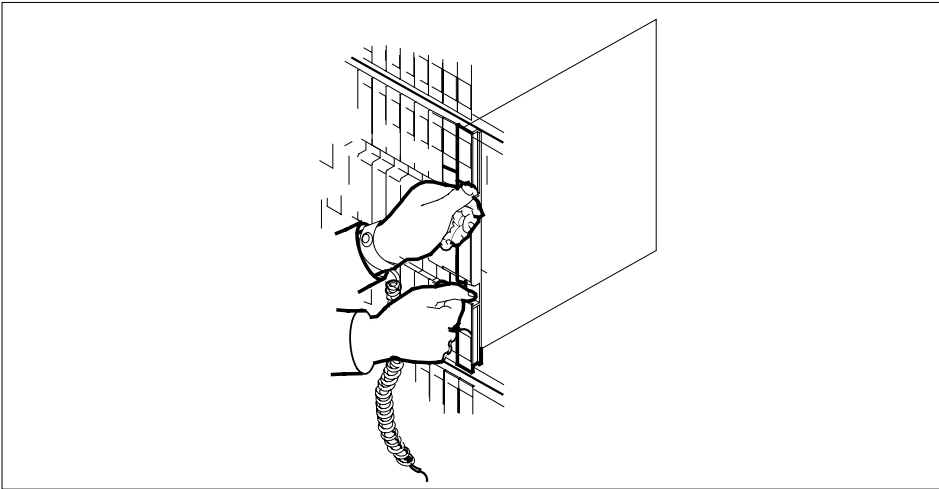


- c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.
- 9 Open the locking levers on the replacement card.
 - a Align the card with the slots in the shelf and gently slide the card into the shelf.



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

NT6X78
in an RSC RCC/RCC2 (continued)



At the MAP display

- 11** After replacing the faulty card, load the CMR card on the inactive RCC unit by typing
>LOADPM UNIT rcc_unit_no CC CMR
and pressing the Enter key.
where
rcc_unit_no
is the number of the RCC unit busied in step 6

If load	Do
passed	step12
failed	step 16

- 12** Return the CMR card on the inactive RCC unit to service by typing
>RTS UNIT rcc_unit_no CMR
and pressing the Enter key.
where
rcc_unit_no
is the number of the RCC unit where the CMR was loaded in step 11 .

If the RTS	Do
passed	step13
failed	step 16

NT6X78

in an RSC RCC/RCC2 (end)

- 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 cardGo to step 17.
- 15** Return to the *Alarm Clearing Procedure* that directed you to this procedure. If necessary, go to the point where the 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.
- 16** Obtain further assistance in replacing this card by contacting personnel responsible for higher level of support.
- 17** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X78 **in an RSC-S (DS-1) Model A RCC2**

Application

Use this procedure to replace an NT6X78 card in an Remote Switching Center (RSC)-SONET Remote Cluster Controller (RCC) 2.

PEC	Suffixes	Name
NT6X78	AA, AB, BA	CLASS Modem Resource (CMR)

Common procedures

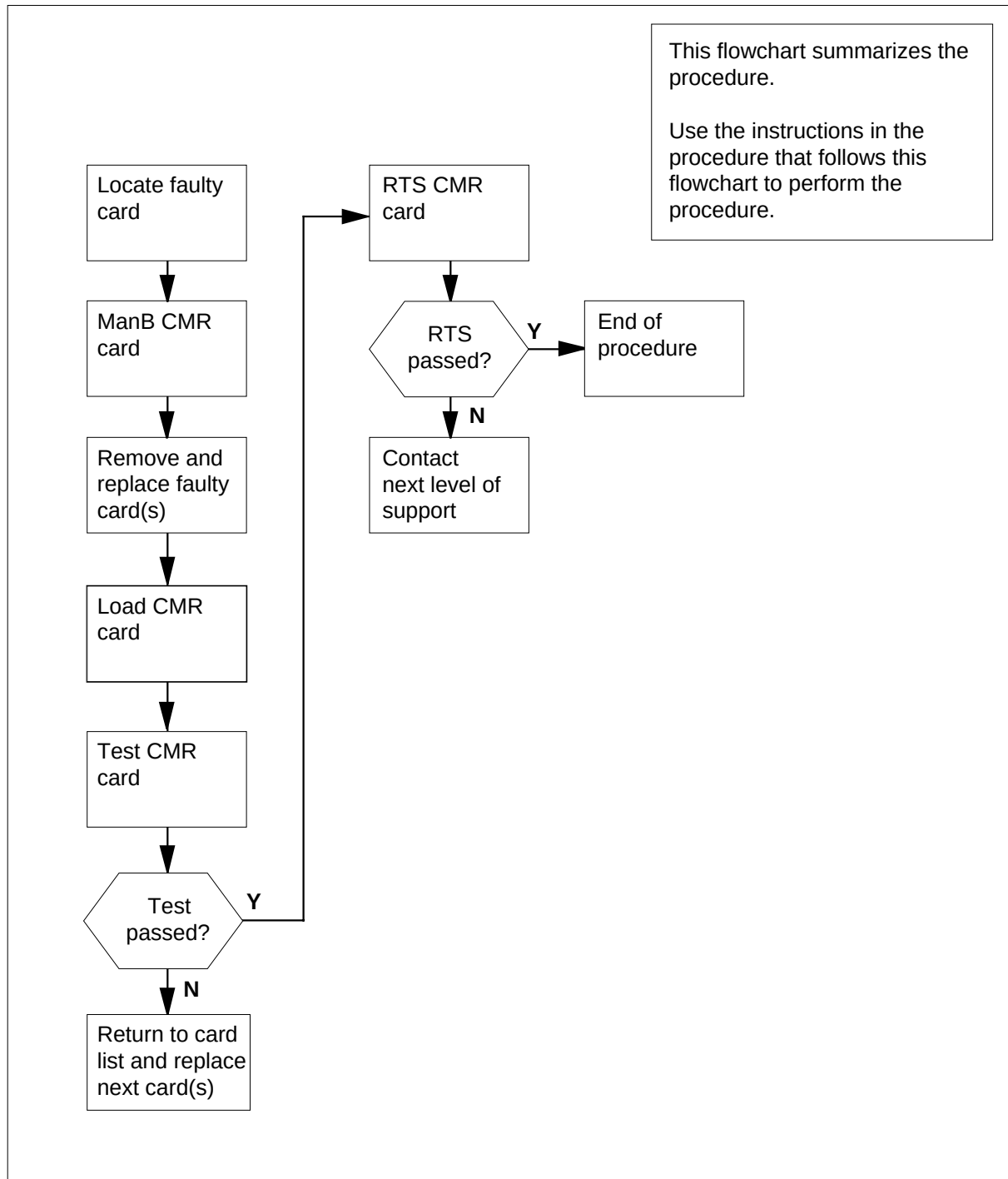
None

Action

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

NT6X78 in an RSC-S (DS-1) Model A RCC2 (continued)

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



NT6X78

in an RSC-S (DS-1) Model A RCC2 (continued)

Replacing an NT6X78 card in an RSC-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 an NT6X78 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 PM level and find out which RCC2 is ISTb by typing
>MAPCI;MTC;PM;DISP ISTB RCC2
 and pressing the Enter key.
- 4 Access the ISTb RCC2 by typing
>POST RCC2 rcc2_no
 and pressing the Enter key.
where
 rcc2_no
 is the number of the ISTB RCC2 identified in step 4.
- 5 Busy the CLASS modem resource (CMR) card by typing
>bsy UNIT unit_no CMR
 and pressing the Enter key.
where
 unit_no
 is the number of the unit containing the faulty CMR card

NT6X78 in an RSC-S (DS-1) Model A RCC2 (continued)

At the RCE

6



WARNING

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 (FSP) of the RCC2. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

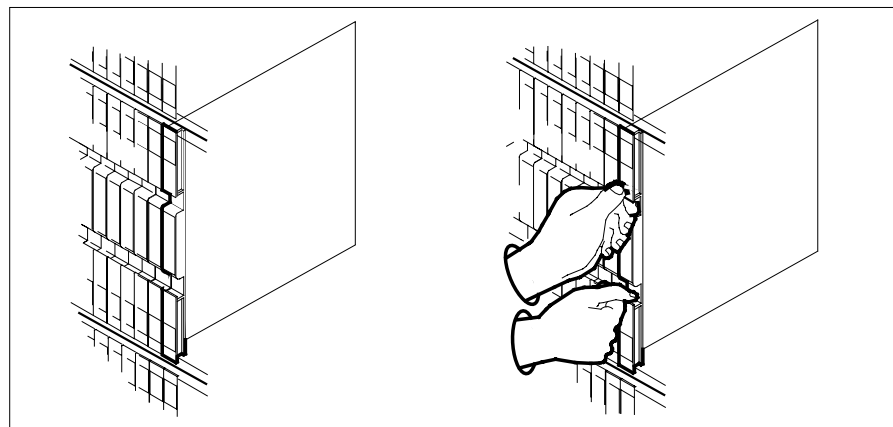
Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

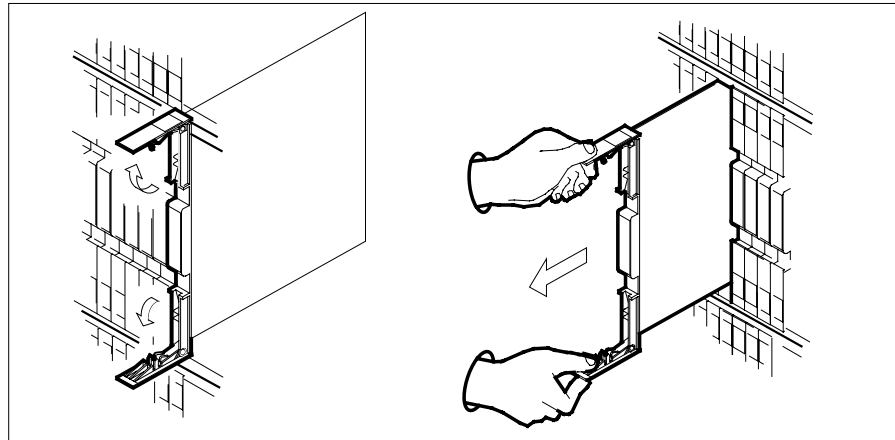
7 Remove the NT6X78 card as shown in the following figures.

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



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

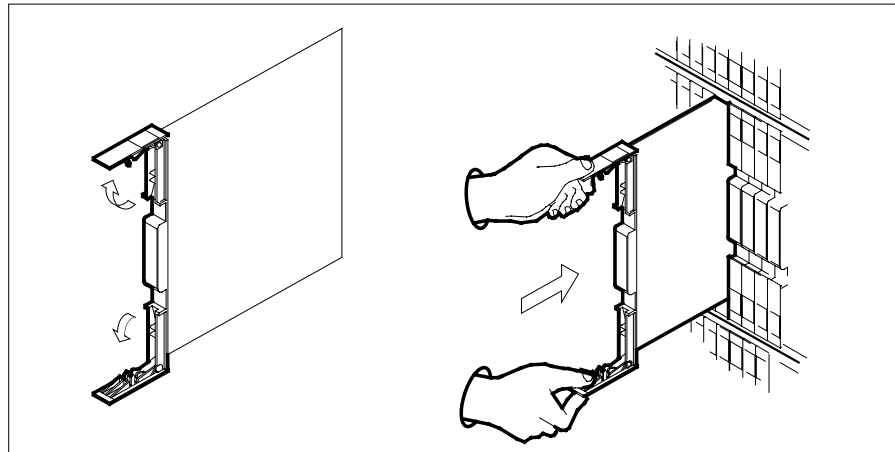
NT6X78
in an RSC-S (DS-1) Model A RCC2 (continued)



- c** Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

8 Open the locking levers on the replacement card.

- a** Align the card with the slots in the shelf.
- b** Gently slide the card into the shelf.

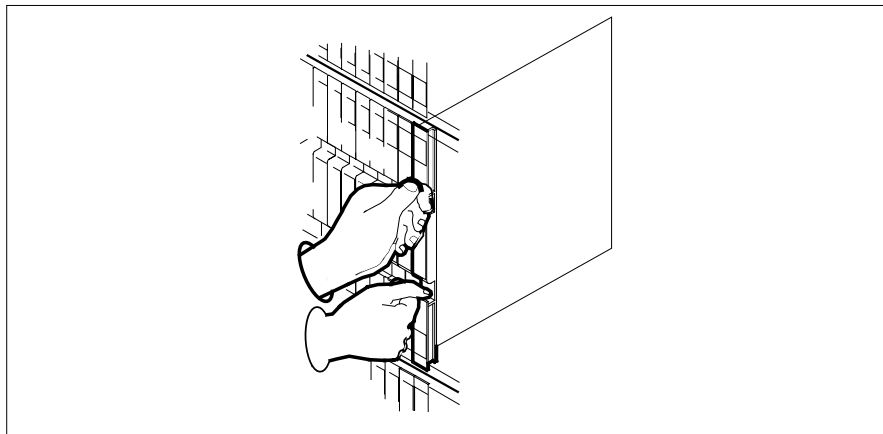


9 Seat and lock the card.

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

NT6X78

in an RSC-S (DS-1) Model A RCC2 (continued)



At the MAP terminal

- 10** Load the CMR card by typing
>loadpm unit unit_no CMR
and pressing the Enter key.

where

unit_no

is the number of the unit containing the faulty CMR card

If LOADPM	Do
passed	step 11
failed	step 17

- 11** Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 16
other	step 12

- 12** Test the CMR card by typing
>TST UNIT unit_no CMR
and pressing the Enter key.
where

NT6X78

in an RSC-S (DS-1) Model A RCC2 (end)

unit_no

is the number of the unit containing the faulty CMR card

If TST

Do

passed

step 13

failed

step 17

- 13** Return the CMR card to service by typing

>RTS UNIT unit_no CMR

and pressing the Enter key.

where

unit_no

is the number of the unit containing the faulty CMR card

If RTS

Do

passed

step 14

failed

step 17

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

- 15** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 18.

- 16** Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.

- 17** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

- 18** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X78 in an RSC-S (DS-1) Model B RCC2

Application

Use this procedure to replace an NT6X78 card in a Remote Switching Center (RSC)-SONET Remote Cluster Controller (RCC) 2.

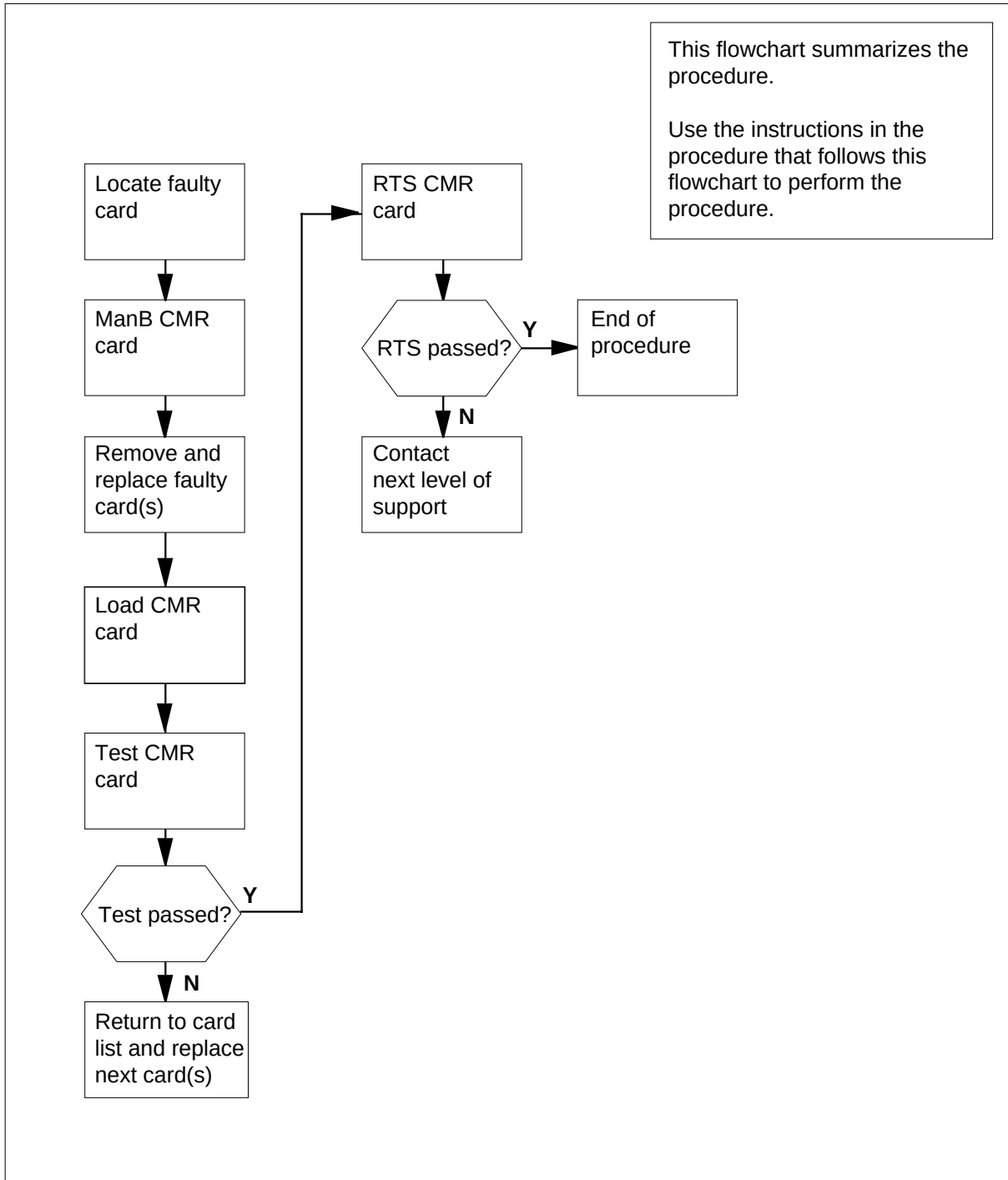
PEC	Suffixes	Name
NT6X78	AA, AB, BA	CLASS Modem Resource (CMR)

Common procedures

None

Action

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

NT6X78
in an RSC-S (DS-1) Model B RCC2 (continued)**Summary of card replacement procedure for an NT6X78 card in RSC-S RCC2**

NT6X78 in an RSC-S (DS-1) Model B RCC2 (continued)

Replacing an NT6X78 card in an RSC-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 an NT6X78 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 PM level and find out which RCC2 is ISTb by typing
>MAPCI;MTC;PM;DISP ISTB RCC2
and pressing the Enter key.
- 4 Access the ISTb RCC2 by typing
>POST RCC2 rcc2_no
and pressing the Enter key.
where
rcc2_no
is the number of the ISTB RCC2 identified in step 4.
- 5 Busy the CMR card by typing
>bsy UNIT unit_no CMR
and pressing the Enter key.
where
unit_no
is the number of the unit containing the faulty CMR card

NT6X78
in an RSC-S (DS-1) Model B RCC2 (continued)

At the RCE

6

**WARNING****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 modular supervisory panel (MSP) of the RCC2. This protects the equipment against damage caused by static electricity.

**DANGER****Equipment damage**

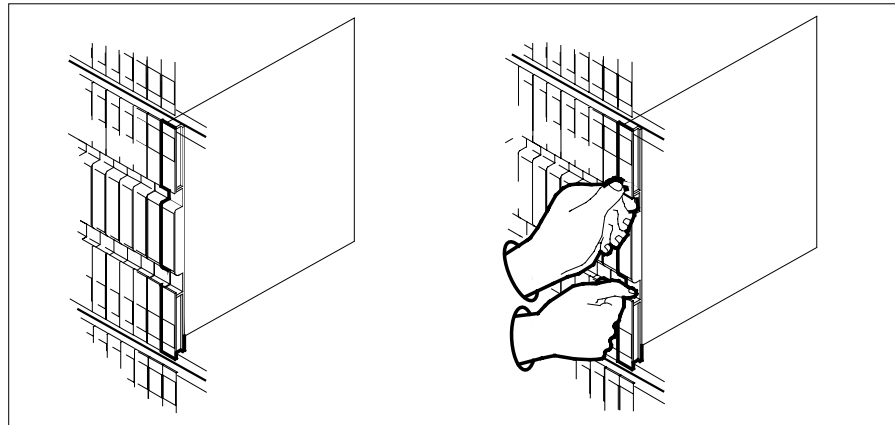
Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

7 Remove the NT6X78 card as shown in the following figures.

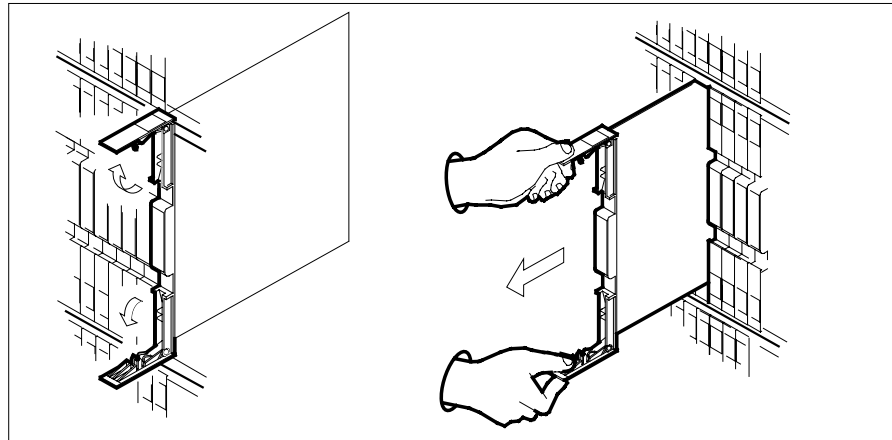
a Locate the card to be removed on the appropriate shelf.



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

NT6X78

in an RSC-S (DS-1) Model B RCC2 (continued)

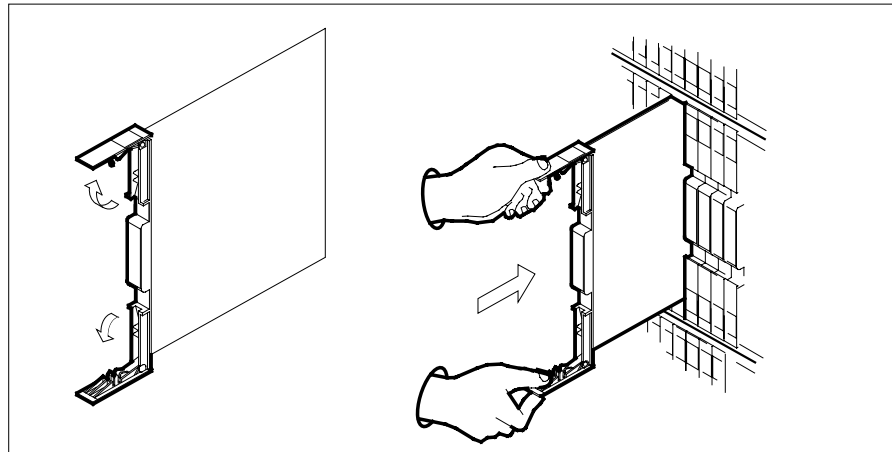


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

8 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

b Gently slide the card into the shelf.

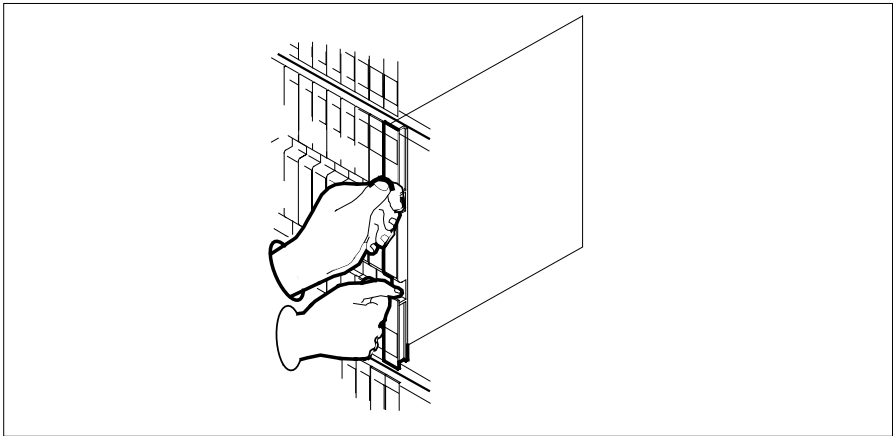


9 Seat and lock the card.

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

b Close the locking levers.

NT6X78
in an RSC-S (DS-1) Model B RCC2 (continued)



At the MAP terminal

- 10** Load the CMR card by typing
>loadpm unit unit_no CMR
and pressing the Enter key.
where
 unit_no
 is the number of the unit containing the faulty CMR card

If LOADPM	Do
passed	step 11
failed	step 17

- 11** Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 16
other	step 12

- 12** Test the CMR card by typing
>TST UNIT unit_no CMR
and pressing the Enter key.
where

NT6X78

in an RSC-S (DS-1) Model B RCC2 (end)

unit_no

is the number of the unit containing the faulty CMR card

If TST

Do

passed

step 13

failed

step 17

-
- 13** Return the CMR card to service by typing

>RTS UNIT unit_no CMR

and pressing the Enter key.

where

unit_no

is the number of the unit containing the faulty CMR card

If RTS

Do

passed

step 14

failed

step 17

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

- 15** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 18.

- 16** Return to the procedure that directed you to this procedure. At 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 *Card Replacement Procedures*.

- 17** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

- 18** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X78

in an RSC-S (PCM-30) Model A RCO2

Application

Use this procedure to replace an NT6X78 card in a Remote Switching Center (RSC)-SONET Remote Switching Center Offshore (RCO)2.

PEC	Suffixes	Name
NT6X78	AA, AB, BA	CLASS Modem Resource (CMR)

Common procedures

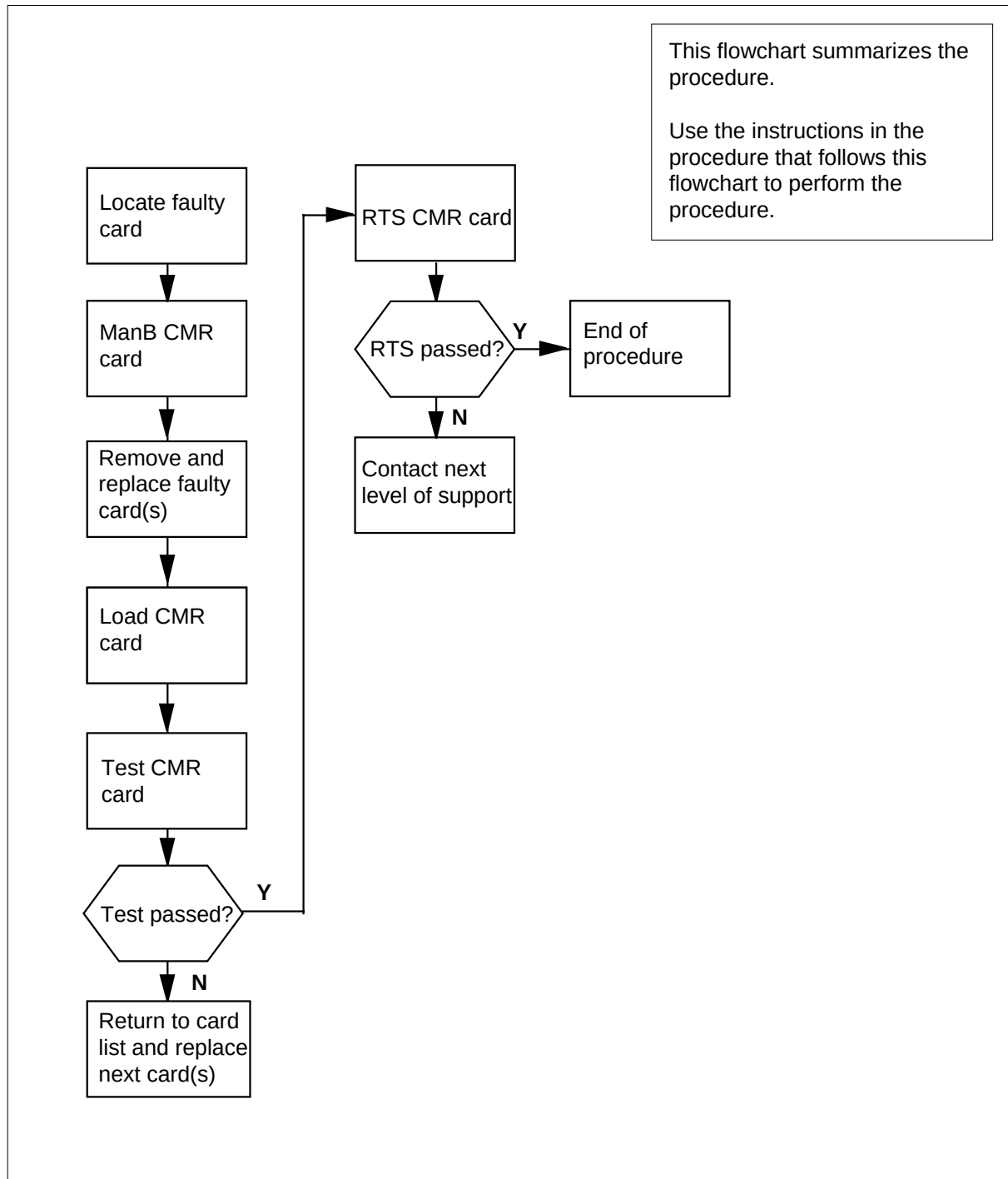
None

Action

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

NT6X78 in an RSC-S (PCM-30) Model A RCO2 (continued)

Summary of card replacement procedure for an NT6X78 card in RSC-S RCO2



NT6X78

in an RSC-S (PCM-30) Model A RCO2 (continued)

Replacing an NT6X78 card in RSC-S RCO2

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 RCO2, ensure that the unit in which you are replacing the card is *inactive* and that the mate unit is *active*.

Obtain an NT6X78 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 PM level to find out which RCO2 is ISTb by typing
>MAPCI;MTC;PM;DISP STATE ISTB RCO2
 and pressing the Enter key.
- 4 Access the ISTb RCO2 by typing
>POST RCO2 0-127 or 0-255
 and pressing the Enter key.
where
variable
 is 0-127 range with an NT40 and 0-255 with a DMS SuperNode
- 5 Busy the CMR card by typing
>bsy UNIT unit_no CMR
 and pressing the Enter key.
where
unit_no
 is the number of the unit containing the faulty CMR card

NT6X78 in an RSC-S (PCM-30) Model A RCO2 (continued)

At the RCE

6



WARNING

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 modular supervisory panel (MSP) of the RCO2. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

Take the following precautions when removing or inserting a card:

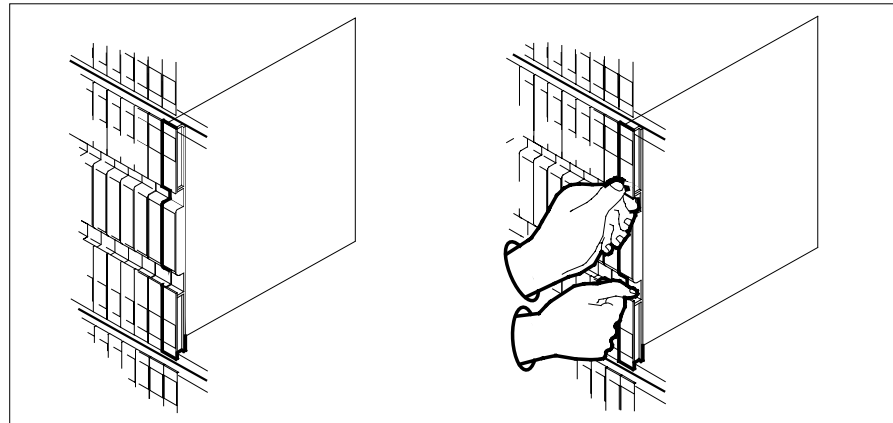
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

7

Remove the NT6X78 card as shown in the following figures.

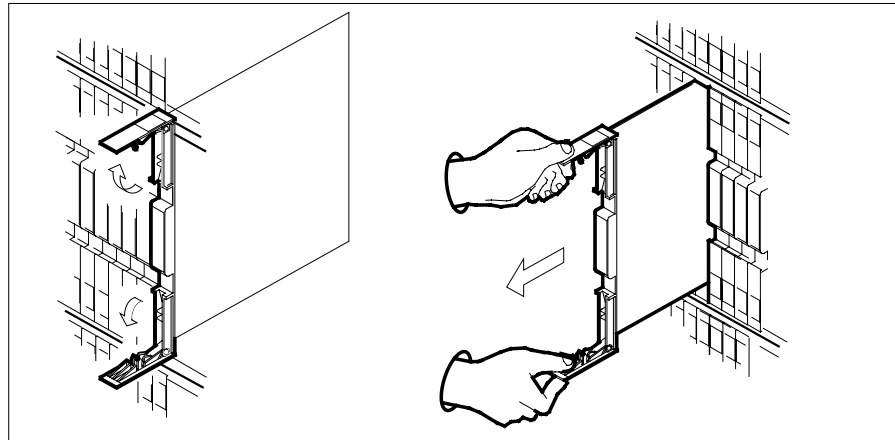
a Locate the card to be removed on the appropriate shelf.



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

NT6X78

in an RSC-S (PCM-30) Model A RCO2 (continued)

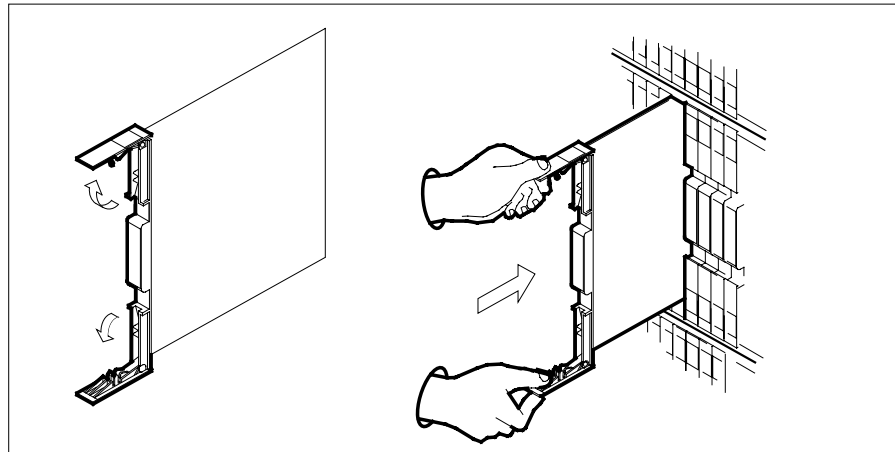


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

8 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

b Gently slide the card into the shelf.



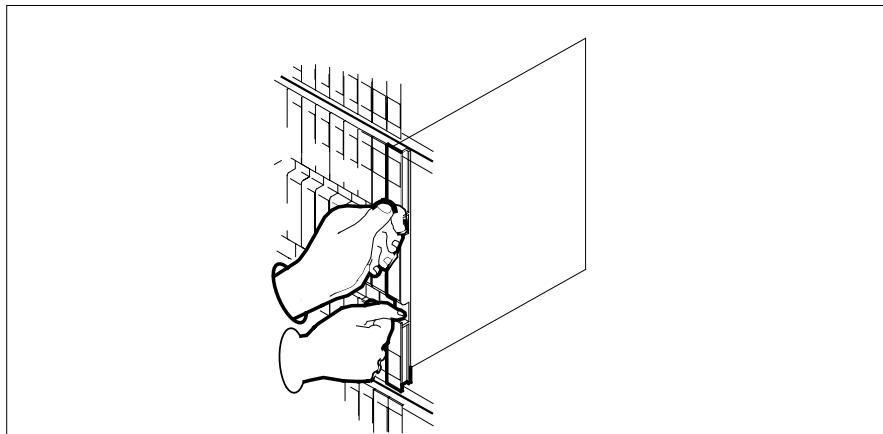
9 Seat and lock the card.

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

b Close the locking levers.

NT6X78

in an RSC-S (PCM-30) Model A RCO2 (continued)



At the MAP terminal

- 10** Load the CMR card by typing
>loadpm unit unit_no CMR
and pressing the Enter key.

where

unit_no

is the number of the unit containing the faulty CMR card

If LOADPM	Do
passed	step 11
failed	step 17

- 11** Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 16
other	step 12

- 12** Test the CMR card by typing
>TST UNIT unit_no CMR
and pressing the Enter key.
where

NT6X78

in an RSC-S (PCM-30) Model A RCO2 (end)

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

If TST	Do
passed	step 13
failed	step 17

- 13** Return the CMR card to service by typing

>RTS UNIT unit_no CMR

and pressing the Enter key.

where

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

If RTS	Do
passed	step 14
failed	step 17

- 14** Send any faulty cards for repair according to local procedure.
- 15** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 18.
- 16** Return to the procedure that directed you to this procedure. At 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.
- 17** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.
- 18** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X78 in an RSC-S (PCM-30) Model B RCO2

Application

Use this procedure to replace an NT6X78 card in a Remote Switching Center (RSC)-SONET Remote Switching Center Offshore (RCO) 2.

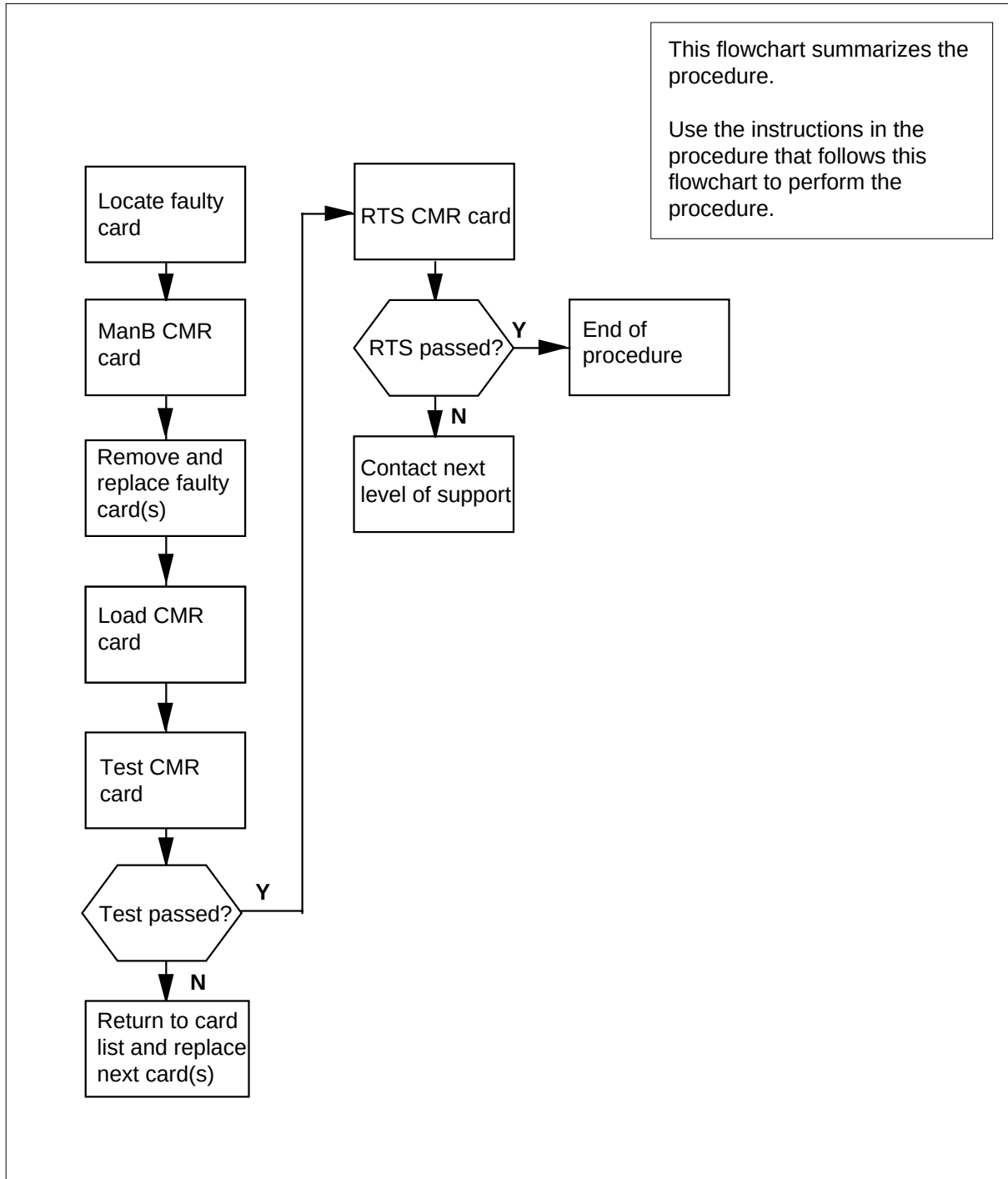
PEC	Suffixes	Name
NT6X78	AA, AB, BA	CLASS Modem Resource (CMR)

Common procedures

None

Action

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

NT6X78
in an RSC-S (PCM-30) Model B RCO2 (continued)**Summary of card replacement procedure for an NT6X78 card in RSC-S RCO2**

NT6X78 in an RSC-S (PCM-30) Model B RCO2 (continued)

Replacing an NT6X78 card in RSC-S RCO2

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 RCO2, ensure that the unit in which you are replacing the card is *inactive* and that the mate unit is *active*.

Obtain an NT6X78 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 PM level to find out which RCO2 is ISTb by typing
>MAPCI;MTC;PM;DISP STATE ISTB RCO2
and pressing the Enter key.
- 4 Access the ISTb RCO2 by typing
>POST RCO2 0-127 or 0-255
and pressing the Enter key.
where
variable
is 0-127 range with an NT40 and 0-255 with a DMS SuperNode
- 5 Busy the CMR card by typing
>bsy UNIT unit_no CMR
and pressing the Enter key.
where
unit_no
is the number of the unit containing the faulty CMR card

NT6X78 in an RSC-S (PCM-30) Model B RCO2 (continued)

At the RCE

6



WARNING

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 modular supervisory panel (MSP) of the RCO2. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

Take the following precautions when removing or inserting a card:

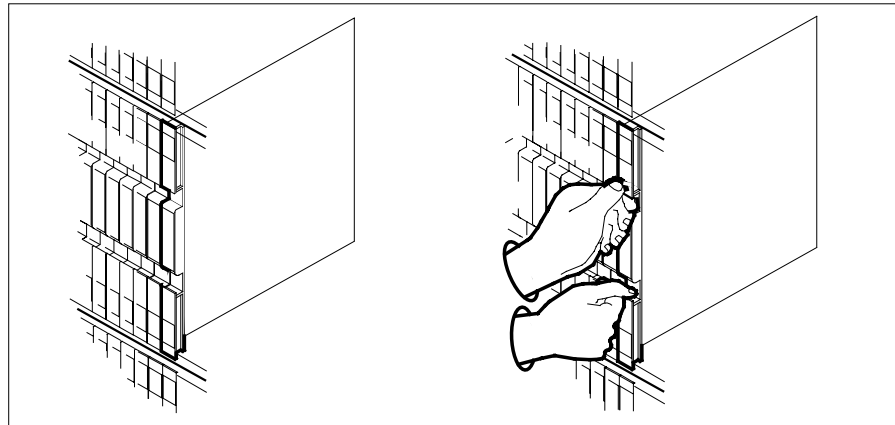
1. Do not apply direct pressure to the components.
2. Do not force the card into its slot.

Put on a wrist strap.

7

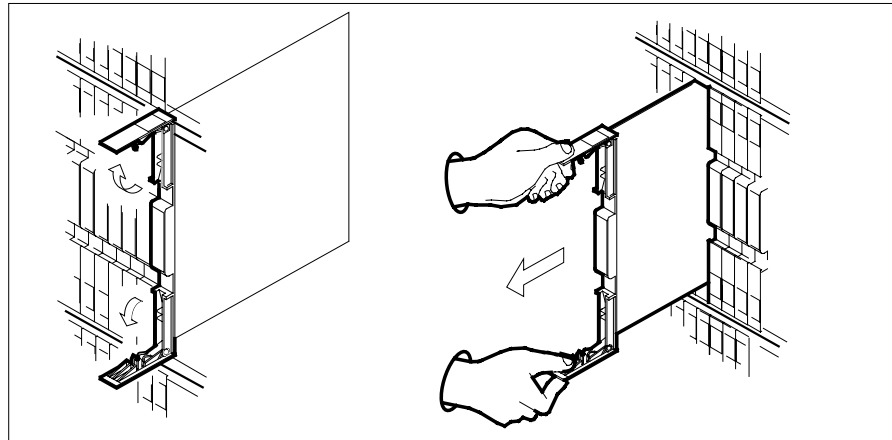
Remove the NT6X78 card as shown in the following figures.

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



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

NT6X78 in an RSC-S (PCM-30) Model B RCO2 (continued)

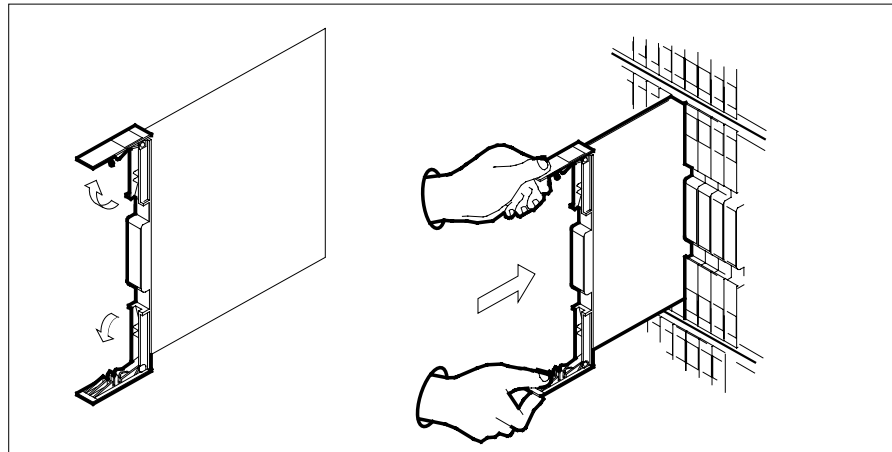


c Ensure the replacement card has the same PEC, including suffix, as the card you just removed.

8 Open the locking levers on the replacement card.

a Align the card with the slots in the shelf.

b Gently slide the card into the shelf.

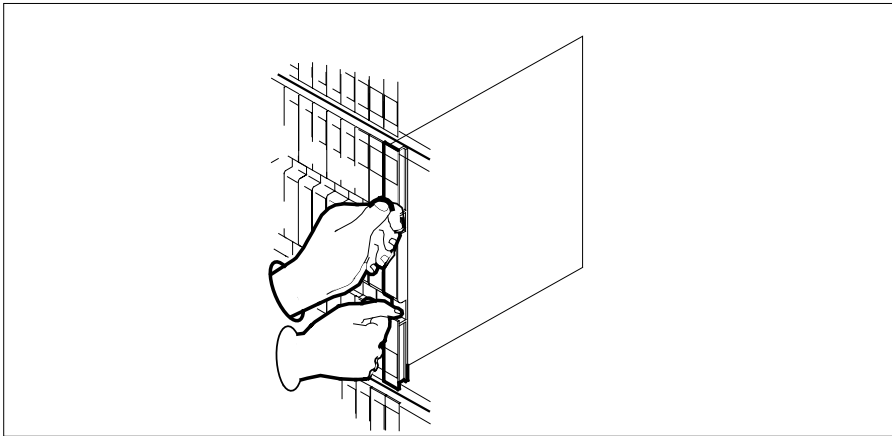


9 Seat and lock the card.

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

b Close the locking levers.

NT6X78
in an RSC-S (PCM-30) Model B RCO2 (continued)



At the MAP terminal

- 10** Load the CMR card by typing
>loadpm unit unit_no CMR
and pressing the Enter key.
where
 unit_no
 is the number of the unit containing the faulty CMR card

If LOADPM	Do
passed	step 11
failed	step 17

- 11** Use the following information to determine where to proceed.

If you entered this procedure from	Do
alarm clearing procedures	step 16
other	step 12

- 12** Test the CMR card by typing
>TST UNIT unit_no CMR
and pressing the Enter key.
where

NT6X78

in an RSC-S (PCM-30) Model B RCO2 (end)

unit_no

is the number of the unit containing the faulty CMR card

If TST

Do

passed

step 13

failed

step 17

-
- 13** Return the CMR card to service by typing

>RTS UNIT unit_no CMR

and pressing the Enter key.

where

unit_no

is the number of the unit containing the faulty CMR card

If RTS

Do

passed

step 14

failed

step 17

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

- 15** Record the date the card was replaced, the serial number of the card, and the symptoms that prompted replacement of the card. Go to step 18.

- 16** Return to the procedure that directed you to this procedure. At 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.

- 17** Obtain further assistance in replacing this card by contacting operating company maintenance personnel.

- 18** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X78
in an SMA**

Application

Use this procedure to replace an NT6X78 card in a Subscriber Module AccessNode (SMA).

PEC	Suffixes	Name
NT6X78	AB, BA	CLASS Modem Resource (CMR)

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card
- returning a card

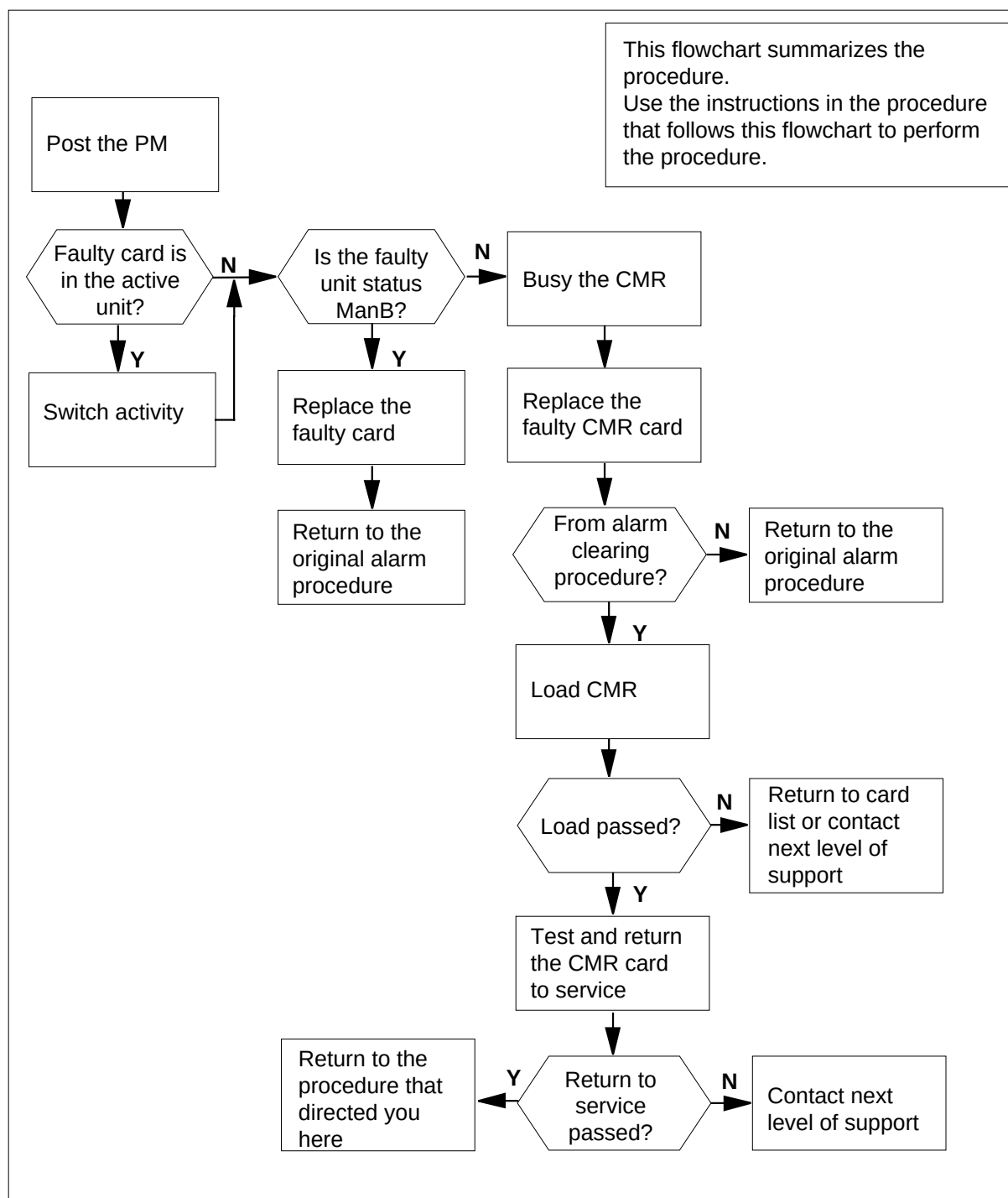
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X78 in an SMA (continued)

Summary of card replacement procedure for a NT6X78 card in a SMA



NT6X78 in an SMA (continued)

Replacing an NT6X78 card in an SMA

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."
- 4



CAUTION

Loss of service

Ensure you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the peripheral module (PM) level and post the SMA by typing

>MAPCI;MTC;PM;POST SMA sma_no

and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response:

NT6X78

in an SMA (continued)

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
 Unit0: Act InSv
 Unit1: Inact SysB

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 10

- 7 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
can continue at this time	step 8
cannot continue at this time	step 21

- 8 Confirm the system prompt by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failed Reason: XPM SWACT back	step 9
SWACT refused by swact controller	step 9

NT6X78 in an SMA (continued)

- 9** The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit.

Go to step 19.

- 10** Hang a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 11** Observe the MAP display and determine the state of the inactive unit.

If state is	Do
ManB	step 13
SysB, CBsy, ISTb, or InSv	step 12

- 12** Busy the CMR card in the inactive unit by typing

>BSY UNIT unit_no CMR

and pressing the Enter key.

where

unit_no

is the number of the inactive SMA unit (0 or 1)

At the equipment frame

- 13**



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Perform the common replacing a card procedure in this document.

- 14** Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 17
other	step 15

NT6X78

in an SMA (end)

At the MAP terminal

- 15** Load the CMR in the inactive SMA unit by typing

>LOADPM UNIT unit_no CC CMR

and pressing the Enter key.

where

unit_no
is the number of the busied SMA unit

If LOAD	Do
passed	step 16
failed	step 19

- 16** Test and return to service the CMR in the inactive SMA unit by typing

>RTS UNIT unit_no CMR

and pressing the Enter key.

where

unit_no
is the number of the SMA unit loaded in step 15

If RTS	Do
passed	step 17
failed	step 19

At the equipment frame

- 17** Remove the sign from the active SMA unit.
- 18** Go to the common returning a card procedure in this document.
Go to step 20.
- 19** For further assistance, contact the personnel responsible for the next level of support.
- 20** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 21** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

**NT6X78
in an SMA-MVI-20**

Application

Use this procedure to replace an NT6X78 card in a Subscriber Module AccessNode (SMA).

PEC	Suffixes	Name
NT6X78	AB, BA	CLASS Modem Resource (CMR)

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card

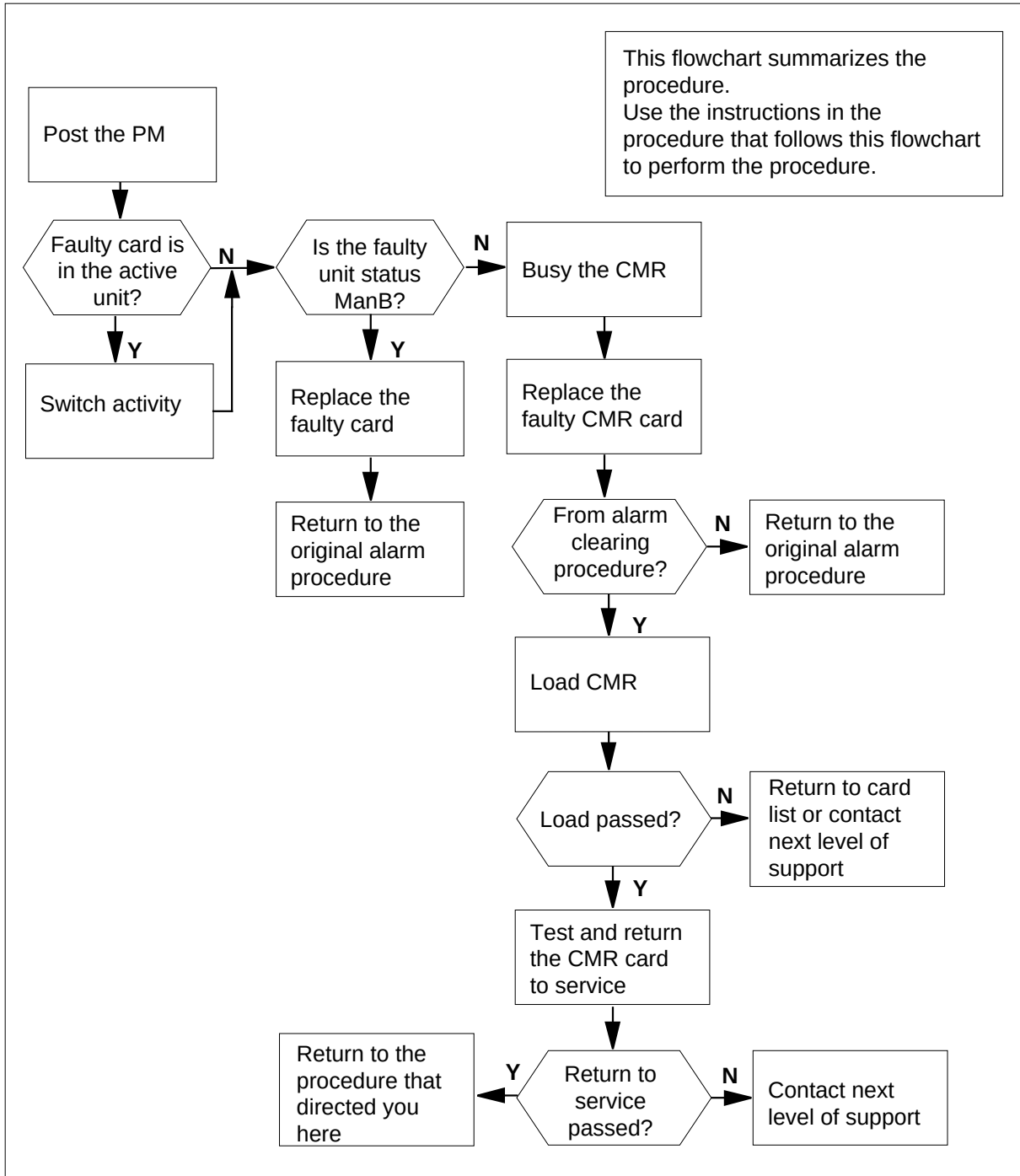
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X78 in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NT6X78 card in an SMA



NT6X78 in an SMA-MVI-20 (continued)

Replacing a NT6X78 card in an SMA

At the equipment

- 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 Ensure that you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."
- 4



CAUTION

Loss of service

Ensure you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the peripheral module (PM) level and post the SMA by typing

>MAPCI;MTC;PM;POST SMA sma_no

and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response:

NT6X78

in an SMA-MVI-20 (continued)

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0

Unit0: Act InSv

Unit1: Inact SysB

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 11

- 7 SWACT (switch activity) the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
cannot continue at this time	step 8
can continue at this time	step 9

- 8 Reject the prompt to SWACT the units by typing

>NO

and pressing the Enter key.

The system discontinues the SWACT.

- 9 Confirm the system prompt by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 11

NT6X78 in an SMA-MVI-20 (continued)

	If the message is	Do
	SWACT failed Reason: XPM Swactback	step 10
	SWACT refused by SWACT Controller	step 10
10	The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit. Go to step 22.	
11	Hang a sign on the active unit bearing the words: <i>Active unit—Do not touch</i> . This sign should not be attached by magnets or tape.	

At the MAP terminal

- 12 Observe the MAP display and determine the state of the inactive unit.

If state is	Do
ManB	step 14
SysB, CBsy, ISTb, or InSv	step 13

- 13 Busy the CMR card in the inactive unit by typing
>BSY UNIT unit_no CMR
 and pressing the Enter key.
where
 unit_no
 is the number of the inactive SMA unit (0 or 1)

At the equipment frame

14



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Perform the common replacing a card procedure in this document.

NT6X78

in an SMA-MVI-20 (continued)

- 15 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 19
other	step 16

At the MAP terminal

- 16 Load the CMR in the inactive SMA unit by typing
>LOADPM UNIT unit_no CC CMR
and pressing the Enter key.

where

unit_no
is the number of the busied SMA unit

If LOAD	Do
passed	step 17
failed	step 22

- 17 Test the CMR in the inactive SMA unit by typing
>TST UNIT unit_no CMR
and pressing the Enter key.

where

unit_no
is the number of the SMA unit loaded in step 16

If TST	Do
passed	step 18
failed	step 22

- 18 Return to service the CMR in the inactive SMA unit by typing
>RTS UNIT unit_no CMR
and pressing the Enter key.

where

unit_no
is the number of the SMA unit tested in step 17

If RTS	Do
passed	step 19

NT6X78
in an SMA-MVI-20 (end)

If RTS

failed

Dostep 22

At the equipment frame

- 19** Remove the sign from the active SMA unit.
- 20** Send any faulty cards for repair according to local procedure.
- 21** Note the following in the office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Go to step 23.
- 22** For further assistance, contact the personnel responsible for the next level of support.
- 23** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X78 in an SMA2

Application

Use this procedure to replace an NT6X78 card in a Subscriber Module AccessNode 2 (SMA2).

PEC	Suffixes	Name
NT6X78	AB, BA	CLASS Modem Resource (CMR)

Common procedures

The following procedures are referenced in this procedure:

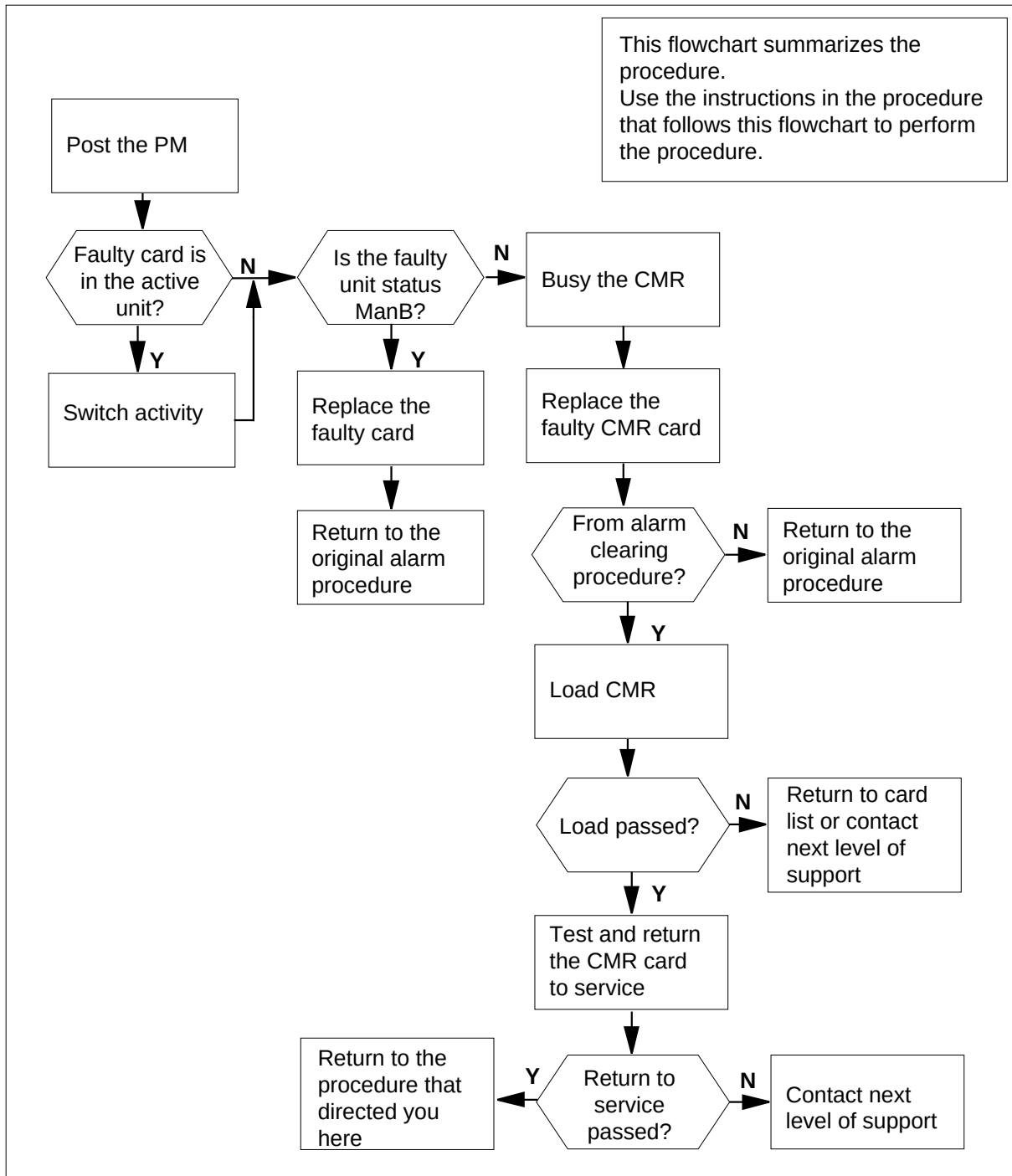
- “Removing and inserting cards in an SMA2”
- “Locating a faulty card in an SMA2”
- “Returning a card for repair or replacement”

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 SMA2 (continued)

Summary of card replacement procedure for an NT6X78 card in an SMA2



NT6X78 in an SMA2 (continued)

Replacing an NT6X78 card in an SMA2

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA2."
- 4



CAUTION

Loss of service

When replacing a card in the SMA2, ensure the unit in which you are replacing the card is *inactive* and the mate unit is *active*.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA2 by typing

>MAPCI;MTC;PM;POST SMA2 sma2_no

and pressing the Enter key.

where

sma2_no

is the number of the SMA2 being posted

Example of a MAP response:

NT6X78

in an SMA2 (continued)

SMA2	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA2	0	0	0	0	1	7

SMA2 0 ISTb Links_00S: CSide 0, PSide 0

Unit0: Act InSv

Unit1: Inact SysB

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 11

- 7 SWACT (switch activity) the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
cannot continue at this time	step 8
can continue at this time	step 9

- 8 Reject the prompt to SWACT of the units by typing

>NO

and pressing the Enter key.

The system discontinues the SWACT.

- 9 Confirm the system prompt by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 11

NT6X78**in an SMA2** (continued)

	If the message is	Do
	SWACT failed Reason: XPM SWACTback	Rea - step 10
	SWACT refused by SWACT Controller	step 10
10	The inactive unit could not establish two-way communication with the central control (CC) and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit. Go to step 21.	
At the frame or cabinet		
11	Hang a sign on the active unit bearing the words: <i>Active unit-Do not touch.</i> This sign should not be attached by magnets or tape.	
At the MAP terminal		
12	Observe the MAP display and determine the state of the inactive unit.	
	If state is	Do
	ManB	step 14
	SysB, CBsy, ISTb, or InSv	step 13
13	Busy the CMR card in the inactive unit by typing >BSY UNIT unit_no CMR and pressing the Enter key. <i>where</i> unit_no is the number of the inactive SMA2 unit (0 or 1)	

NT6X78 in an SMA2 (continued)

At the frame or cabinet

14

**WARNING****Static electricity damage**

Wear a strap connected to the wrist strap grounding modular supervisory panel (MSP) while handling cards. This strap protects the cards against damage caused by static electricity.

Perform the common replacing a card procedure in this document.

15 Use the following information to determine the next step.

If your were directed here from	Do
alarm clearing procedures	step 18
other	step 16

At the MAP terminal

16 Load the CMR in the inactive SMA2 unit by typing
>LOADPM UNIT unit_no CC CMR
 and pressing the Enter key.

where

unit_no

is the number of the busied SMA2 unit

If LOAD	Do
passed	step 17
failed	step 21

17 Test and return to service the CMR in the inactive SMA2 unit by typing
>RTS UNIT unit_no CMR
 and pressing the Enter key.

where

unit_no

is the number of the SMA2 unit loaded in step 16

If RTS	Do
passed	step 18

NT6X78
in an SMA2 (end)

If RTS

Do

failed

step 21

At the frame or cabinet

- 18** Remove the sign from the active SMA2 unit.
- 19** Send any faulty cards for repair according to local procedure.
- 20** Go to step 22.
- 21** For further assistance, contact the personnel responsible for the next level of support.
- 22** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X78
in an SMS**

Application

Use this procedure to replace an NT6X78 card in a Subscriber Module SLC-96 (SMS).

PEC	Suffixes	Name
NT6X78	AA, AB, BA	CLASS modem resource (CMR)

Common procedures

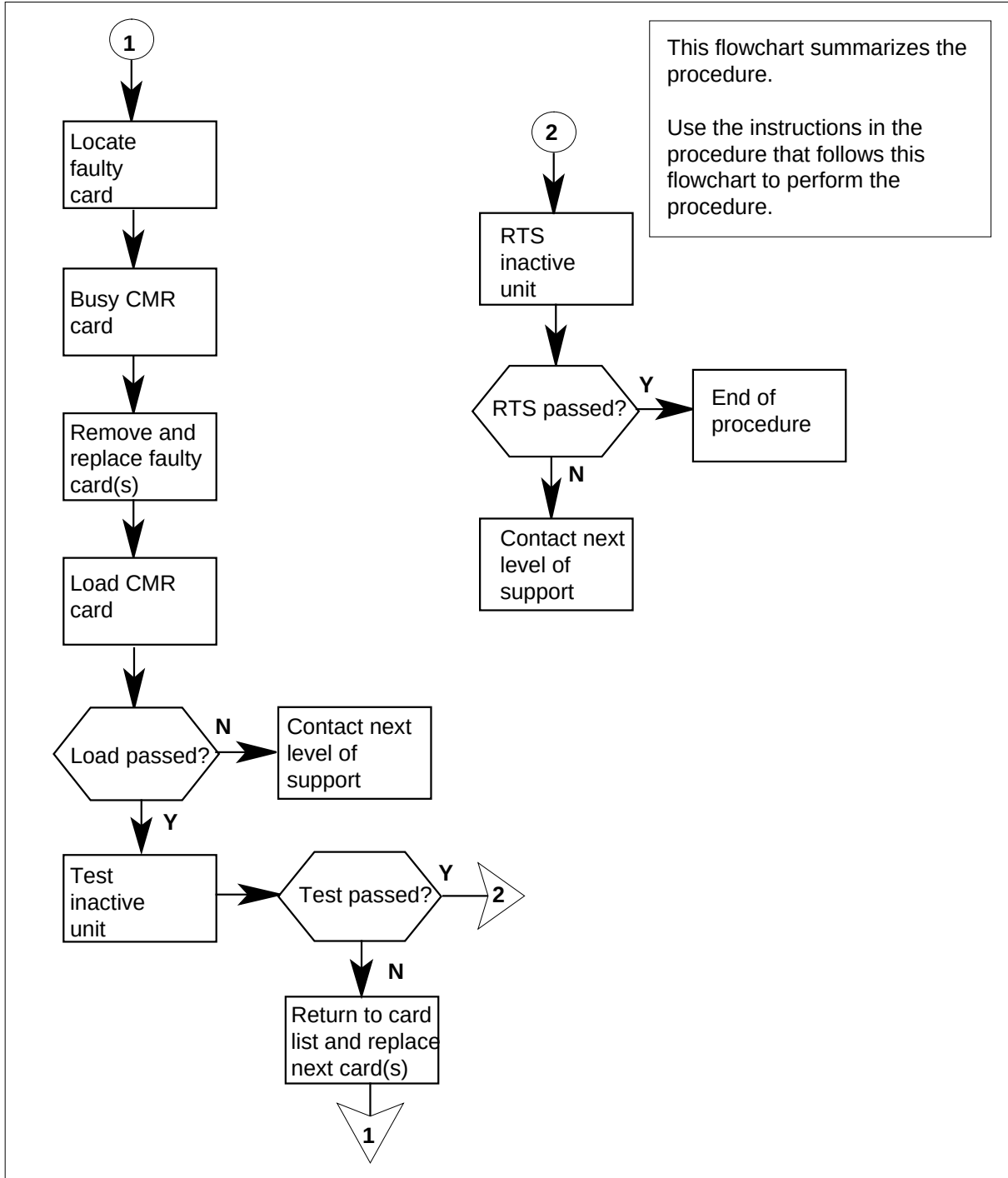
None

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.

NT6X78 in an SMS (continued)

Summary of Card replacement procedure for an NT6X78 card in an SMS



NT6X78 in an SMS (continued)

Replacing an NT6X78 card in an SMS

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 SMS, ensure the unit where you are replacing the card is inactive and the mate unit is active.

Obtain a replacement card. Verify 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 SMS is ISTb by typing

>MAPCI;MTC;PM;DISP STATE ISTB SMS

and pressing the Enter key.

Example of a MAP response

ISTb SMS: 1

- 4 Access the ISTb SMS by typing

>POST SMS sms_no

and pressing the Enter key.

where

sms_no

is 0-127 for NT40 and 0-255 for DMS SuperNode

Example of a MAP response

SMS 3	INSV	LINKS_00S	CSIDE 0	PSIDE 0
Unit0		Act	InSv	
Unit1		Inact	ISTb	

- 5 Busy the CMR card by typing

>bsy UNIT unit_no CMR

NT6X78 in an SMS (continued)

and pressing the Enter key.

where

unit_no

is the number of the unit containing the faulty CMR card

At the frame

6



WARNING

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 SMS. This protects the equipment against damage caused by static electricity.

Put on a wrist strap.

7



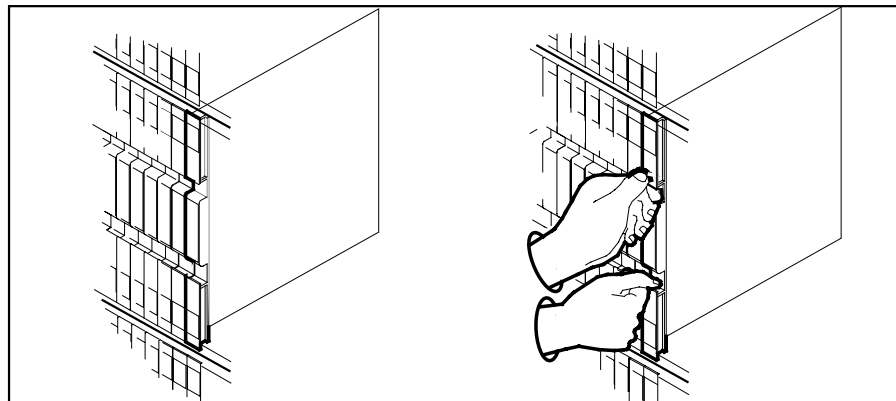
DANGER

Equipment damage

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

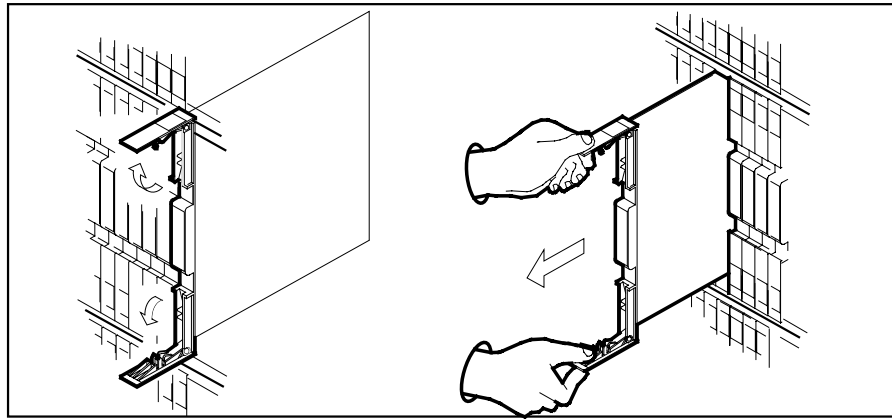
Remove the NT6X78 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.



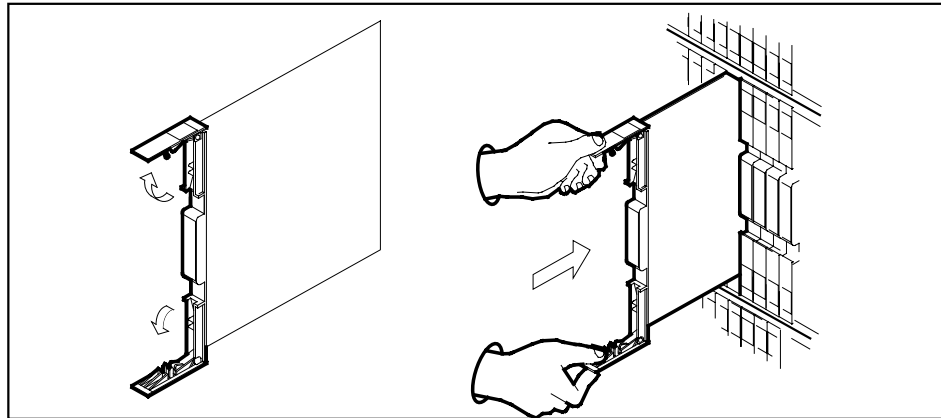
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

NT6X78
in an SMS (continued)



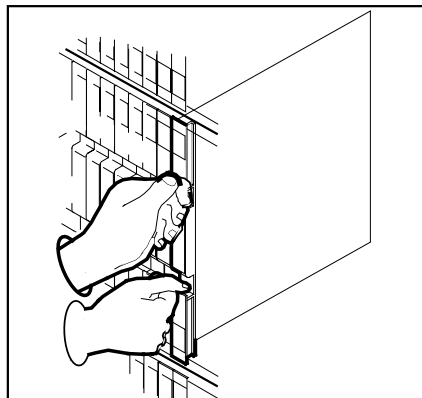
- c** Verify the replacement card has the same PEC, including suffix, as the card you just removed.

- 8** 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.



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

NT6X78 in an SMS (continued)



At the MAP terminal

- 10** Load the CMR card by typing
>loadpm unit unit_no CMR
and pressing the Enter key.

where

unit_no

is the number of the unit containing the faulty CMR card

If load	Do
passed	step 11
failed	step 14

- 11** Test the CMR card by typing
>TST UNIT unit_no CMR
and pressing the Enter key.

where

unit_no

is the number of the unit containing the faulty CMR card

If TST	Do
passed	step 12
failed	step 13

- 12** Return the CMR card to service by typing
>RTS UNIT unit_no CMR
and pressing the Enter key.

NT6X78
in an SMS (end)

where

unit_no

is the number of the unit containing the faulty CMR card

If RTS	Do
passed	step 16
failed	step 14

- 13** *Return to the Alarm Clearing Procedures that directed you to this procedure.*
At 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.

- 14** Obtain further assistance in replacing this card by contacting the personnel responsible for higher level of support.

At the frame

- 15** Remove the sign from the active SMS unit.

- 16** Send any faulty cards for repair according to local procedure.

- 17** Record the following items in office records according to local policy:

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

Go to step 18.

- 18** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X78 in an SMU

Application

Use this procedure to replace the following card in a Subscriber Carrier Module-100 Urban (SMU).

PEC	Suffixes	Name
NT6X78	AA, AB, BA	CLASS modem resource (CMR)

Common procedures

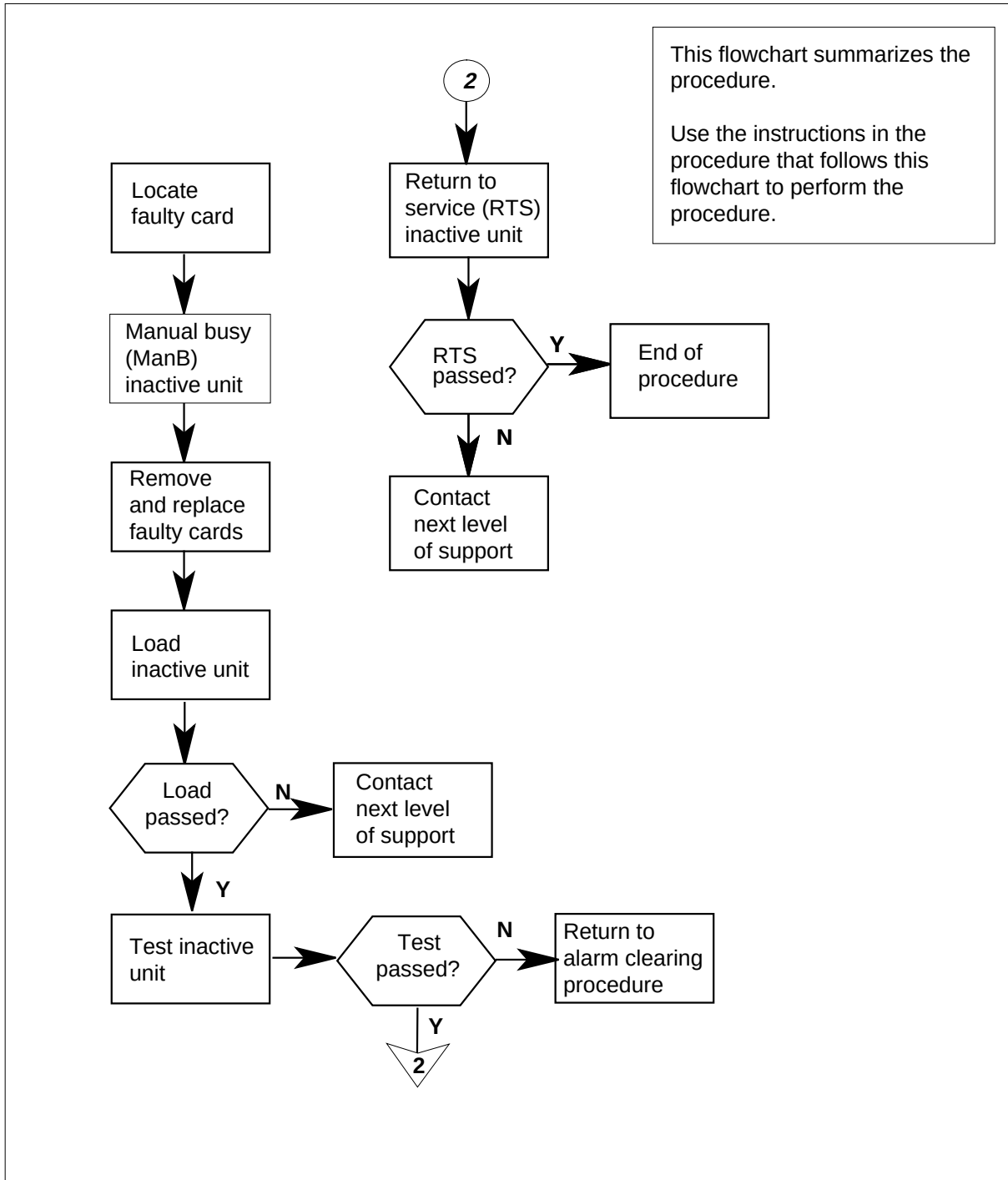
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X78 in an SMU (continued)

Summary of replacing an NT6X78 card in an SMU



NT6X78 in an SMU (continued)

Replacing an NT6X78 card in an SMU

At your current location:

- 1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure.
- 2



CAUTION

Loss of service

When replacing a card in the SMU, ensure that the unit where you are replacing the card is inactive and that the mate unit is active.

Get a replacement card. Verify 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 SMU is in-service trouble (ISTb) by typing

>MAPCI;MTC;PM;DISP STATE ISTB SMU

and pressing the Enter key.

Example of a MAP response:

ISTb SMU: 1

- 4 Access the ISTb SMU by typing

>POST SMU smu_no

and pressing the Enter key.

where

smu_no

is the number of the SMU to be posted

Example of a MAP response:

SMU	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMU	0	0	0	0	1	7

SMU 0 ISTb Links_00S: CSide 0, PSide 0
Unit0: Act ISTb
Unit1: Inact InSv

NT6X78 in an SMU (continued)

- 5 Busy the CMR card by typing
>BSY UNIT unit_no CMR
 and pressing the Enter key.
where
 unit_no
 is the number of the unit containing the faulty CMR card
- 6 Go to the common replacing a card procedure in this document, then return to step 7 of this procedure.
- 7 Use the following information to determine what step to go to next in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 11
other	step 8

At the MAP terminal:

- 8 Load the CMR card by typing
>LOADPM UNIT unit_no CC CMR
 and pressing the Enter key.
where
 unit_no
 is the number of the unit containing the CMR card busied in step 5

If LOADPM	Do
passed	step 9
failed	step 12

- 9 Test the CMR card by typing
>TST UNIT unit_no CMR
 and pressing the Enter key.
where
 unit_no
 is the number of the unit containing the CMR card loaded in step 8

If TST	Do
passed	step 10
failed	step 12

NT6X78

in an SMU (end)

- 10** Return the CMR card to service by typing
>RTS UNIT unit_no CMR
and pressing the Enter key.
where
unit_no
is the number of the unit containing the CMR card tested in step 9
- | If RTS | Do |
|--------|---------|
| passes | step 13 |
| fails | step 12 |
- 11** Return to the *Alarm Clearing Procedures*. At the point where a faulty card list is initiated, identify the next faulty card on the list. Go to the appropriate card replacement procedure for that card.
- 12** Contact personnel responsible for higher level support and get further help to replace this card.
- 13** Send any faulty cards for repair according to local procedure.
- 14** Note the following in the office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- 15** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

**NT6X80
in an SMA**

Application

Use this procedure to replace an NT6X80 card in an SMA.

PEC	Suffixes	Name
NT6X80	AB, BB	Pulse Code Modulation (PCM)/Addition

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card
- returning a card

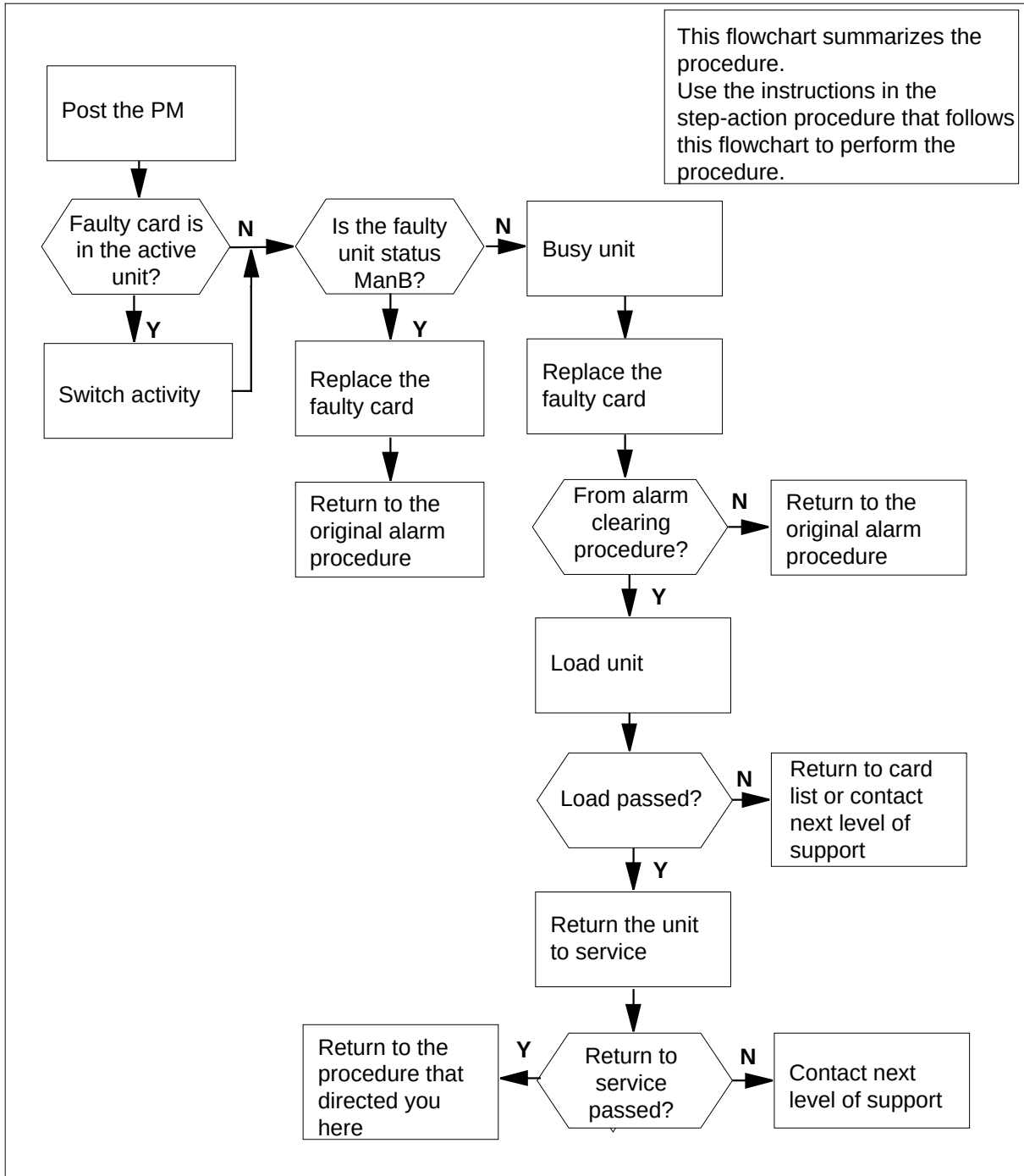
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X80 in an SMA (continued)

Summary of card replacement procedure for an NT6X80 card in an SMA



NT6X80 in an SMA (continued)

Replacing an NT6X80 in an SMA

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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."
- 4

**CAUTION****Loss of service**

Ensure that you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA by typing
>MAPCI;MTC;PM;POST SMA sma_no
and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response

NT6X80 in an SMA (continued)

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
 Unit0: Act InSv
 Unit1: Inact ISTb

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 10

- 7 Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
can continue at this time	step 8
cannot continue at this time	step 21

- 8 Confirm the system prompt by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 10
SWACT failed Reason: XPM SWACTback	step 9
SWACT refused by SWACT Controller	step 9

NT6X80 in an SMA (continued)

- 9 The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit.

Go to step 19.

At the equipment frame

- 10 Hang a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 11 Observe the MAP display and determine the state of the inactive unit.

If state is	Do
ManB	step 13
SysB, CBsy, ISTb, or InSv	step 12

- 12



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Busy the inactive PM unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the inactive SMA unit (0 or 1)

At the equipment frame

- 13 Perform the common replacing a card procedure in this document.
- 14 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 17
other	step 15

NT6X80 in an SMA (end)

At the MAP terminal

- 15** Load the inactive SMA unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the busied SMA unit

If load	Do

passed

step 16

failed

step 19

- 16** Return the inactive SMA unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the SMA unit loaded in step 15

If RTS	Do

passed

step 17

failed

step 19

At the equipment frame

- 17** Remove the sign from the active SMA unit.

- 18** Go to the common returning a card procedure in this document.

Go to step 20.

- 19** For further assistance, contact the personnel responsible for the next level of support.

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

- 21** For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

**NT6X80
in an SMA-MVI-20**

Application

Use this procedure to replace an NT6X80 card in an SMA.

PEC	Suffixes	Name
NT6X80	AB, BB	Pulse Code Modulation (PCM)/Addition

Common procedures

The following procedures are referenced in this procedure:

- “Locating a faulty card in an SMA”
- replacing a card

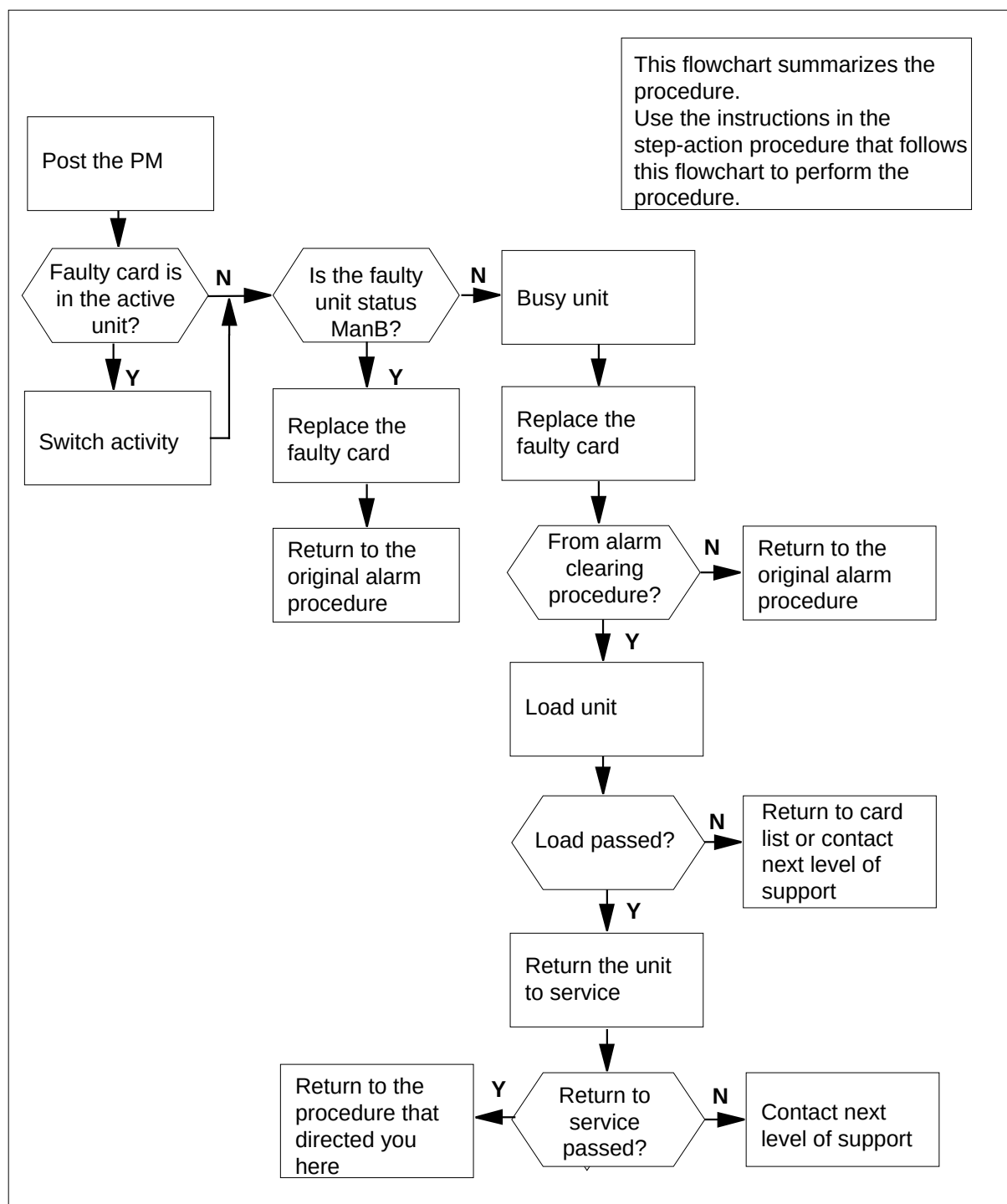
Do not go to the common procedures unless directed to do so in the step-action procedure.

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.

NT6X80 in an SMA-MVI-20 (continued)

Summary of card replacement procedure for an NT6X80 card in an SMA



NT6X80 in an SMA-MVI-20 (continued)

Replacing an NT6X80 in an SMA

At the equipment frame

- 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 Ensure you know the physical location of the faulty card.

If card location is	Do
known	step 4
unknown	step 3

- 3 Perform the procedure "Locating a faulty card in an SMA."
- 4



CAUTION

Loss of service

Ensure that you replace the card in the inactive unit and verify the mate unit is active.

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

At the MAP terminal

- 5 Ensure the current MAP display is at the PM level and post the SMA by typing
>MAPCI;MTC;PM;POST SMA sma_no
 and pressing the Enter key.

where

sma_no

is the number of the SMA being posted

Example of a MAP response

NT6X80

in an SMA-MVI-20 (continued)

SMA	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMA	0	0	0	0	1	7

SMA 0 ISTb Links_00S: CSide 0, PSide 0
 Unit0: Act InSv
 Unit1: Inact ISTb

- 6 Observe the MAP display and determine if the faulty card is in the active or the inactive unit.

If the faulty card is in the	Do
active unit	step 7
inactive unit	step 11

- 7 SWACT the units by typing

>SWACT

and pressing the Enter key.

A confirmation prompt for the SWACT command is displayed at the MAP terminal.

If SWACT	Do
cannot continue at this time	step 8
can continue at this time	step 9

- 8 Reject the prompt to SWACT the units by typing

>NO

and pressing the Enter key.

The system discontinues the SWACT.

- 9 Confirm the system prompt by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SWACT passed	step 11

NT6X80 in an SMA-MVI-20 (continued)

	If the message is	Do
	SWACT failed Rea- son: XPM SWACTback	step 10
	SWACT refused by SWACT Controller	step 10
10	The inactive unit could not establish two-way communication with CC and has switched activity back to the originally active unit. You must clear all faults on the inactive unit before attempting to clear the alarm condition on the active unit. Go to step 22.	

At the equipment frame

- 11** Hang a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached by magnets or tape.

At the MAP terminal

- 12** Observe the MAP display and determine the state of the inactive unit.

	If state is	Do
	ManB	step 14
	SysB, CBsy, ISTb, or InSv	step 13

13



WARNING

Static electricity damage

Before removing any cards, put on a wrist strap and connect it to the wrist strap grounding point on the frame supervisory panel (FSP). This protects the equipment against damage caused by static electricity.

Busy the inactive PM unit by typing

>BSY UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the inactive SMA unit (0 or 1)

NT6X80

in an SMA-MVI-20 (continued)

At the equipment frame

14 Perform the common replacing a card procedure in this document.

15 Use the following information to determine the next step.

If you were directed here from	Do
alarm clearing procedures	step 19
other	step 16

At the MAP terminal

16 Load the inactive SMA unit by typing

>LOADPM UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the busied SMA unit

If load	Do
passed	step 17
failed	step 22

17 Test the inactive SMA unit by typing

>TST UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the SMA unit loaded in step 16

If test	Do
passed	step 18
failed	step 22

18 Return the inactive SMA unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

NT6X80
in an SMA-MVI-20 (end)

unit_no

is the number of the SMA unit tested in step 17

If RTS	Do
passed	step 19
failed	step 22

At the equipment frame

- 19** Remove the sign from the active SMA unit.
- 20** Send any faulty cards for repair according to local procedure.
- 21** Note the following in the office records:
- date the card was replaced
 - serial number of the card
 - symptoms that prompted replacement of the card
- Go to step 23.
- 22** For further assistance, contact the personnel responsible for the next level of support.
- 23** You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.

NT6X80 in an SMS

Application

Use this procedure to replace an NT6X80 card in an SMS.

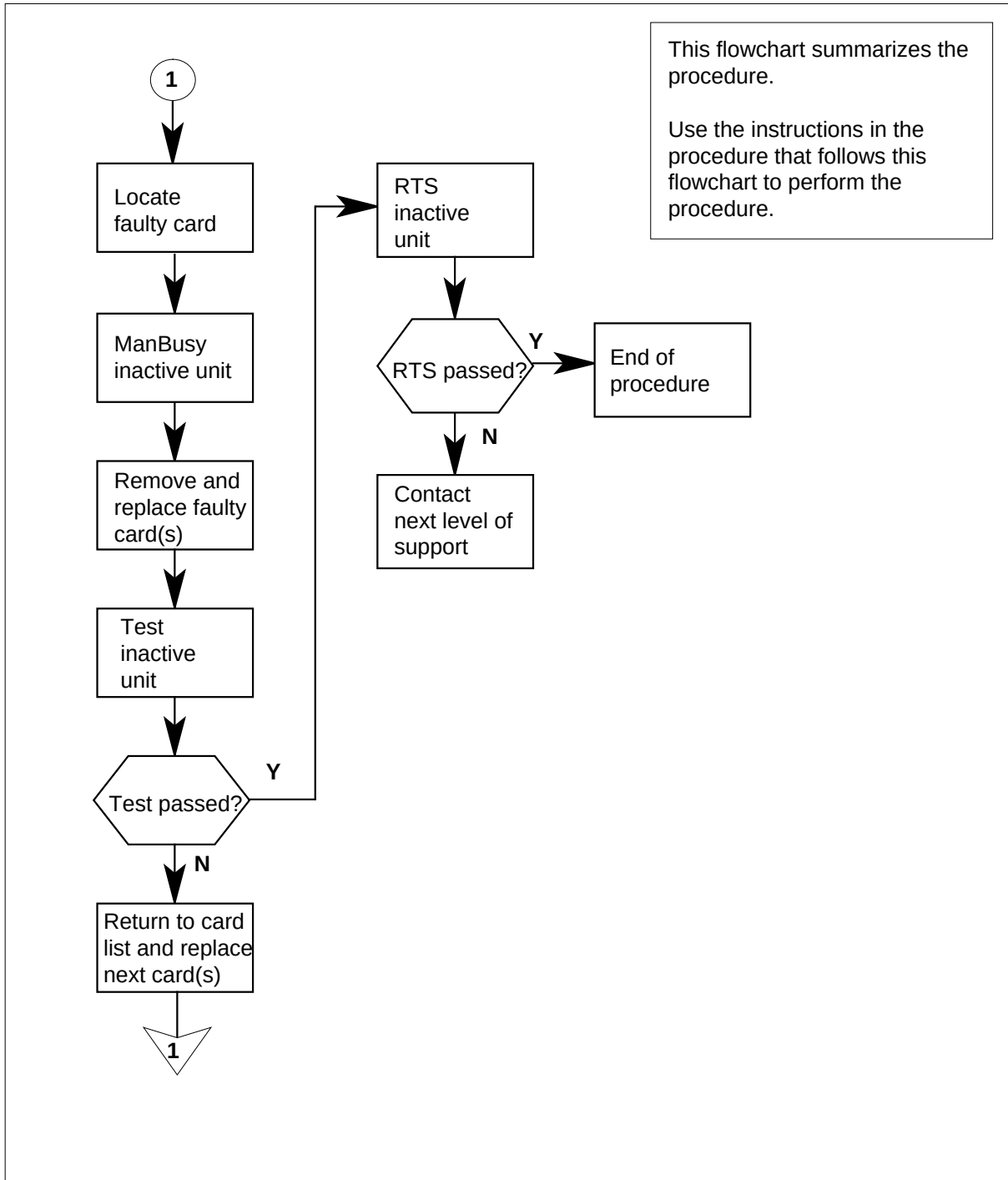
PEC	Suffixes	Name
NT6X80	AA, BB	SCM pad/ring

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.

NT6X80
in an SMS (continued)**Summary of card replacement procedure for an NT6X80 card in an SMS**

NT6X80 in an SMS (continued)

Replacing an NT6X80 card in an SMS

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 SMS, ensure the unit where you are replacing the card is inactive and the mate unit is active.

Obtain a replacement card. Verify 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 PM level of the MAP display by typing
>MAPCI;MTC;PM;POST SMS sms_no
and pressing the Enter key.
where
sms_no
 is 0-127 for NT40 and 0-255 for DMS SuperNode

Example of a MAP response

```
SMS  3  INSV    LINKS_00S    CSIDE 0    PSIDE 0
      Unit0      Act      InSv
      Unit1      Inact     ISTb
```

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing
>SWACT

NT6X80 in an SMS (continued)

and pressing the Enter key.

The system determines the type of SWACT it can perform and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
can continue at this time	step 6
cannot continue at this time	step 23

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failedReason: XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 Return to the "SMS alarm clearing procedures" section in this document to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 6 of this procedure.

At the frame

- 8 Put a sign on the active unit bearing the words: *Active unit—Do not touch*. This sign should not be attached with magnets or tape.

At the MAP terminal

- 9 Busy the inactive PM unit by typing

>bsy unit unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS unit

NT6X80 in an SMS (continued)

At the frame

10



WARNING

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 SMS. This protects the equipment against damage by static electricity.

Put on a wrist strap.

11



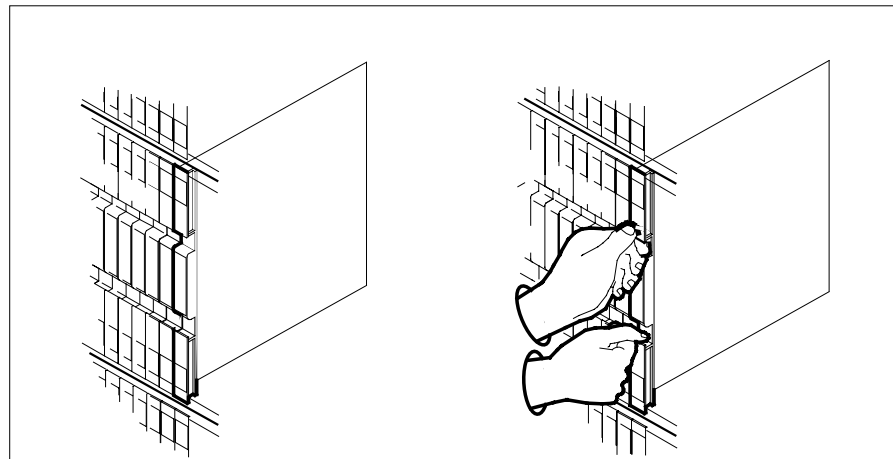
DANGER

Equipment damage

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

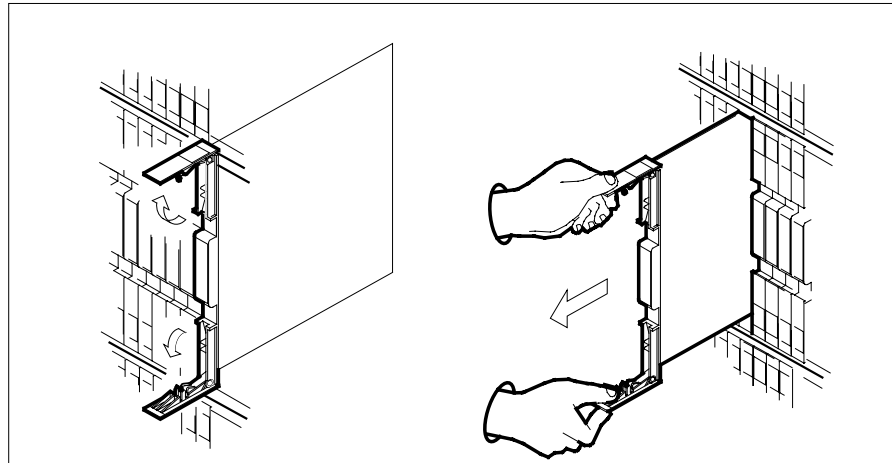
Remove the NT6X80 card as shown in the following figures.

- a** Locate the card to be removed on the appropriate shelf.



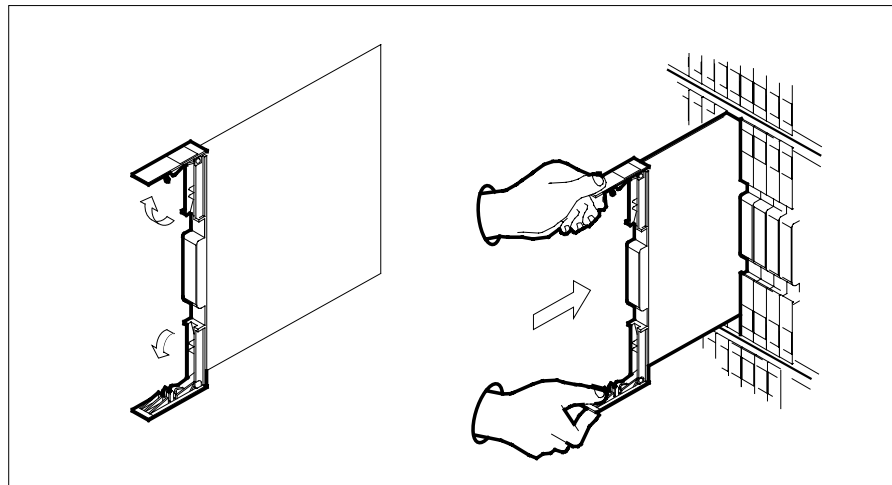
- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

NT6X80 in an SMS (continued)



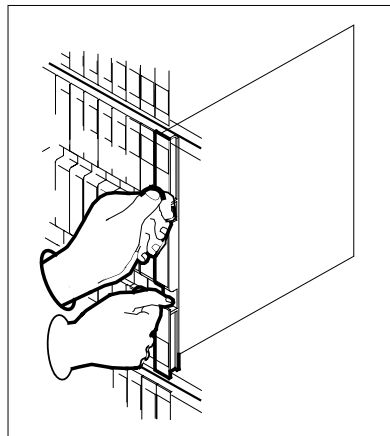
- c Verify the replacement card has the same PEC, including suffix, as the card you just removed.

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

NT6X80 in an SMS (continued)



- 14 Use the following information to determine where to go next in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 17
other	step 15

- 15 Test the inactive unit by typing
>TST UNIT unit_no
and pressing the Enter key.
where
 unit_no
 is the number of the faulty SMS unit

If TST	Do
passed	step 16
failed	step 17

- 16 Return the inactive SMS unit to service by typing
>RTS UNIT unit_no
and pressing the Enter key.
where

NT6X80 in an SMS (end)

unit_no
is the number of the faulty SMS unit

If RTS	Do
passed	step 19
failed	step 18

17 Return to the maintenance procedure that directed you to this procedure. At 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.

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

At the frame

19 Remove the sign from the active SMS unit.

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

21 Record the following items in office records according to local policy:

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

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

23 For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

NT6X80 in an SMS-R

Application

Use this procedure to replace the following card in an SMS-R.

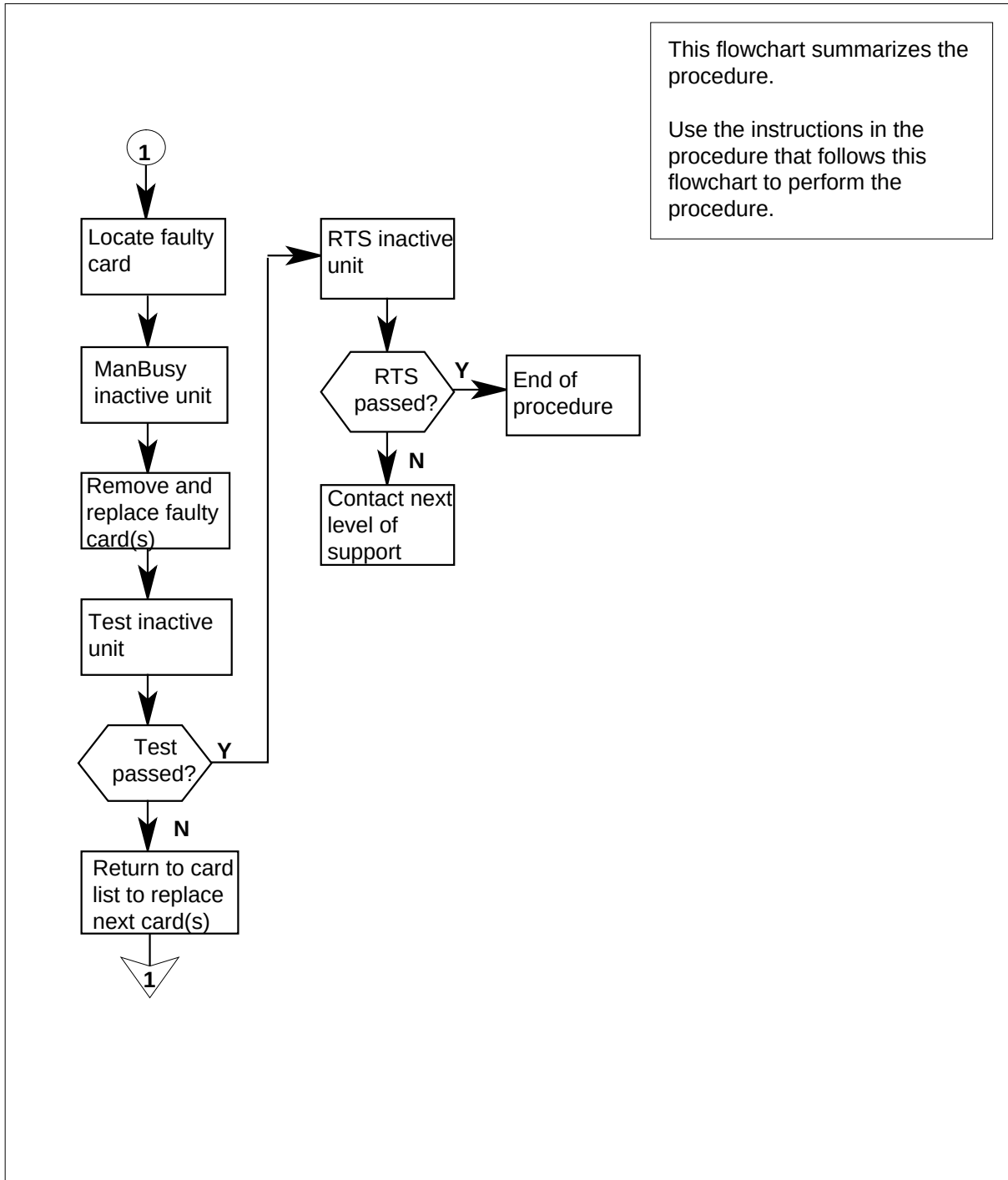
PEC	Suffixes	Name
NT6X80	BA, BB	SCM Pad/Ring

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.

NT6X80
in an SMS-R (continued)**Summary of card replacement procedure for an NT6X80 card in an SMS-R**

NT6X80 in an SMS-R (continued)

Replacing an NT6X80 card in an SMS-R

At your Current Location

- 1 Proceed only if you were either 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 SMS-R, ensure that the unit in which you are replacing the card is inactive and that the mate unit is active.

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

At the MAP display

- 3 Access the PM level of the MAP display by typing
>MAPCI;MTC;PM;POST SMSR smsr_no
and pressing the Enter key.

where

smsr_no

is the number of the SMSR to be posted

Example of a MAP response

SMSR 3	INSV	LINKS_00S	CSIDE 0	PSIDE 0
Unit0	Act	InSv		
Unit1	InAct	ISTb		

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 8

- 5 Switch the activity of the units by typing
>SWACT

NT6X80 in an SMS-R (continued)

and pressing the Enter key.

The system determines the type of SWACT it can perform and displays a confirmation prompt for the selected SWACT.

If SWACT	Do
can continue at this time	step 6
cannot continue at this time	step 23

- 6 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SWACT audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 8
SwAct failed	step 7
SwAct failed. Reason: XPM SwActback	step 7
SwAct refused by SwAct controller	step 7

- 7 Return to the alarm clearing procedure to clear the alarm condition on the inactive unit. When the alarm is cleared, return to step 1 of this procedure.

At the frame

- 8 Put a sign on the active unit with the words: *"Active unit—Do not touch."*

At the MAP display

- 9 Busy the inactive PM unit by typing

>bsy unit unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS-R unit

NT6X80 in an SMS-R (continued)

At the frame

10



WARNING

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 SMS-R. This protects the equipment against damage caused by static electricity.



DANGER

Equipment damage

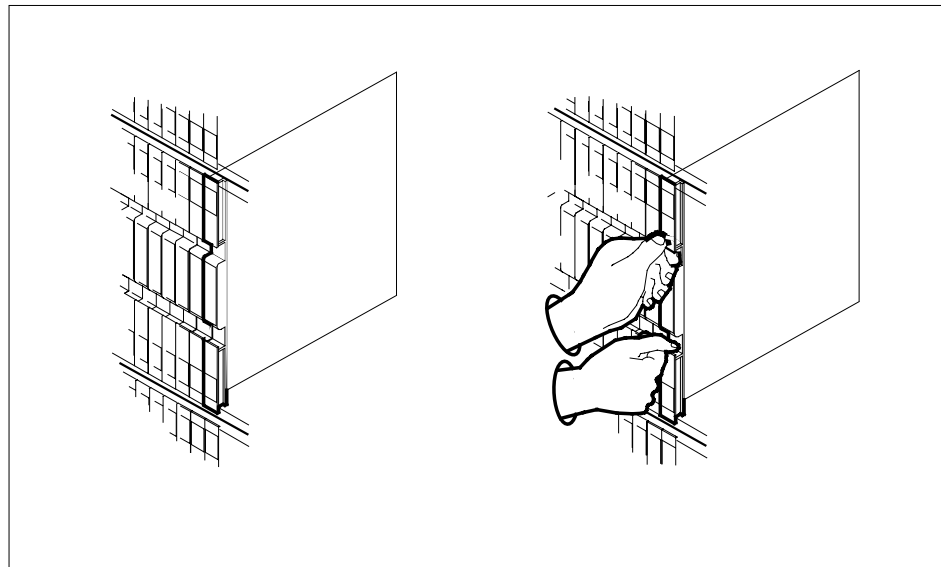
Take the following precautions when removing or inserting a card:

1. Do not apply direct pressure to the components.
2. Do not force the cards into the slots.

Put on a wrist strap.

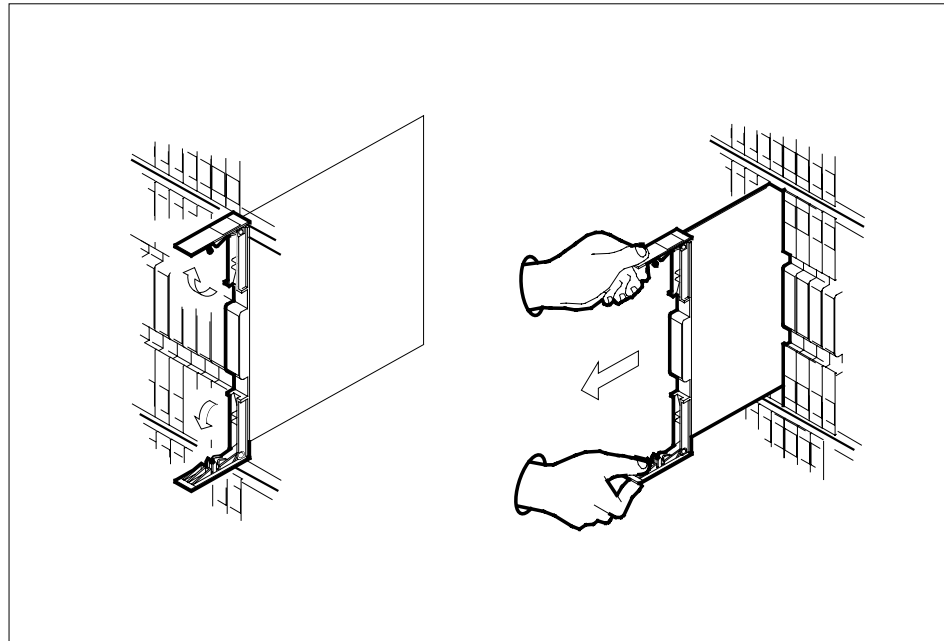
11 Remove the NT6X80 card as shown in the following figures.

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



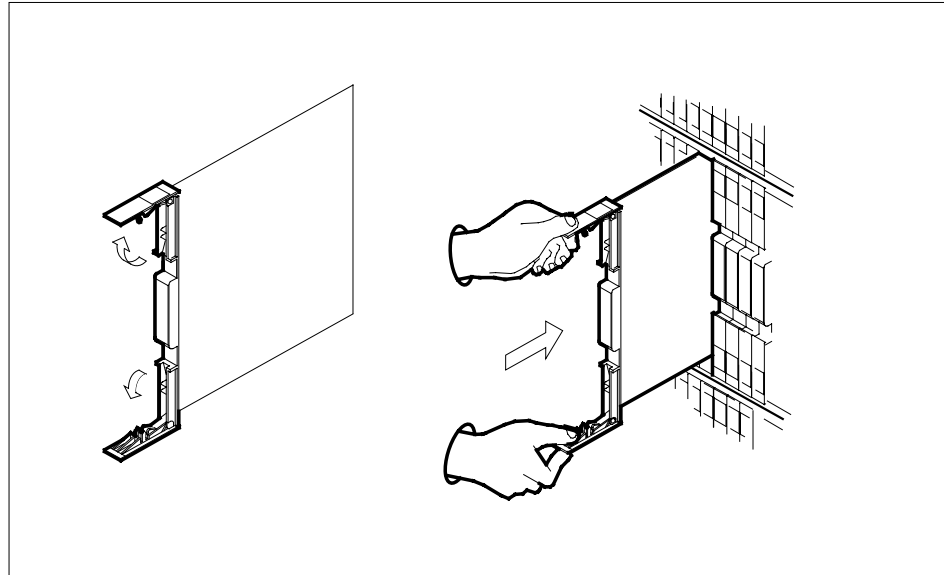
NT6X80
in an SMS-R (continued)

- b** Open the locking levers on the card to be replaced and gently pull the card toward you until it clears the shelf.

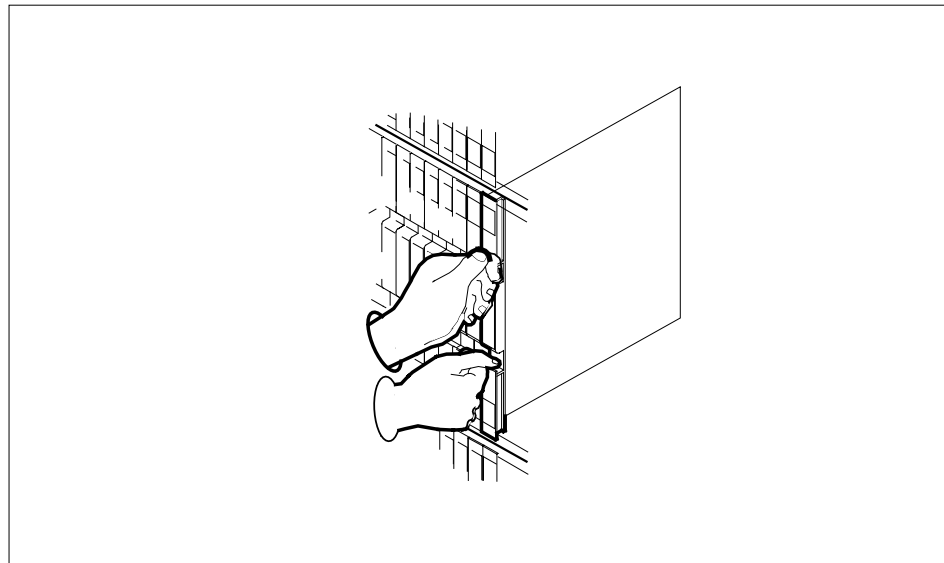


- c** Verify that the replacement card has the same PEC, including suffix, as the card you just removed.
- 12** Open the locking levers on the replacement card.
- a** Align the card with the slots in the shelf and gently slide the card into the shelf.

NT6X80 in an SMS-R (continued)



- 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.



NT6X80 in an SMS-R (continued)

- 14** Use the following information to determine the next step in this procedure.

If you entered this procedure from	Do
alarm clearing procedures	step 17
other	step 15

- 15** Test the inactive unit by typing

>TST UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS-R unit

If TST	Do
passes	step 16
fails	step 17

- 16** Return the inactive SMS-R unit to service by typing

>RTS UNIT unit_no

and pressing the Enter key.

where

unit_no

is the number of the faulty SMS-R unit

If RTS	Do
passes	step 19
fails	step 18

- 17** Return to *Alarm Clearing Procedures* section of this manual or to the procedure that directed you to this procedure. At 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.

- 18** Obtain further assistance in replacing this card by contacting personnel responsible for a higher level of support.

At the frame

- 19** Remove the sign from the active SMS-R unit.

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

NT6X80 in an SMS-R (end)

- 21 Note the following in office records according to local policy:
 - the date the card was replaced
 - the serial number of the card
 - the symptoms that prompted replacement of the card
- 22 You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.
- 23 For further assistance with switch of activity, contact the personnel responsible for the next level of support.

Note: If the system recommends using the SWACT command with the FORCE option, consult office personnel to determine if use of the FORCE option is advisable.

**NT6X80
in an SMU**

Application

Use this procedure to replace the card in an SMU.

PEC	Suffix	Name
NT6X80	BB	Ring/pad

Common procedures

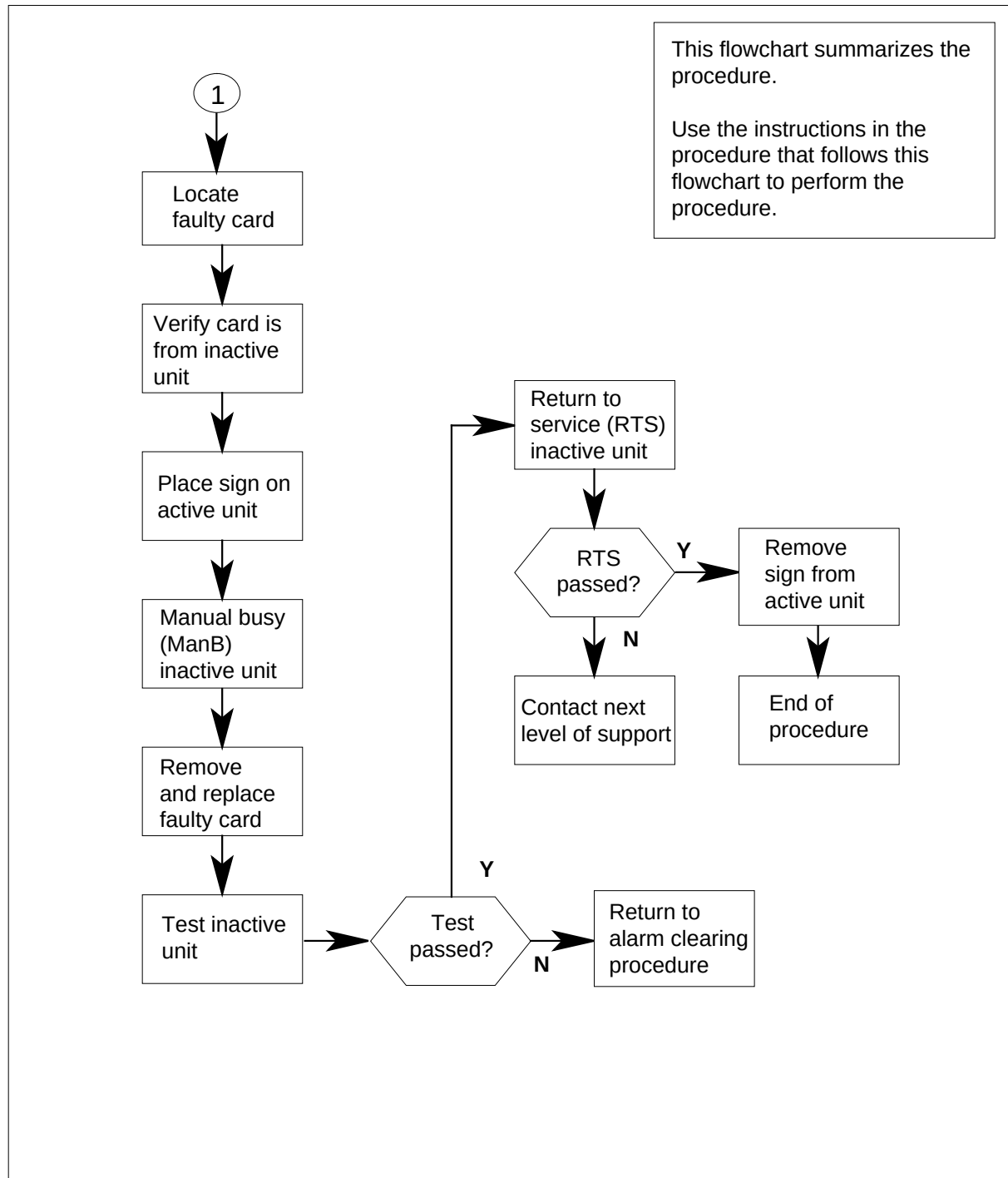
The common replacing a card procedure is referenced in this procedure.

Action

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

NT6X80 in an SMU (continued)

Summary of card replacement procedure for an NT6X80 card in an SMU



NT6X80
in an SMU (continued)

Replacing an NT6X80 card in an SMU

At your current location:

- 1 Proceed only if you have been directed to this card replacement procedure from a step in a maintenance procedure.
- 2



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

Get a replacement card. Verify 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 PM level of the MAP terminal by typing
>MAPCI;MTC;PM;POST SMU smu_no
and pressing the Enter key.
where

smu_no
is the number of the SMU to be posted

Example of a MAP response:

SMU	SysB	ManB	Offl	CBsy	ISTb	InSv
PM	3	0	1	0	2	13
SMU	0	0	0	0	1	7

SMU 0 ISTb Links_00S: CSide 0, PSide 0
Unit0: Act ISTb
Unit1: Inact InSv

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

If faulty card is on	Do
active unit	step 5
inactive unit	step 9

NT6X80 in an SMU (continued)

5



CAUTION

Service disruption: calls may be dropped!

If you are prompted to confirm a cold switch of activity (SwAct), perform this activity only during a period of low traffic. All calls being handled by this PM, including data calls, will be dropped.

Switch the activity of the units by typing

>SWACT

and pressing the Enter key.

The system determines the type of SwAct it can perform, which is either a warm SwAct or a cold SwAct. The system displays a confirmation prompt for the selected SwAct.

If SwAct	Do
cannot continue at this time	step 6
can continue at this time	step 7

6 Do not switch activity of the units. Reject the switch by typing

>NO

and pressing the Enter key.

The system discontinues the SwAct.

Return to step 5 during a period of low traffic.

7 Switch the activity of the unit by typing

>YES

and pressing the Enter key.

The system runs a pre-SwAct audit to determine the ability of the inactive unit to accept activity reliably.

Note: A maintenance flag appears when maintenance tasks are in progress. Wait until the flag disappears before proceeding with the next maintenance action.

If the message is	Do
SwAct passed	step 9
SwAct failed	step 8

NT6X80 in an SMU (continued)

	If the message is	Do
	SwAct failed Reason: XPM SwActback	step 8
	SwAct refused by SwAct controller	step 8
8	Return to the <i>Alarm Clearing Procedures</i> to clear the alarm condition on the inactive unit. After the alarm is cleared, return to step 1 of this procedure.	
At the SME frame:		
9	Put a sign on the active unit bearing the following words: "Active unit—Do not touch."	
At the MAP terminal:		
10	Busy the inactive PM unit by typing >bsy UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the faulty SMU unit	
11	Go to the common replacing a card procedure in this document, then return to step 12 of this procedure.	
12	Use the following information to determine what step to go to next in this procedure.	
	If you entered this procedure from	Do
	alarm clearing procedures	step 15
	other	step 13
13	Test the inactive unit by typing >TST UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the SMU unit busied in step 10	
	If TST	Do
	passed	step 14

NT6X80 in an SMU (end)

	If TST	Do
	failed	step 16
14	Return the inactive SMU unit to service by typing >RTS UNIT unit_no and pressing the Enter key. <i>where</i> unit_no is the number of the SMU unit tested in step 13	
	If RTS	Do
	passed	step 18
	failed	step 16
15	Return to the <i>Alarm Clearing Procedures</i> . At the point where a faulty card list is initiated, identify the next faulty card on the list. Go to the appropriate card replacement procedure for that card.	
16	Contact personnel responsible for higher level support and get further help to replace this card.	
17	Remove the sign from the active SMU unit.	
18	Send any faulty cards for repair according to local procedure.	
19	Note the following in the office records:	
	• date the card was replaced • serial number of the card • symptoms that prompted replacement of the card	
20	You have successfully completed this procedure. Return to the maintenance procedure that directed you to this card replacement procedure and continue as directed.	

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Product Documentation - Dept. 3423
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Publication number: 297-8021-547
Product release: LET0015 and up
Document release: Standard 14.02
Date: May 2001
Printed in the United States of America

